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Roadworthiness package

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)

{SEC(2025) 119 final} - {SWD(2025) 96 final} - {SWD(2025) 97 final} -
{SWD(2025) 98 final} - {SWD(2025) 99 final}

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE PROPOSAL

• Reasons for and objectives of the proposal

This explanatory memorandum accompanies the proposal for the revision of two Directives:

- (1) Directive 2014/45/EU of the European Parliament and of the Council on periodic roadworthiness tests for motor vehicles and their trailers¹;
- (2) Directive 2014/47/EU of the European Parliament and of the Council on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union².

Road transport plays a vital role in connecting businesses and consumers across the EU, facilitating trade and supporting economic growth and employment. However, it is also a source of certain problems, such as road crashes and air pollution.

Road crashes are one of the most devastating consequences of road transport, with significant costs to society. The main causes of road crashes are speeding, driving under the influence of alcohol or drugs, distracted driving, and various driver errors (such as misjudging a situation or driving while tired). Other causes include the poor state or design of infrastructure (such as slippery surfaces, inadequate markings and poor maintenance) and vehicle defects. Due to EU type-approval rules and a well-developed system of technical inspections during a vehicle's lifetime, vehicle defects are the cause of only a small percentage of road crashes in the EU. However, this also means that avoidable crashes caused by vehicle defects still occur. The Safe System approach requires action on all these fronts, recognising that the different parts of the entire system – including users, vehicles, infrastructure and emergency response – work together as a whole³.

Air pollutant emissions from road transport are the principal source of nitrogen oxides (NO_x), responsible for 35.5% of emissions in 2021, and account for a significant share of particulate matter (PM) emissions (8.1% of PM_{2.5} and 9.5% of PM₁₀ emissions)⁴. In particular in cities, these percentages are expected to be even higher and lead to high exposure to these pollutants from road transport. It was estimated that in 2018 up to 70 000 premature deaths in the EU were attributed to road transport emissions⁵. To reduce these emissions, revised rules on ambient air quality and cleaner air for Europe were set out in Directive (EU) 2024/2881⁶. The Directive aims to put the

¹ Directive 2014/45/EU of the European Parliament and of the Council of 3 April 2014 on periodic roadworthiness tests for motor vehicles and their trailers and repealing Directive 2009/40/EC (OJ L 127 29.4.2014, p. 51, ELI: <http://data.europa.eu/eli/dir/2014/45/2023-05-20>).

² Directive 2014/47/EU of the European Parliament and of the Council of 3 April 2014 on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union and repealing Directive 2000/30/EC, (OJ L 127 29.4.2014, p. 134, ELI: <http://data.europa.eu/eli/dir/2014/47/2022-09-27>).

³ European Commission (2020), Directorate-General for Mobility and Transport, Next steps towards 'Vision Zero' – EU road safety policy framework 2021-2030, Publications Office, 2020, <https://data.europa.eu/doi/10.2832/391271>.

⁴ [National air pollutant emissions data viewer 2005-2022 | European Environment Agency's home page](https://www.eea.europa.eu/publications/national-emission-reduction-commitments-directive-2024), EEA (2024), Air Pollution in Europe; 2024 reporting status, <https://www.eea.europa.eu/publications/national-emission-reduction-commitments-directive-2024>.

⁵ SWD(2022) 359 Impact assessment accompanying the Euro 7 proposal: https://single-market-economy.ec.europa.eu/publications/euro-7-standard-proposal_en

⁶ Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (OJ L, 2024/2881, 20.11.2024, <http://data.europa.eu/eli/dir/2024/2881/oj>).

EU on a path to achieve zero pollution for air by 2050 at the latest while aligning air quality standards more closely with the World Health Organization's guidelines, which require tougher measures to reduce emissions at their source.

This initiative builds on the 2014 roadworthiness package (RWP), which is composed of the following three directives.

- **Directive 2014/45/EU on periodic roadworthiness tests** requires that road transport vehicles are periodically tested to ensure compliance with a set of minimum requirements. It applies to all cars, vans, trucks, buses, heavy trailers, faster tractors, and since January 2022, larger two- and three-wheel vehicles and quadricycles.
- **Directive 2014/47/EU on technical roadside inspections** complements Directive 2014/45/EU by requiring Member States to carry out roadside inspections of heavy passenger and freight vehicles and their trailers.
- **Directive 2014/46/EU⁷ on the registration documents for vehicles** provides for the electronic recording of the data of all vehicles registered in every Member State and harmonised procedures for suspending a vehicle's registration.

The 2014 RWP complements the safety and environmental requirements that vehicles must meet to be able to circulate on EU roads, i.e. the respective EU type-approval regulations⁸ for motor vehicles. These regulations also set out the market surveillance requirements for motor vehicles. However, the focus of the RWP is different. Whereas market surveillance provisions aim to ensure that vehicles continue to meet their type-approval requirements when placed on the market and for a limited period⁹ after that and focus on the manufacturer's responsibilities, the RWP focuses on ensuring that minimum standards are maintained by owners throughout a vehicle's lifetime. In addition, while market surveillance requires testing a limited number of vehicles per model, periodical technical inspections (PTIs) apply to almost all registered vehicles. Therefore, the RWP complements the market surveillance legislation in ensuring road safety and vehicles' environmental performance during their lifetime.

Along with the 2014 RWP and the adoption of other related EU legislation since, there have been improvements in vehicle technology, including active safety and intelligent driver assistance systems in new vehicles. However, despite this progress, unsafe vehicles still circulate on EU roads, contributing to crashes, either as the main cause or as a contributing factor. Some unsafe vehicles are identified at PTIs or roadside inspections (RSIs), i.e. vehicles with major or dangerous deficiencies. Others may not be detected either because PTIs or RSIs cannot detect them or because they are not subject to testing. These situations include vehicles with tampered safety features and vehicles with cargo that has been improperly secured.

Another problem is the insufficient checks on vehicle air pollutant and noise emissions. Some of the tests used in today's PTIs are no longer sensitive enough to detect emission failures of modern vehicles, and the current testing procedures are not fit to meet the EU policy goals for air pollution and noise. The measurement of NO_x emissions or particle number (PN) values for new cars is still not covered by the current RWP, and there are currently no EU rules on testing whether vehicles have tampered or defective NO_x aftertreatment systems or of particulate filters. Given these

⁷ Directive 2014/46/EU of the European Parliament and of the Council of 3 April 2014 amending Council Directive 1999/37/EC on the registration documents for vehicles (OJ L 127, 29.4.2014, p. 129, ELI: <http://data.europa.eu/eli/dir/2014/46/oj>).

⁸ See e.g. <https://eur-lex.europa.eu/EN/legal-content/summary/eu-approval-and-market-surveillance-measures-for-motor-vehicles-and-their-trailers.html>.

⁹ Currently 5 years and 100 000 km, to be extended under Regulation (EU) 2024/1257 (Euro 7)

shortcomings, the RWP's contribution to reducing the number of high-emitting vehicles has become less effective.

Moreover, Directives 2014/45/EU and 2014/47/EU are not effective in helping enforce rules on EU cross-border traffic and the trade in vehicles.

Although these Directives were slightly amended through delegated acts¹⁰ to align them with updated vehicle categories in type-approval legislation¹¹ and to introduce testing eCall¹² in PTIs, the main rules have remained the same since 2014. The Sustainable and Smart Mobility Strategy¹³ called for adjustments to the roadworthiness legislative framework to ensure a vehicle's lifetime compliance with emission and safety standards, thereby contributing to the EU road safety policy framework 2021-2030¹⁴ and supporting the European Green Deal's objectives.

This initiative aims to further improve road safety in the EU, contributing to sustainable mobility and facilitating the free movement of people and goods in the EU. The objectives to unlock the full potential of the RWP, in particular Directives 2014/45/EU and 2014/47/EU, are described below.

- (1) **Ensure the consistency, objectivity and quality of roadworthiness testing of today and tomorrow's vehicles.** In particular, testing electric vehicles (EVs) and electronic safety, including advanced driver assistance systems (ADAS), must be ensured before most new vehicles equipped with such systems are due for their first PTI. To tackle existing emission tests' inability to identify high-emitting vehicles, newly developed test methods need to be incorporated into PTIs and RSIs.
- (2) **Significantly reduce tampering and improve the detection of defective vehicles** with faulty or tampered safety and emission control systems, as well as tampered odometers. This can be achieved by: (i) improving emission testing (air pollution and noise); (ii) providing better tools to detect modifications to safety features, especially vehicle software; and (iii) making inspections more frequent and more targeted. Today, some defective vehicles are not tested often enough or at all, which allows such deficiencies to go undetected.
- (3) **Improve electronic storage and the exchange of relevant vehicle identification and status data** to address the problem of insufficient data availability and facilitate mutual recognition by enforcement authorities. More accurate status data (such as mileage) and an efficient and effective exchange of information among Member States will also help identify vehicles with tampered odometers.

¹⁰ Commission Delegated Directive (EU) 2021/1717 of 9 July 2021 amending Directive 2014/45/EU of the European Parliament and of the Council as regards the updating of certain vehicle category designations and the addition of eCall to the list of test items, methods, reasons for failure and assessment of deficiencies in Annex I and Annex III to that Directive (OJ L 342, 27.9.2021, p. 48, ELI: http://data.europa.eu/eli/dir_del/2021/1717/oj) and Commission Delegated Directive (EU) 2021/1716 of 29 June 2021 amending Directive 2014/47/EU of the European Parliament and of the Council as regards modifications to the vehicle category designations stemming from amendments to the type-approval legislation (OJ L 342, 27/09/2021, p. 45 ELI: http://data.europa.eu/eli/dir_del/2021/1716/oj).

¹¹ Regulations (EU) No 168/2013, (EU) No 167/2013 and (EU) No 2018/858 of the European Parliament and of the Council.

¹² 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>).

¹³ COM(2020) 789 final, [EUR-Lex - 52020DC0789 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/lex-52020DC0789-EN-EUR-Lex(europa.eu)).

¹⁴ http://eur-lex.europa.eu/resource.html?uri=cellar%3A0e8b694e-59b5-11e8-ab41-01aa75ed71a1.0003.02/DOC_2&format=PDF.

- **Consistency with existing policy provisions in the policy area**

The proposed revision of the RWP, in particular Directives 2014/45/EU and 2014/47/EU, is consistent with the objectives set in the **EU road safety policy framework**¹⁵ and will contribute to achieving the objective of reducing fatalities and serious injuries by 50% by 2030. The proposed revision will also ensure alignment with the 2023 road safety package, i.e. the proposals to amend the **Directive on driving licences** and the **Directive on facilitating cross-border exchange of information on road-safety-related traffic offences**¹⁶. This proposal sets out the rules on vehicle registration documents, the possible future digitalisation of documents, and the exchange of vehicle-related information among Member States for enforcement.

The revision is also consistent with the EU's clean air policy objectives, including those of the **Ambient Air Quality Directives**¹⁷ and the **National Emission Reduction Commitments Directive**¹⁸, which require Member States to take measures to reduce air pollutants in the atmosphere in line with the Zero Pollution Action Plan goals¹⁹.

To a large extent, roadworthiness testing relies on the **Type-Approval Regulations**²⁰. The proposal is aligned with the safety and environmental requirements set out in those rules, and it includes measures that aim to ensure that minimum standards are maintained by owners throughout the lifetime of the vehicle. It is consistent with the **General Safety Regulation**²¹ and its predecessors, as well as with the Euro emission standards, and will ensure that any new equipment introduced that complies with these regulations will work as expected and, as a result, deliver the expected benefits. The proposal ensures alignment between PTI and RSI testing and the type-approval process, including the use of electronic technical inspections (ePTIs). The use of remote sensing in RSIs of all vehicles is particularly relevant for market surveillance as it allows for screening a large part of the vehicle fleet. This gives valuable insights into recurrent issues with specific technologies/solutions used as part of emission control systems, vehicle models, model years etc. There are also expected synergies with the

¹⁵ SWD(2019) 283 final, <https://transport.ec.europa.eu/system/files/2021-10/SWD2190283.pdf>.

¹⁶ COM(2023) 127 and COM(2023) 126 final, https://transport.ec.europa.eu/news-events/news/european-commission-proposes-updated-requirements-driving-licences-and-better-cross-border-2023-03-01_en.

¹⁷ Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast), (OJ L, 2024/2881, 20.11.2024, ELI: <http://data.europa.eu/eli/dir/2024/2881/oj>).

¹⁸ Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC, (OJ L 344, 17.12.2016, p. 1. ELI: <http://data.europa.eu/eli/dir/2016/2284/oj>).

¹⁹ https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en

²⁰ For example, Regulation (EU) 2018/858 for most passenger and freight vehicles and their trailers, Regulation (EU) 167/2013 for tractors, and Regulation (EU) 168/2013 for two- and three-wheel vehicles and quadricycles.

²¹ Regulation (EU) 2019/2144 of the European Parliament and of the Council of 27 November 2019 on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009 of the European Parliament and of the Council and Commission Regulations (EC) No 631/2009, (EU) No 406/2010, (EU) No 672/2010, (EU) No 1003/2010, (EU) No 1005/2010, (EU) No 1008/2010, (EU) No 1009/2010, (EU) No 19/2011, (EU) No 109/2011, (EU) No 458/2011, (EU) No 65/2012, (EU) No 130/2012, (EU) No 347/2012, (EU) No 351/2012, (EU) No 1230/2012 and (EU) 2015/166, (OJ L 325, 16.12.2019, p. 1, ELI: <http://data.europa.eu/eli/reg/2019/2144/oj>).

new **Euro 7 Regulation**²², including the use of on-board monitoring features to help assess NO_x emissions during PTIs and RSIs.

- **Consistency with other Union policies**

The revision of the RWP, in particular Directives 2014/45/EU and 2014/47/EU, is consistent with the **Single Digital Gateway Regulation**²³ by facilitating online access to vehicle-related information, the relevant administrative procedures, and assistance and problem-solving services. It also contributes to the objectives of the **EU's data strategy**²⁴ for the development of European data spaces for public administrations that can support the enforcement of legislation, including road safety and environmental legislation. Rules on the protection of personal data also apply to exchanging information on vehicle registration certificates and roadworthiness certificates, as well as related vehicle registration data, in particular Regulation (EU) 2016/679 (General Data Protection Regulation)²⁵.

The Commission is also currently working on an initiative for fair and non-discriminatory **access to in-vehicle data**, which is crucial for technical inspection centres to be able to carry out their daily tasks. That initiative will complement the **Data Act**²⁶ with guidance, possibly followed by a legislative proposal, on access to vehicle data, functions and resources²⁷, which are essential for providing data-dependent services in the automotive sector. It will standardise the relevant datasets and ensure effective, non-discriminatory and secure access for aftermarket and mobility services. A range of automotive service providers, including vehicle repair and inspection companies and authorities have called for an ambitious Commission proposal to ensure a level playing field and unhindered access to the relevant in-vehicle data²⁸. The revision of Directive 2014/45/EU (and its implementing act on the technical information necessary for roadworthiness testing²⁹) will set out specific provisions facilitating access to the data required for technical inspections.

²² Regulation (EU) 2024/1257 of the European Parliament and of the Council of 24 April 2024 on type-approval of motor vehicles and engines and of systems, components and separate technical units intended for such vehicles, with respect to their emissions and battery durability (Euro 7), (OJ L, 2024/1257, 8.5.2024, ELI: <http://data.europa.eu/eli/reg/2024/1257/oj>).

²³ Regulation (EU) 2018/1724 of the European Parliament and of the Council of 2 October 2018 establishing a single digital gateway to provide access to information, to procedures and to assistance and problem-solving services and amending Regulation (EU) No 1024/2012 (OJ L 295, 21.11.2018, p. 1, ELI: <http://data.europa.eu/eli/reg/2018/1724/oj>).

²⁴ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A European strategy for data (COM/2020/66 final).

²⁵ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (OJ L 119, 4.5.2016, p. 1, ELI: <http://data.europa.eu/eli/reg/2016/679/oj>).

²⁶ Regulation (EU) 2023/2854 of the European Parliament and of the Council of 13 December 2023 on harmonised rules on fair access to and use of data and amending Regulation (EU) 2017/2394 and Directive (EU) 2020/1828 (OJ L, 2023/2854, 22.12.2023, ELI: <http://data.europa.eu/eli/reg/2023/2854/oj>).

²⁷ https://transport.ec.europa.eu/document/download/89b3143e-09b6-4ae6-a826-932b90ed0816_en?filename=Communication%20-%20Action%20Plan.pdf.

²⁸ See, for example, open letter from CITA: <https://citainsp.org/wp-content/uploads/2023/03/L2023-006-Data-Act.pdf>.

²⁹ https://eur-lex.europa.eu/eli/reg_impl/2019/621/oj.

Lastly, the **EU Decision on the Digital Decade Policy Programme 2030**³⁰ sets out that the European Parliament, the Council, the Commission and Member States should cooperate to achieve digital targets in the EU by 2030. This includes a target for the digitalisation of public services: 100% of key public services should be available online and, where relevant, people and businesses in the EU should be able to interact with public administrations online.

2. LEGAL BASIS, SUBSIDIARITY AND PROPORTIONALITY

• Legal basis

The legal basis of the proposal is Article 91(1) of the Treaty on the Functioning of the EU (TFEU)³¹. Article 91(1)(c) TFEU sets out that the EU has competence in the field of transport to lay down measures to improve transport safety, including road safety.

• Subsidiarity (for non-exclusive competence)

The EU already has competence in the field of roadworthiness, by virtue of current Directives 2014/45/EU and 2014/47/EU. Various measures have been introduced at EU level since 1977, when Directive 77/143/EEC³² introduced the requirement for motor vehicles to undergo periodic roadworthiness tests. The latest change in this area was brought about by the adoption of the RWP in 2014. The new rules to be introduced in this proposal remain within the competences conferred upon the EU under Article 91(1) TFEU, and given their connection to the already existing framework of roadworthiness, they can only be achieved adequately at EU level.

As road transport and the automotive industry are international sectors, it is much more efficient and effective to address the issues at EU level than at national level. While national practices differ historically, a minimum level of harmonisation in vehicle testing and commonly agreed solutions to exchange vehicle data between Member States is more effective than multiple uncoordinated national solutions. With common rules applied to testing modern vehicle technologies (EVs, ADAS and the most recent emission control equipment), Member States will enjoy economies of scale and manufacturers of testing equipment will be able to operate in a more uniform market. The functioning of the single market will also be improved because vehicles will be subject to similar tests under similar conditions, and transport operators will have similar costs and will have to meet similar minimum requirements.

There is widespread agreement among national authorities and industry experts that the current Directives are no longer aligned with the latest regulatory and technological developments in vehicle safety and emission control. In the absence of EU level action, Member States would continue to carry out periodic and roadside inspections. However, it is very unlikely that test methods and the scope of inspections required by EU legislation (e.g. testing brakes, suspension, electronic safety systems and emissions reduction equipment) would be applied in a harmonised or coordinated manner. Member States would apply different piecemeal solutions, which would lead to even larger differences in vehicles' safety

³⁰ Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022 establishing the Digital Decade Policy Programme 2030 (OJ L 323, 19.12.2022, p. 4, ELI: <http://data.europa.eu/eli/dec/2022/2481/oj>).

³¹ OJ C 115, 9.5.2008, p. 85, ELI: http://data.europa.eu/eli/treaty/tfeu_2008/art_91/oj.

³² Council Directive 77/143/EEC of 29 December 1976 on the approximation of the laws of the Member States relating to roadworthiness tests for motor vehicles and their trailers, (OJ L 47, 18.2.1977, p. 47, ELI: <http://data.europa.eu/eli/dir/1977/143/oj>).

and environmental performance than today. This would risk distorting the single market and creating further barriers to free movement. The initiative therefore addresses safety and environmental protection needs of ‘Union relevance’.

- **Proportionality**

In line with the principle of proportionality set out in Article 5(4) of the Treaty on European Union, the measures in this proposal do not go beyond what is necessary to achieve the objectives of the Treaties – improving road safety, contributing to sustainable mobility and facilitating the free movement of people and goods in the EU.

In general, the scope of the proposal is limited to what can best be achieved at EU level to harmonise testing methods and scope. For example, vehicles that are mostly used locally, such as mopeds and tractors are not targeted by the proposal.

As for the choice of instrument for EU action, revising the existing Directives 2014/45/EU and 2014/47/EU is considered to be the most appropriate solution. This allows for achieving the objectives of gradual harmonisation in this area, while leaving sufficient room for manoeuvre for Member States to implement the changes in a way that suits their specific national context by continuing to apply well-established national arrangements in roadworthiness testing. This choice, using minimum requirements instead of a one-size-fits-all approach, will also enable industry to develop the most efficient technical solutions that this continuously evolving field requires.

- **Choice of the instrument**

To ensure clear and consistent legal drafting, the most suitable legal solution is a revision of Directive 2014/45/EU and Directive 2014/47/EU, amending both in one proposal for a Directive.

3. RESULTS OF *EX POST* EVALUATIONS, STAKEHOLDER CONSULTATIONS AND IMPACT ASSESSMENTS

- ***Ex post* evaluations/fitness checks of existing legislation**

In 2023, the Commission conducted an evaluation of the 2014 RWP, assessing its relevance, EU added value, coherence, effectiveness and efficiency. The evaluation concluded that the RWP was partially successful in achieving its objectives, contributing to better road safety and helping reduce air pollutant emissions from road transport. However, defective vehicles may still not always be detected as some categories of vehicles are not subject to PTIs or RSIs in some Member States or the frequency or scope of the testing is not adapted to those categories’ higher safety and environmental risks. The identified weaknesses in the current RWP, in particular Directives 2014/45/EU and 2014/47/EU, require the Directives to be adapted to address not only current needs but also future challenges.

The conclusions of the evaluation are described below.

- (1) The RWP is not adapted to the latest technologies, such as advanced driver assistance systems and electronic safety features. It lacks specific testing protocols that would ensure the compliance and maintenance of electric and hybrid vehicles, including software updates. Technical inspections would have to be updated for acquiring important safety-related data efficiently and monitoring new sensors and features.
- (2) On emissions, some PTI tests and equipment must be adapted as they are no longer capable of detecting emission failures in the most recent internal combustion engine

vehicles. Opacity measurement is outdated as it cannot detect diesel vehicles with defective particle filters or a tampered catalyst, which lead to high particle and NO_x emissions. Instead, PN and NO_x measurement should be used to check newer diesel and petrol vehicles for defects and tampering with emission control systems.

- (3) The current framework for exchanging information on test results between Member States has not been effective. Although the legislation mentions electronic data exchanges between Member States authorities as a possibility, not all of them implement it. Even if the harmonisation of vehicle registration documents made it easier for people to register vehicles from other Member States and the EEA, there is room to improve the data exchange and digitalisation process. Re-registration can still be a cumbersome process, and there is scope to improve the mutual recognition of PTIs between Member States.
- (4) The RWP should make better use of the benefits of digital data exchange and harmonise vehicle documents more to reduce the administrative burden and costs. In addition, digital vehicle registration documents could further facilitate digitalising vehicle registration and data-keeping processes and help reduce costs.

The consistency between the RWP, in particular Directives 2014/45/EU and 2014/47/EU, and relevant EU instruments could be improved by standardising safety-relevant vehicle data and the related responsibilities of manufacturers during the vehicle's lifecycle. Clarifying responsibilities and mandating that certain information is made available for PTIs across Member States could reduce uncertainty and the time spent searching for information, which could improve the overall accuracy and efficiency of inspections. The RWP, in particular Directives 2014/45/EU and 2014/47/EU, should be also better aligned with the General Safety and Euro 7 Regulations.

- **Stakeholder consultations**

The consultations had two objectives. The first was to assess the performance of the RWP against the five evaluation criteria, identify possible issues with the existing legal framework and, on this basis, draw conclusions for future action. The second objective was to work with stakeholders to validate the Commission's understanding of the issues at hand, draw up a list of possible policy measures and assess their likely impact on the various categories of stakeholders.

The consultations also gathered evidence on the expected costs and benefits of the policy measures under consideration. They helped to identify gaps in the intervention logic or areas requiring further attention. The consultation activities consisted of public consultations (via an inception impact assessment and an open public consultation published on the Commission's Have your say website) and targeted consultations, including surveys and interviews. The targeted consultation activities were carried out throughout the evaluation and impact assessment process and covered all relevant aspects. The focus of the survey and interviews were on drawing up the different policy measures to meet the objectives set as part of the RWP's revision, particularly to identify and quantify the costs and potential impact of these measures. The problem drivers and the possible policy measures of the RWP were also extensively discussed with stakeholders, e.g. in the Roadworthiness Expert Group, and are also a result of the evaluation's stakeholder consultation activities.

A broad range of stakeholders was consulted, including: (i) public authorities in charge of road safety (including their representative associations, such as EReg³³ and CORTE³⁴); (ii) industry associations and companies (including their representative associations, such as CITA³⁵ and EGEA³⁶, vehicle manufacturers and vehicle component suppliers); (iii) user group representatives; (iv) research organisations and road safety NGOs; and (v) the public.

- **Collection and use of expertise**

A wide range of experts from Member States, industry and other stakeholder groups was consulted during the preparatory work on the issues related to roadworthiness testing, roadside inspection and vehicle registers. Three dedicated workshops took place where the members of the Expert Group on Roadworthiness and Vehicle Registration Documents (RWEV) discussed the technical elements of the proposal. The Commission contracted two external consultants to carry out specific support studies underpinning the evaluation and the impact assessment. This input was complemented by ad hoc consultations of industry experts and the Commission's own experience in monitoring and implementing the Directives.

- **Impact assessment**

This proposal is accompanied by an impact assessment report, a draft of which was submitted to the Regulatory Scrutiny Board (RSB) on 20 November 2023. The RSB issued a positive opinion with reservations on 15 December 2023³⁷. The impact assessment report was adjusted accordingly to address the RSB's comments. The analysed policy options are summarised below.

Four policy options (PO1a, PO1b, PO2, PO3) were designed to address the identified problems. All policy options include the following measures:

- adapt PTIs to electric vehicles and include new test items through ePTIs (including testing software integrity of safety- and emission-relevant systems);
- new emission test methods for particles and NOX, which are necessary to adapt to more recent emission control technologies and to identify high-emitting vehicles, including those that have been tampered with;
- require a roadworthiness test following any significant change to, for example, the propulsion system or the emission class;
- digitalising the roadworthiness certificate;
- linking national vehicle registers and extending the set of harmonised vehicle data in those registers;
- require Member States to record odometer readings in national databases and make those records available to other Member States when a vehicle is re-registered.

In addition to the common measures, policy option PO1a focuses on a more efficient use of vehicle (registration and status) data, including issuing registration certificates in digital format. Policy option PO1b focuses on more effective technical inspections using remote sensing technology,

³³ Association of European Vehicle and Driver Registration Authorities, <https://www.ereg-association.eu/>.

³⁴ Confederation of Organisations in Road Transport Enforcement, <https://www.corte.be/>.

³⁵ Worldwide association of authorities and authorised companies active in the field of vehicle compliance, <https://citainsp.org/>.

³⁶ European Garage Equipment Association, <https://www.egea-association.eu/>.

³⁷ Ares (2023)8616336.

which helps to identify potentially high-emitting vehicles that can be either: (i) inspected at a subsequent roadside check immediately after being identified; or (ii) invited to a roadworthiness centre for an emission test. This option would also: (i) remove the possibility to exempt motorcycles from PTIs; (ii) require yearly emission testing of light commercial vehicles; (iii) make the inspection of cargo securing mandatory; and (iv) bring in mandatory annual PTIs for vehicles older than 10 years. PO1b would facilitate the free movement of people by requiring that the Member State registering a vehicle recognises the PTI certificate issued by another Member State for a period of up to six months, provided that the next PTI is conducted in the Member State of registration.

Policy option PO2 combines most of the measures proposed in PO1a and PO1b. It includes an additional measure on data governance, aiming to set out the procedures and the means of access to vehicle technical information (including in-vehicle data). PO2 also introduces roadside inspections for light commercial vehicles.

Policy option PO3 is the most ambitious policy option as it goes even further on harmonising the scope and methods of roadworthiness testing and the mutual recognition of PTI certificates. In addition to PO2's measures, PO3: (i) extends the scope of PTI to cover all motorcycles, without exception, and light trailers; (ii) extends RSI to all motorcycles; and (iii) requires that PTI certificates issued in any other Member State are recognised by the Member State of registration without restrictions.

The impact assessment concludes that the preferred option is policy option PO2. This option is considered to be effective in reaching the intended policy objectives, presenting high efficiency and high net benefits and being proportionate to the initiative's objectives. It is also coherent with the well-established national policies in the field.

The policy options are expected to **improve road safety** in the EU by more effectively identifying vehicles with major and dangerous defects, which should lead to a reduction in road crashes caused by technical defects. As a result, the number of fatalities and injuries (both serious and light) should decrease. The policy options also include other measures contributing to road safety, which relate to better implementation and enforcement of the roadworthiness legislation (such as the exchange of data among Member States' authorities).

Under the preferred policy option PO2, it is estimated that around 7 000 lives will be saved and around 65 000 serious injuries will be avoided between 2026 and 2050, compared with the baseline scenario. In monetary terms, the reduction in the external costs of accidents is estimated at around EUR 74.2 billion, expressed as present value over the same period, compared with the baseline.

All policy options will also **contribute to sustainable mobility** by reducing air pollutant and noise emissions. This will lead to a reduction in the external costs of these emissions: the savings in PO2 are estimated to be EUR 83.4 billion.

All policy options will **facilitate the free movement of people and goods in the EU** by removing obstacles to re-registering vehicles in another Member State. PO1a, PO2 and PO3 are expected to be similarly effective, while PO1b is expected to be less effective due to the absence of measures on digital vehicle registration certificates and additional data included in the vehicle register.

On removing obstacles related to roadworthiness testing, PO3 is expected to be the most effective option because it extends EU-wide recognition, by the Member State of registration, of PTI certificates issued in another Member State to all vehicles, followed by PO2 and PO1b (limited EU-wide recognition of PTI certificates). PO1a is expected to be the least effective, relying on bilateral agreements for the recognition of PTI certificates.

The safety of vehicles is a core element of the Safe System approach and a core principle of the 2020 United Nations Stockholm Declaration on road safety³⁸. The initiative also contributes to UN Sustainable Development Goal 3 (Ensure healthy lives and promote well-being for all at all ages), including targets 3.6 (halving the number of deaths and injuries from road traffic accidents) and 3.9 (substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination). It is also consistent with the environmental objectives of the European Green Deal and the European Climate Law³⁹.

- **Regulatory fitness and simplification**

As part of the regulatory fitness programme (REFIT)⁴⁰, this proposal contributes to increasing the efficiency of the existing legislation in various ways by: (i) replacing obsolete test methods with state-of-the-art solutions both at periodic checks and at roadside checks by requiring the use of the most recent measurement techniques and technology to more effectively detect a large number of high-emitting vehicles; (ii) introducing simple yet meaningful tests to assess the safety and environmental performance of modern vehicles in a harmonised way; and (iii) interconnecting national databases to help share and access vehicle data, rather than relying on more cumbersome procedures. The initiative is expected to significantly reduce fraud related to emission and safety-relevant systems, as well as mileage tampering in used vehicles, especially in cross-border sales. This would lead to significant savings in external costs as well as in avoided cost and damage to consumers.

The initiative encompasses the ‘digital by default’ principle⁴¹, promoting digital transformation where possible. For example, the mandatory electronic format of roadworthiness certificates should have a positive impact on digital transformation in the EU. For the re-registration process, authorities and the public will save time and money by moving away from exchanging information and data via email. Authorities and the public will also save time and money thanks to the digital registration certificate, which will make accessing and exchanging the relevant information easier and faster.

Applying the ‘one in, one out’ approach

The ‘one in, one out’ approach *offsets any new burden for people and businesses resulting from the Commission proposals by removing an equivalent existing burden in the same policy area*. This proposal is part of the RWP package, which is expected to result in administrative costs for PTI centres and vehicle manufacturers due to the data governance measure, while garages, motor vehicle dealers, tyre service and repair stations will face costs related to the odometer readings measure. Overall, the additional one-off administrative costs relative to the baseline relevant for the ‘one in one out approach’ in the preferred option are estimated at EUR 218 million in 2026. Expressed as annualised net present value over the relevant period they amount to EUR 25.5 million. In addition, the recurrent administrative costs relative to the

³⁸ <https://www.roadsafetysweden.com/contentassets/b37f0951c837443eb9661668d5be439e/stockholm-declaration-english.pdf>.

³⁹ Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (OJ L 243, 9.7.2021, p. 1, ELI: <http://data.europa.eu/eli/reg/2021/1119/oj>).

⁴⁰ [2023 Commission work programme – key documents \(europa.eu\)](#), Annex II: REFIT initiatives, headline A – A European Green Deal.

⁴¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – 2030 Digital Compass: the European way for the Digital Decade, COM(2021) 118.

baseline amount to EUR 26.4 million per year. Thus, the total additional administrative costs (one-off and recurrent) relevant for the ‘one in one out approach’ are estimated at EUR 51.9 million per year relative to the baseline.

- **Fundamental rights**

The proposal maintains full respect for human and fundamental rights, and it will have no negative impact on the fundamental rights set out in the Charter of Fundamental Rights of the European Union⁴² (the Charter).

The proposal contains measures to help reduce the level of air pollutant emissions from vehicles (annual emission testing for light commercial vehicles, yearly testing of vehicles that are 10 years old or older and NO_x measurement in RSI by remote sensing and plume chasing). These measures will help to improve the quality of the environment, in line with Article 37 of the Charter. Adapting PTI methods to test electric vehicles, including training inspectors, and making inspections of cargo securing in RSI mandatory will provide a safer work environment for vehicle inspectors and for professional drivers (Article 31). Measures designed to combat odometer fraud will help increase consumer protection in line with Article 38 of the Charter. Providing for the mutual recognition of roadworthiness certificates and digitalising the registration process will contribute to the freedom of movement and residence, in line with Article 45 of the Charter. Measures to ensure that owners of non-tampered vehicles are not disadvantaged compared with those of tampered vehicles will help promote equality before the law in line with Article 3 of the Charter.

The proposal includes a measure on odometer readings, which has an impact on the right to protection of personal data when data is stored and exchanged. It requires Member States to record odometer readings in a national database and make the records available to other Member States in the case of re-registration. Furthermore, it establishes a requirement for roadworthiness certificate to be issued in electronic format, with a paper printout as an option. From a road safety perspective, the automatic accessibility of certificates through a shared system holds significant advantages, particularly in facilitating cross-border inspections and enhancing consumer convenience. The data processing related to these measures was assessed as necessary and proportionate, and it can be used only for specific purposes specified in the proposal.

4. BUDGETARY IMPLICATIONS

The implications for the EU budget are mainly related to extending the features of the IT data exchange system (the MOVE-HUB). This includes one-off adaptation costs and recurrent updates and maintenance costs. These are required to add new data elements to the vehicle registers, providing electronic access to relevant data (including on PTI reports stored in national databases) and enabling the exchange of odometer readings from Member States’ databases. The associated costs are estimated at EUR 0.2 million in one-off costs and EUR 0.05 million per year in recurrent costs, covering the overall implementation of the RWP

⁴² https://commission.europa.eu/aid-development-cooperation-fundamental-rights/your-rights-eu/eu-charter-fundamental-rights_en.

5. OTHER ELEMENTS

- **Implementation plans and monitoring, evaluation and reporting arrangements**

The Commission will monitor the implementation and effectiveness of this initiative through several actions and a set of core indicators that will measure progress towards achieving the operational objectives. To measure the success of the initiative, the following operational objectives are set: (i) apply newly available safety and emission testing methods; (ii) interconnect Member States' vehicle registers and odometer databases through a common hub; (iii) digitalise vehicle documents; and (iv) reduce the number of defective and tampered vehicles on EU roads. The data for assessing these operational objectives will draw on regular reporting by Member States as well as ad hoc data collection efforts, including the use of data exchange systems, such as the MOVE-HUB.

Five years after the revised legislation enters into application, the Commission will carry out an evaluation to assess to what extent the objectives of the initiative have been reached.

- **Explanatory documents (for directives)**

Member States have implemented Directives 2014/45/EU and 2014/47/EU in different ways, and a significant number of amendments are being proposed. As a result, Member States' notifications of their transposition measures must be accompanied by one or more documents explaining the relationship between the parts of both directives and the corresponding parts of the national laws.

- **Detailed explanation of the specific provisions of the proposal**

The proposal for revising Directives 2014/45/EU and 2014/47/EU is structured around the three main policy objectives set out in Chapter 1. These objectives are interrelated and aim to improve road safety in the EU, contribute to sustainable mobility and facilitate the free movement of people and goods in the EU. The main provisions that substantially change the Directives or add new elements are described below.

Article 1(1) amends Article 2 of Directive 2014/45/EU on scope

To improve its coherence, the article is amended to include electrically powered motorcycles in the scope next to those equipped with internal combustion engines, which are already in scope. For the same reason, the option to exclude motorcycles from the scope of roadworthiness testing is removed.

Article 1(2) amends Article 3 of Directive 2014/45/EU on definitions

The definitions of 'connected vehicle' and 'temporary roadworthiness certificate' are added to specify the terms used in connection with the provisions on recording odometer readings (new Article 4a of Directive 2014/45) and on recognising roadworthiness certificates (amended Article 4), respectively.

Article 1(3) replaces Article 4 of Directive 2014/45/EU on responsibilities

To facilitate the free movement of people and goods, the existing requirement that roadworthiness tests must be carried out by the Member State registering the vehicle is complemented with the following provisions.

The article is amended to introduce the possibility for the owners or holders of passenger cars to take periodic roadworthiness tests in a Member State other than the Member State of registration. The temporary roadworthiness certificate issued in this case will be valid for six months. The subsequent PTI must take place in the Member State of registration, unless that

Member State unilaterally recognises roadworthiness certificates issued by other Member States. This option is available to Member States for any vehicle category.

The article also specifies that vehicle manufacturers must make the technical information necessary for roadworthiness testing available to Member States' competent authorities free of charge. These authorities must then make the data available to their testing centres. In addition, the Commission is empowered to specify the technical information, data format and access procedures through implementing acts.

Article 1(4) inserts a new Article 4a in Directive 2014/45/EU on recording odometer readings

The article extends the obligation to record odometer readings beyond PTI centres to any service provider that carries out repairs or maintenance work on a vehicle for payment. The recorded readings may be stored in a dedicated national database or in the national vehicle register.

Vehicle manufacturers must also send regular odometer readings from their connected vehicles. The article also requires Member States to share odometer history with inspectors, the holder of the registration certificate and competent the authorities in the Member States.

Article 1(5) amends Article 5 of Directive 2014/45/EU on the date and frequency of testing

Point (a) of Article 5(1) is amended to require annual testing of cars and vans that are more than 10 years old. It also requires vans to be subject to exhaust emissions tests every year following their date of first registration. This point also specifies how the date of the subsequent PTI is to be calculated following the expiry of a temporary roadworthiness certificate referred to in Article 4 of Directive 2014/45/EU.

Article 5(2) of Directive 2014/45/EU is amended to align with the change made in Article 2 on including electrically powered motorcycles in the scope of PTIs.

Finally, the conditions under which Member States or the competent authorities may require a vehicle to undergo a roadworthiness test before the expiry date of its roadworthiness certificate are simplified. While four of the existing five possibilities listed in paragraph 4 of Article 5 of Directive 2014/45/EU are removed, the one concerning significant modifications to the safety and environmental systems of the vehicle, which require a test, becomes part of a new paragraph 2a.

Article 1(6) amends Article 6 of Directive 2014/45/EU on contents and methods of testing

The article is amended to accommodate the extension of scope to electrically powered motorcycles and to allow Member States to exempt only those vehicles from exhaust emissions or noise testing that successfully passed a corresponding technical RSI during the six months before the PTI.

Article 1(7) replaces Article 8 of Directive 2014/45/EU on roadworthiness certificates

While the existing rules (paragraph 2 of Article 8) already allow the use of 'electronically produced' roadworthiness certificates, that article is amended so that the digital version becomes the default solution. The person presenting the vehicle will be able to request a certified printout. These certificates, including temporary ones, will have to be recognised by all Member States.

Article 1(8) amends Article 9 of Directive 2014/45/EU on follow-up of deficiencies

Paragraphs 2 and 3 of Article 9 are amended to provide for the necessary exchange of information, including when a registration is suspended, between the Member State of registration and the Member States where the vehicle has undergone a roadworthiness test.

Paragraph 4 is added to provide for effective penalties for obvious tampering with a vehicle's components, including emission control and safety systems.

Article 1(9) replaces Article 16 of Directive 2014/45/EU with a new Article 16 on the exchange of data between Member States' authorities

The new Article 16 introduces an obligation on Member States to connect their national vehicle registers and roadworthiness databases with the MOVE-HUB platform developed by the Commission, for relevant data to be exchanged during periodic roadworthiness testing. The exchange of information includes vehicle registration data, data on the content of the certificate of conformity, the last roadworthiness certificate and of any roadside inspection report.

Under paragraph 2 of the new Article 16, the Commission will have to lay down detailed rules on the arrangements, data formats and message content to implement the data exchange within two years after the entry into force of this amending directive. The data exchange will have to be operational within one year after that.

Article 1(10) amends Article 17 of Directive 2014/45/EU on delegated acts

Article 17 is amended to include the delegation of power to the Commission to specify the methods for the new emission tests (introduced for vehicle categories M and N equipped with internal combustion engines) in Section 8.2 of Annex I.

Article 1(11) replaces Article 20 of Directive 2014/45/EU on reporting

Article 20 is amended to reflect the most significant changes to the rules on which the Commission will have to report.

Article 1(12) inserts a new Article 20a in Directive 2014/45/EU on communication of information to the Commission

Article 20a is introduced to feed into the Commission's report on the implementation of Directive 2014/45/EU. While Member States already report on technical roadside inspections carried out in their territories every two years, similar information has not been systematically available to the Commission on PTIs. This Article aims to fill this gap by requiring Member States to communicate a minimum set of information related to PTIs every three years. The reporting format will be laid down in an implementing act to be adopted by the Commission.

Article 1(13) replaces Article 22 of Directive 2014/45/EU on extension of validity of roadworthiness certificates in case of crisis

This new Article 22 is introduced to provide for the possibility to extend the validity of roadworthiness certificates where a crisis, such as a pandemic, would prevent carrying out PTIs in a timely manner.

Article 2(1) replaces Article 1 of Directive 2014/47/EU on subject matter

The article is updated to include remote sensing of vehicle emissions.

Article 2(2) amends Article 2 of Directive 2014/47/EU on scope

In paragraph 1 of Article 2 of Directive 2014/47/EU, vans are added to the scope (point (aa)). Furthermore, a second subparagraph is added to specify that the provisions on remote sensing also apply to cars and motorcycles. Paragraph 2 is adjusted to reflect the changes in paragraph 1.

Article 2(3) amends Article 3 of Directive 2014/47/EU on definitions

The most significant changes are the addition of definitions for ‘remote sensing’ and ‘plume chasing’

Article 2(4) replaces Article 4 of Directive 2014/47/EU on roadside inspection systems

The article is updated to include a reference to remote sensing.

Article 2(5) inserts a new Article 4a on remote sensing

This new article is added to require Member States to make use of remote sensing technology to screen the noise and exhaust emissions of large parts of their vehicle fleet to identify potentially high-emitting vehicles (of any vehicle category). Paragraph 3 requires that Member States check the emissions of those vehicles either at a roadside check or by inviting the owner or holder of the vehicle to a PTI centre. Paragraph 4 provides for the methods to check the emissions of vehicles registered in a Member State other than the one where the remote sensing measurement took place.

Article 2(6) amends Article 5 of Directive 2014/47/EC on the percentage of vehicles to be inspected

The article is updated to link the existing 5% target (of the total number of heavy commercial vehicles) to each Member State instead of it being an EU-wide target.

In addition, a 2% target is proposed for RSIs of light commercial vehicles, i.e. vans of category N1.

Article 2(7) amends Article 6 of Directive 2014/47/EU on the risk rating system

The only change to Article 6 is the addition of a reference to vans (definition (aa) in Article 2(1)).

Article 2(8) amends Article 7 of Directive 2014/47/EU on responsibilities

Paragraph 1 of Article 7 is updated to require the recognition of electronic evidence, such as the most recent PTI certificate.

Article 2(9) replaces Article 9 of Directive 2014/47/EU on the selection of vehicles for initial technical roadside inspection

The article is updated to include remote sensing as a possible basis for the selection of a vehicle for RSI.

Article 2(10) amends Article 10 of Directive 2014/47/EU on the contents and methods of technical roadside inspections

Points (a) and (c) are amended to align them with the amendments related to roadworthiness certificates and cargo securing requirements.

Article 2(11) replaces Article 13 of Directive 2014/47/EU on the inspection of cargo securing
Article 13 is amended to make cargo securing checks (in line with Annex III) mandatory for Member States rather than optional.

Article 2(12) of Directive 2014/47/EU replaces Article 14 of Directive 2014/47/EU on the follow-up in the case of major or dangerous deficiencies

A fourth paragraph is added to Article 14 to provide for effective penalties for obvious tampering with a vehicle's components, including emission control and safety systems.

Article 2(13) amends Article 16 of Directive 2014/47/EU on the inspection report and databases on technical roadside inspections

Paragraph 2 of Article 16 is amended to provide an electronic version of the report by default.

Article 2(14) of Directive 2014/47/EU amends Article 18 of Directive 2014/47/EU on cooperation between Member States.

Article 18 is updated to refer to the implementing rules already adopted by the Commission on notifying major and dangerous deficiencies found in roadside checks of vehicles registered in another Member State.

Article 2(15) inserts a new Article 18a in Directive 2014/47/EU on the exchange of data between Member States' authorities

Like the new Article 16 of Directive 2014/45/EU, this new Article 18a introduces an obligation on Member States to connect their national vehicle registers and roadworthiness databases with the MOVE-HUB platform developed by the Commission, for relevant data to be exchanged during roadside inspections. The exchange of information includes vehicle registration data, data on the content of the certificate of conformity, the last roadworthiness certificate and of any roadside inspection report.

Under paragraph 2 of the new Article 18a, the Commission will have to lay down detailed rules on the arrangements, data formats and message content to implement the data exchange within two years after the entry into force of this amending directive. The data exchange will have to be operational within one year after that.

Article 2(16) replaces Article 20 on communication of information to the Commission

Article 20 is updated to streamline and simplify reporting requirements in the following ways: (i) less detailed reports will be required (see changes to Annex V to Directive 2014/47/EU); (ii) these reports will be required every three years instead of every two years; and (iii) Member States will use a common reporting platform rather than sending emails with Excel files attached.

Article 2(17) of Directive 2014/47/EU amends Article 21 of Directive 2014/47/EU on delegated acts

The fourth and fifth indents are added to empower the Commission to: (i) adopt delegated acts to set common limit values for remote sensing measurement; and (ii) specify the test methods for measuring particle number and nitrogen oxides at roadside checks.

Article 2(18) replaces Article 24 of Directive 2014/47/EC on reporting.

The article is updated to reflect the most significant changes to the rules on which the Commission will have to report.

Annex I amends the following annexes to Directive 2014/45/EU.

- Annex I – MINIMUM REQUIREMENTS CONCERNING THE CONTENTS AND RECOMMENDED METHODS OF TESTING

The annex is amended to include: (i) new test items relevant for battery electric and hybrid vehicles (Section 4.14 on high-voltage systems); (ii) new emission tests to measure ultrafine particle and nitrogen oxide emissions from petrol and diesel vehicles (Section 8.2); and (iii) a new Section 10 on testing electronic safety systems using the vehicle's electronic interface. In addition, a number of small changes are made to other items to reflect the views of the experts in this area.

- Annex III – MINIMUM REQUIREMENTS CONCERNING ROADWORTHINESS FACILITIES AND TEST EQUIPMENT

Points 16 and 17 are added to require testing centres to be equipped with the devices needed to measure particle numbers and nitrogen oxides at PTIs.

- Annex IV – MINIMUM REQUIREMENTS CONCERNING THE COMPETENCE, TRAINING AND CERTIFICATION OF INSPECTORS

The annex is updated to require training for inspectors so they can test alternative propulsion systems (including high-voltage, hybrid and hydrogen systems).

Annex II amends the following annexes of Directive 2014/47/EU.

- Annex II – SCOPE OF TECHNICAL ROADSIDE INSPECTIONS

Similar to Annex I to Directive 2014/45/EU, this annex is amended to include new test items for: (i) battery electric and hybrid vehicles (Section 4.14 on high-voltage systems); (ii) new emission tests to measure ultrafine particle and nitrogen oxide emissions from petrol and diesel vehicles (Section 8.2); and (iii) a new Section 10 on testing electronic safety systems using the vehicle's electronic interface. In addition, a number of small changes are made to other items to reflect the views of the experts in this area.

- Annex III – CARGO SECURING

The first sentence in Chapter II. Section 3 is amended to make the rules inspecting the specific items of cargo securing listed in Table 1 compulsory.

- Annex IV – MORE DETAILED TECHNICAL ROADSIDE INSPECTION REPORT INCORPORATING A CHECKLIST

Point 6 of the specimen is updated to include N1 (vans) among the vehicle categories. Point 10 is updated to include the new test items on high-voltage systems (4.14), emission testing (revised item 8.2) and electronic safety systems (new item 10).

- Annex V – STANDARD FORM FOR REPORTING TO THE COMMISSION

The form is updated by adding the required columns for N1 vehicles, correcting the list of countries of registration, and simplifying the reporting requirement by removing the 'defect details' part.

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)

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 Committee⁴³,

Having regard to the opinion of the Committee of the Regions⁴⁴,

Acting in accordance with the ordinary legislative procedure,

Whereas:

- (1) Provisions regarding roadworthiness testing have been part of Union legislation for decades. They are however subject to gradual harmonisation. Union law to that effect was last revised in 2014 with the “Roadworthiness Package”⁴⁵. To improve enforcement, consecutive revisions of those rules gradually extended the scope of vehicles to be tested and the scope of the harmonised rules, including those on roadside inspections and vehicle registration documents. They specified and updated the required test methods, procedures and related documents to reflect technological progress.
- (2) Directive 2014/45/EU sets out the minimum content and frequency of testing for each vehicle category, except for motorcycles, where Member States have a broader discretion. That Directive also sets out minimum requirements for the independence of testing centres and training of inspectors, testing equipment, and the content of the

⁴³ OJ C , , p. .

⁴⁴ OJ C , , p. .

⁴⁵ Directive 2014/45/EU of the European Parliament and of the Council of 3 April 2014 on periodic roadworthiness tests for motor vehicles and their trailers and repealing Directive 2009/40/EC (OJ L 127, 29.4.2014, p. 51, ELI: <http://data.europa.eu/eli/dir/2014/45/oj>), Directive 2014/47/EU of the European Parliament and of the Council of 3 April 2014 on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union and repealing Directive 2000/30/EC (OJ L 127, 29.4.2014, p. 134, ELI: <http://data.europa.eu/eli/dir/2014/47/oj>) and Directive 2014/46/EU of the European Parliament and of the Council of 3 April 2014 amending Council Directive 1999/37/EC on the registration documents for vehicles (OJ L 127, 29.4.2014, p. 129, ELI: <http://data.europa.eu/eli/dir/2014/46/oj>).

roadworthiness certificate. The validity of that certificate, as well as any other proof of testing, is to be recognised by Member States for the purposes of free circulation and re-registering a vehicle already registered in another Member State.

- (3) Directive 2014/47/EU complements Directive 2014/45/EU by requiring Member States to carry out roadside inspections on heavy commercial vehicles above 3.5 tonnes, including buses, lorries, and their trailers with the aim of inspecting 5% of the Union fleet each year. Those inspections include an initial roadside inspection and, if deemed necessary by the inspector, a more detailed technical roadside inspection. The items tested in the detailed inspections are the same as those tested at periodic tests and may also include the inspection of cargo securing. Where a major or dangerous deficiency is found during a roadside inspection, the Member State where the inspection took place is required to notify the Member State of registration in order to enforce the repair of the vehicle that has been suspended from traffic.
- (4) Due to rapid technological progress, some of the current rules for testing vehicles have become outdated and should be amended to adapt them to newer technologies and vehicles. The testing framework should further contribute to reducing emissions from transport and to accelerating and benefiting from digitalisation in the transport sector. The framework should also be better adapted to developments in evolving vehicle technology, fleet composition and testing methods.
- (5) The digital transition is one of the Union's priorities. In the context of updating the current rules on testing vehicles, it is also important to harmonise, simplify and digitalise administrative procedures and to remove the remaining barriers to free movement. These barriers include the non-recognition of periodic technical inspections conducted in Member States other than the Member State of registration. This can impede the free movement of people within the Union and their right to take up residence in a Member State other than the one where the vehicle is currently registered.
- (6) Some of the current emission test methods are inadequate for testing vehicles with modern air pollutant emission control technology and low baseline emissions. There is also potential to further reduce pollutant emissions through more appropriate tests and checks. Applying the best available test methods would help Member States reach stricter air quality standards, namely the limit values for the protection of human health set by Directive (EU) 2024/2881 of the European Parliament and of the Council⁴⁶, especially for fine particulate matter and nitrogen oxides (NO_x).
- (7) The number of fatalities and serious injuries on Union roads remains at an unacceptably high level, with 20 400 deaths in 2023. Therefore, further action is required in order to reach the targets for road safety set out in EU road safety policy framework 2021-2030⁴⁷.
- (8) Testing the roadworthiness of motorcycles has clear benefits for road safety. This has also been demonstrated by the number of Member States that already include motorcycles in their roadworthiness testing systems. As a result, the current possibility of an opt-out for motorcycles with an engine capacity above 125 cm³ is no longer

⁴⁶ Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast), (OJ L, 2024/2881, 20.11.2024, ELI: <http://data.europa.eu/eli/dir/2024/2881/oj>).

⁴⁷ SWD(2019) 283 final <https://transport.ec.europa.eu/system/files/2021-10/SWD2190283.pdf>.

appropriate, and periodic testing should be mandatory for such vehicles without exception.

- (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 that a minimum set of information should be made available free of charge and without undue delay to the competent authorities, 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 temporary roadworthiness certificate issued by another Member State for a period of up to six months, provided that the subsequent periodic technical inspection 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.
- (11) For the same reason, a Member State of registration should be able to choose to recognise roadworthiness certificates issued by another Member State. If it does so, it should inform the other Member States and the Commission. The roadworthiness certificates concerned should be considered by all Member States as equivalent to certificates issued by the Member State of registration.
- (12) To combat fraud related to the mileage of used vehicles, recording odometer readings is included in periodic roadworthiness testing. However, the effectiveness of the measure has been limited because the first test is only carried out four years after the first registration in most Member States and only every two years after that in many of them. To further tackle odometer fraud, Member States should ensure that odometer readings are taken whenever a service provider carries out maintenance or repair work on a vehicle and that the readings are recorded in a national database or register. Member States should make those readings available in an anonymised format to inspectors, the competent authorities and the holder of the registration certificate. In addition, Member States should require manufacturers to transmit the odometer readings of connected vehicles every three months. In order to enable consumers to detect odometer fraud before purchasing a vehicle, Member States should also inform consumers of the availability of odometer history to the holder of the registration certificate, in particular in the context of vehicle sales. To enhance the availability of statistics on vehicle use without additional reporting burden on national administrations, Member States should make the odometer readings available, in an anonymised form, to the national statistical institutes and to the Commission (Eurostat).
- (13) Although electric vehicles, including hybrid electric vehicles, have been in circulation for many years, and their numbers have been steadily increasing, there are no harmonised rules on the roadworthiness testing of the high-voltage systems of such vehicles, resulting in Member States developing different test protocols. To ensure the safe operation of such vehicles throughout their useful life and avoid conflicting testing practices in the Member States, relevant test items should be included in the minimum requirements for the contents of and recommended methods for testing.

- (14) Regulation (EU) 2019/2144 of the European Parliament and of the Council⁴⁸ requires the installation of a variety of advanced driver assistance systems, designed to avoid crashes and reduce casualties and severe injuries. However, the expected benefits will not be achieved if these systems deteriorate over time or are subject to tampering. Therefore, those new electronic systems should be included in periodic and roadside inspections to ensure that they deliver their expected safety benefits. To ensure the safe operation of automated vehicles and the testing of electronic safety systems throughout their useful life, relevant items to be tested should be included in the minimum requirements concerning the contents of and recommended methods for testing set out in the respective Annexes to Directives 2014/45/EU and 2014/47/EU.
- (15) While road transport contributes to significant shares of harmful air pollutant emissions in particular NO_x and fine particles, the current testing methods for exhaust emissions are not adapted to more recent vehicles and technologies. Commission Recommendation (EU) 2023/688⁴⁹ was a first step in harmonising particle number measurement during roadworthiness testing. In the interests of public health, environmental protection and fair competition, the relevant items to be tested during periodic technical inspections set out in the annexes to Directives 2014/45/EU and 2014/47/EU should now include particle number measurement and the measurement of NO_x.
- (16) Older vehicles tend to have more defects, are more frequently involved in crashes, and represent a higher proportion of high-emitting vehicles. Inspecting older cars and light commercial vehicles annually can contribute significantly to reducing crashes and harmful emissions. Cars and light commercial vehicles should therefore be inspected annually at the latest after 10 years from the date of first registration.
- (17) Furthermore, since light commercial vehicles are used more intensively than private cars, often in densely populated areas, they should be inspected for emissions annually after one year from the date of first registration.
- (18) In addition to scheduled periodic technical inspections, vehicles should also be subject to a roadworthiness test if the safety or environmental systems and components of the vehicle have been significantly altered or modified. This includes cases where there is a change of vehicle category or emission levels, for example following the installation of a particle filter or when a vehicle is converted to run on an alternative fuel.
- (19) To facilitate the digital transition and to reduce costs for testing centres, roadworthiness certificates should be issued in a standardised electronic format. A

⁴⁸ Regulation (EU) 2019/2144 of the European Parliament and of the Council of 27 November 2019 on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009 of the European Parliament and of the Council and Commission Regulations (EC) No 631/2009, (EU) No 406/2010, (EU) No 672/2010, (EU) No 1003/2010, (EU) No 1005/2010, (EU) No 1008/2010, (EU) No 1009/2010, (EU) No 19/2011, (EU) No 109/2011, (EU) No 458/2011, (EU) No 65/2012, (EU) No 130/2012, (EU) No 347/2012, (EU) No 351/2012, (EU) No 1230/2012 and (EU) 2015/166 (OJ L 325, 16.12.2019, p. 1, ELI: <http://data.europa.eu/eli/reg/2019/2144/oj>).

⁴⁹ Commission Recommendation (EU) 2023/688 of 20 March 2023 on particle number measurement for the periodic technical inspection of vehicles equipped with compression ignition engines, (OJ L 90, 28.3.2023, p. 46, ELI: <http://data.europa.eu/eli/reco/2023/688/oj>).

paper printout of the roadworthiness certificate should also be issued to the person who presented the vehicle for testing upon request. Member States should accept both formats when the ownership of the vehicle is changed or when the vehicle is re-registered in another Member State. For similar reasons, the report of the more detailed roadside inspection should be issued in electronic format.

- (20) It should be ensured that personal data processing for the implementation of this Directive complies with the data protection framework of the Union, in particular Regulation (EU) 2016/679 of the European Parliament and of the Council⁵⁰. In line with the principle of data protection by default, verification techniques not requiring transmission of personal data on individual certificates should be employed for the verification of roadworthiness certificates.
- (21) To provide for adequate follow-up of deficiencies where a vehicle fails a periodic technical inspection due to one or more major deficiencies in a Member State other than the Member State of registration, the result of the test and the deadline for the subsequent test should be notified to the Member State of registration and recorded in the vehicle register. The deadline for the subsequent test should be no more than two months and should take place in either Member State. In addition, when a vehicle has failed the periodic technical inspection due to one or more dangerous deficiencies, to avoid immediate risks to road safety or the environment, the Member State or competent authority should be able to decide that the vehicle in question is not to be used on public roads and request the Member State of registration to suspend the vehicle's authorisation for use in road traffic, until the deficiencies are rectified. The suspension should be recorded in the vehicle register of the Member State of registration.
- (22) Tampering or manipulating any component of a vehicle should be considered to be a major or dangerous deficiency and therefore should be punishable by effective, proportionate, dissuasive and non-discriminatory penalties.
- (23) The current requirements set out in Directives 2014/45/EU and 2014/47/EU for Member States to cooperate with each other when implementing those Directives do not enable Member States to check a vehicle's legal and technical status in cross-border situations. To ensure greater effectiveness, including in such situations, Member States should assist one another in implementing the Directive more systematically. Therefore, it is necessary to set out rules on the exchange of information and vehicle data to allow Member States to consult each other's vehicle registers and roadworthiness databases, including the content of roadworthiness certificates and technical roadside inspection reports.
- (24) For the exchange of information on vehicles registered in the Union, the MOVE-HUB message exchange platform has been developed by the Commission to interconnect Member States' national electronic registers⁵¹. The platform currently hosts the interconnection of road transport undertaking registers (ERRU), driving licence

⁵⁰ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (OJ L 119, 4.5.2016, p. 1, ELI: <http://data.europa.eu/eli/reg/2016/679/oj>).

⁵¹ Commission Implementing Regulation (EU) 2016/480 of 1 April 2016 establishing common rules concerning the interconnection of national electronic registers on road transport undertakings and repealing Regulation (EU) No 1213/2010 (OJ L 87, 2.4.2016, p. 4, ELI: http://data.europa.eu/eli/reg_impl/2016/480/oj).

registers (RESPER), professional driver training registers (ProDriveNet), tachograph driver card registers (TACHOnet), and the notification of vehicle roadside inspection failures (RSI)⁵².

- (25) The functionalities of the MOVE-HUB should be extended to enable the necessary exchange of information and vehicle data for the purposes of Directives 2014/45/EU and 2014/47/EU. Member States should therefore connect their electronic systems containing information on roadworthiness certificates and odometer history to MOVE-HUB. The exchange of information and data through the MOVE-HUB should be operational within one year after the adoption of the corresponding implementing acts pursuant to Article 16 of Directive 2014/45/EU and Article 18a of Directive 2014/47/EU.
- (26) Crises brought about by serious events, occurring inside or outside the Union, may significantly disrupt the operation of its roadworthiness system. During times of crisis, Member States should be able to extend the validity of roadworthiness certificates, including temporary roadworthiness certificates. Subject to the Commission's authorisation, Member States should be allowed to extend the administrative validity of expiring roadworthiness certificates and temporary roadworthiness certificates by six months. Where the crisis persists, it should be possible to further extend the validity.
- (27) Given the increased number of light commercial vehicles in circulation within the Union, to promote a level playing field for commercial operators across the Union and to further improve their safety and environmental performance, light commercial vehicles should also be subject to roadside inspections.
- (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 cars and motorcycles. On the basis of that remote sensing data, Member States should check the exhaust emissions and the noise level of any vehicle that is 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

⁵² 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).

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 Member State of registration.

- (30) Directive 2014/47/EU specifies a minimum share of heavy commercial vehicles to be tested at the roadside each year in the Union but sets no target at Member State level, with the result that it is difficult to ensure the enforcement of that minimum share. To ensure that roadside inspections of commercial vehicles contribute to improved road safety and reduced air pollution across the Union, each Member State should carry out a total number of initial technical roadside inspections every year, corresponding to at least 5% of the total number of heavy commercial vehicles registered in their territory.
- (31) To promote digital transformation and to reduce costs in the transport sector, Member States should require their competent authorities to accept electronic evidence of roadside inspections.
- (32) Given that inadequate or dangerous cargo securing can pose a serious threat to road safety and to the environment, inspections of cargo securing should be a mandatory part of roadside inspections in all Member States.
- (33) To ensure uniform conditions for the implementation of this Directive, implementing powers should be conferred on the Commission to specify: (a) the set of technical information and data necessary for roadworthiness testing that must be made available to the competent authorities, (b) interoperability features and security measures applicable to the QR codes introduced on roadworthiness certificates, (c) the necessary features and requirements for the format and content of the information and data to be exchanged, and (d) the format in which the data on periodic testing and roadside inspections are to be communicated. Those powers should be exercised in accordance with Regulation (EU) No 182/2011 of the European Parliament and of the Council⁵³.
- (34) In order to achieve the objectives of this Directive, in particular to adapt the annexes to Directives 2014/45/EU and 2014/17/EU to any technical, operational or scientific developments, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission to (a) specify the methods for the PN measurement of positive ignition engines and for the NO_x measurement of compression and positive ignition engines; and (b) set the common limits for exhaust or noise emissions or both that should be used to identify high-emitting vehicles. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level, and that those consultations be conducted in line with the principles laid down in the Interinstitutional Agreement of 13 April 2016 on Better Law-Making⁵⁴. In particular, to ensure equal participation in the preparation of delegated acts, the European Parliament and the Council should receive all documents at the same time as Member States' experts, and their experts should systematically have access to meetings of Commission expert groups dealing with the preparation of delegated acts.

⁵³ Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers (OJ L 55, 28.2.2011, p. 13, ELI: <http://data.europa.eu/eli/reg/2011/182/oj>).

⁵⁴ OJ L 123, 12.5.2016, p. 1, ELI: http://data.europa.eu/eli/agree_interinst/2016/512/oj.

- (35) The objectives of this Directive, namely, to improve road safety, facilitate the free movement of persons and reduce pollutant emissions cannot be sufficiently achieved by the Member States acting alone as national rules governing those vehicle checks would lead to diverging requirements. Consequently, such objectives are better achieved at Union level by laying down minimum common requirements and harmonised rules concerning periodic technical inspections and technical roadside inspections of vehicles circulating within the Union. Therefore, the Union may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty on European Union. In accordance with the principle of proportionality as set out in that Article, this Directive does not go beyond what is necessary in order to achieve those objectives.
- (36) Although data on the operation of roadworthiness testing regimes is available at national level, such data is not available at Union level. That lack of data hampers the analysis and evaluation of the roadworthiness testing system. To address those shortcomings, Member States should, in the implementation of Directive 2014/45/EU, report regularly to the Commission key data on the number of testing centres in each Member State, the total number of vehicles inspected per category, the areas checked, the items failed, and information on roadworthiness tests conducted on vehicles registered in another Member State. On roadside inspections, the current reporting obligations on Member States should be reduced and simplified, with less frequent reporting required.
- (37) To minimise the administrative burden while ensuring the usefulness of the reported information, Member States should report on the implementation of Directives 2014/45/EU and 2014/47/EU every three years.
- (38) The roadworthiness system has a direct impact on road safety, noise and emissions and should therefore be reviewed periodically. On the basis of the input from Member States' authorities, the Commission should report to the European Parliament and Council on the effectiveness of the provisions of Directive 2014/45/EU, including those on the scope, frequency of testing and recognition of temporary roadworthiness certificates, and Directive 2014/47/EU, including that on remote sensing.
- (39) The European Data Protection Supervisor was consulted in accordance with Article 42(1) of Regulation (EU) 2018/1725 and delivered an opinion on [DD/MM/YYYY].
- (40) In accordance with the Joint Political Declaration of 28 September 2011 of Member States and the Commission on explanatory documents⁵⁵, Member States have undertaken to accompany, in justified cases, the notification of their transposition measures with one or more documents explaining the relationship between the components of a directive and the corresponding parts of national transposition instruments. With regard to this Directive, the legislator considers the transmission of such documents to be justified.
- (41) Directive 2014/45/EU and 2014/47/EU should therefore be amended accordingly,

HAVE ADOPTED THIS DIRECTIVE:

Article 1

⁵⁵ OJ C 369, 17.12.2011, p. 14.

Amendments to Directive 2014/45/EU

Directive 2014/45/EU is amended as follows:

(1) Article 2 is amended as follows:

(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 cm³, 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 a wireless connection or 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 issued by the competent authority or a testing centre;’;

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

(12a) ‘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 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 paragraphs 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. In the case of M₁ vehicles, roadworthiness tests may also be carried out in a Member State other than the Member State of registration of the vehicle. 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.
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.
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).
6. In accordance with the principles laid down in Regulation (EU) 2018/858, vehicle manufacturers shall make available the set of technical information referred to in paragraph 5 free of charge, and without undue delay, to relevant competent authorities, in a non-discriminatory manner and in a machine-readable format. Those competent authorities shall make that technical information available to the testing centres authorised by them.
7. Member States shall ensure that the responsibilities for keeping a vehicle in a safe and roadworthy condition are set out in national law.’;

(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 M₁ and N₁: 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 N₁ 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 M₁ used as taxis or ambulances, vehicles of categories M₂, M₃, N₂, N₃, O₃ and O₄: 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(3), the expiry date of the subsequent roadworthiness certificate shall be counted as from the expiry date of the 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.';

(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 cm³ 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

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 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 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 contain the information necessary for authentication and validation of those certificates.

Member States shall inform the Commission of trusted issuers of 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.

2. Member States shall require that testing centres or, where relevant, the competent authorities, provide, on request, a certified printout of the 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, 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 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;
 - (d) issuing and verifying a valid, secure and interoperable [barcode][QR code];

(e) notifying trusted issuers of 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>);

(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>);

(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 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

- (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 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) is replaced by the following:

‘(11) ‘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) 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.’;

- (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. Each year, each Member State shall take the measures necessary to screen the equivalent of at least 30 % of the fleet of motor vehicles registered in its territory using that technology.
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.

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, 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.
3. Regarding 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 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 in accordance with paragraph 3.’;

- (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 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. 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).’;

(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,

For the European Parliament
The President

For the Council
The President

LEGISLATIVE FINANCIAL AND DIGITAL STATEMENT

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1. FRAMEWORK OF THE PROPOSAL/INITIATIVE

1.1. Title of the proposal/initiative

Proposal for a Directive amending Directive 2014/45/EU of the European Parliament and of the Council of 3 April 2014 on periodic roadworthiness tests for motor vehicles and their trailers and repealing Directive 2009/40/EC and amending Directive 2014/47/EU of the European Parliament and of the Council of 3 April 2014 on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union and repealing directive 2000/30/EC.

1.2. Policy area(s) concerned

Transport, road safety

1.3. Objective(s)

1.3.1. General objective(s)

The general objective of this initiative is to further improve road safety in the EU, contribute to sustainable mobility and to facilitate the free movement of persons and goods in the EU by unlocking the full potential of the roadworthiness package (RWP).

1.3.2. Specific objective(s)

The specific objectives of the initiative are:

- Ensure the consistency, objectivity, quality of roadworthiness testing of today's and tomorrow's vehicles;
- Significantly reduce tampering and improve the detection of defective vehicles, to allow for the detection of defective/tampered safety and emission (i.e. air pollution and noise emission) control systems, as well as of odometer fraud;
- Improve electronic storage and exchange of relevant vehicle identification and status data.

1.3.3. Expected result(s) and impact

Specify the effects which the proposal/initiative should have on the beneficiaries/groups targeted.

The proposal will contribute to increasing road safety in the EU, with the impact estimated at 6 912 lives saved and 64 885 serious injuries avoided. It will also contribute to sustainable mobility by reducing air pollutant and noise emissions, which will lead to external costs savings, estimated at EUR 83.4 billion.

It will contribute to facilitating the free movement of persons and goods in the EU through removal of obstacles to re-registration of vehicles in another Member State and (limited) EU-wide recognition of PTI certificates.

It is also expected to bring significant benefits through introducing test methods for the inspection of electric vehicles, improved emission testing (NO_x and PN measurement), and the introduction of testing methods for ADAS and other safety systems. Benefits are also expected due to the introduction of mandatory cargo securing inspections and new ways of testing, such as plume chasing and remote sensing to monitor pollutant and noise emissions, as well as the data governance measures.

The initiative is expected to lead improved detection and thus fewer defective and tampered vehicles, also through the extension of the roadside inspections to light

commercial vehicles. It is expected to lead to a significant reduction of odometer tampering due to an obligation to record odometer readings and make the records available in the case of re-registration.

It should also bring benefits due to the mandatory electronic roadworthiness certificate, the introduction of the vehicle registration document in digital format, access to PTI reports in national databases and the extension of data included in the national vehicle registers.

Total benefits are estimated at EUR 391.6 billion, expressed as present value over 2026-2050 relative to the baseline.

1.3.4. *Indicators of performance*

Specify the indicators for monitoring progress and achievements.

Regarding the road safety objective, the Commission regularly monitors *key road safety indicators*, including trends in the number of fatalities, serious and slight injuries per Member State and per vehicle category, age and certain vehicle characteristics. Detailed information on the causes of crashes, notably on vehicle defects is unlikely to become available at large scale soon. In the future, analysis of event data recorders mandated by the General Safety Regulation may provide more detailed insight into the causes of a significant share of crashes. Until then, existing reporting requirements should be updated to better respond to current monitoring needs.

Regarding the reduction of air and noise pollution, trends in *air and noise pollution* are continuously monitored by the EEA. Part of the reduction expected to come over the years will be related to this initiative through better maintenance of vehicles and reduced tampering with emission control systems. Progress towards the objective of contributing to sustainable mobility can be measured through the trends in PTI and RSI results, as well as from remote sensing data.

As for the objective *facilitating free movement*, indicators of success will be the number of Member States recognising PTIs conducted abroad.

To measure the success of the initiative, the following operational objectives are set: 1) Apply newly available safety and emission testing methods; 2) Interconnect Member States' vehicle registers and odometer databases through a common hub; 3) Digitalise vehicle documents; 4) Reduce the number of defective and tampered vehicles on EU roads.

The Commission services will monitor the implementation and effectiveness of this initiative through a number of actions and a set of core indicators that will measure progress towards achieving the operational objectives. Five years after the revised legislation will have been applied, the Commission services should carry out an evaluation to verify to what extent the objectives of the initiative have been reached.

1.4. **The proposal/initiative relates to:**

- ☐ a new action
- ☐ a new action following a pilot project / preparatory action⁵⁶
- ☒ the extension of an existing action
- ☐ a merger or redirection of one or more actions towards another/a new action

⁵⁶

As referred to in Article 58(2), point (a) or (b) of the Financial Regulation.

1.5. Grounds for the proposal/initiative

1.5.1. Requirement(s) to be met in the short or long term including a detailed timeline for roll-out of the implementation of the initiative

National public authorities will have to set up a database for recording odometer history of the vehicles registered in their territory, interconnect existing national vehicle registers through the MOVE-HUB messaging platform, add new data elements to these registers and introduce remote sensing, which requires the purchase and installation of new roadside equipment as well as a monitoring system.

PTI centres will have to update test requirements and introduce some new ones, which will require additional investments in equipment, testing capacity and training of inspectors. It is however expected that PTI centres will be able to recover at least part of the additional costs through the additional business opportunities (increased number of tests) and in some cases (depending on the Member State) through somewhat increased PTI charges.

Vehicle repair shops, motor vehicle dealers and other garages will have to update their office software, to allow them to transfer their data to the central national database, due to the requirement to set up a system to record odometer readings from the cars and van.

Automobile manufacturers will have to adjust their systems to a governance framework for providing access to in-vehicle data necessary to carry out PTI and RSI to inspection centres and competent authorities and make the adjustments to their IT systems to ensure access to the relevant data, and maintenance costs.

Some vehicle owners will also face additional PTI and/or roadside inspections. Due to new testing requirements regarding safety, air pollutant emissions and noise, some vehicle owners may need to repair their vehicles to ensure that they can pass the PTI inspection and remain in use.

1.5.2. Added value of EU involvement (it may result from different factors, e.g. coordination gains, legal certainty, greater effectiveness or complementarities). For the purposes of this section 'added value of EU involvement' is the value resulting from EU action, that is additional to the value that would have been otherwise created by Member States alone.

While technological development is likely to further improve vehicle safety, the uptake of new technologies in the EU vehicle fleet would take some time, and some of the new features may also bring about new risks. Similarly, while tampering may be made more difficult by technical solutions, it is unlikely that it would disappear without enabling vehicle testing to detect illegal modifications, notably of the engine management software e.g. through securing better access to in-vehicle data. Thus, in the absence of EU level intervention, the problem is likely to persist.

Member States may take unilateral measures; however, these measures cannot replace the coordinating and harmonising effect of the three Directives, with the risk of possible distortions of the single market and only partially addressing the problem.

The problem of insufficient control of vehicle air pollutant emissions would persist as long as vehicles equipped with internal combustion engines (ICE) are on the roads. Although with stricter emission standards and gradual electrification the number of vehicles generating tailpipe emissions will decrease, they will still be circulating in the EU decades from now. Without updating the current emission test requirements at EU level however,

Member States may not introduce the most effective and efficient test methods already available. Similarly, while more Member States may start experimenting with roadside noise testing, it is unlikely that the problem of noise vehicles would reduce significantly without a more systematic and coordinated approach.

Without EU level intervention, certain Member States may take unilateral or bilateral measures, such as systematic recording (and possibly exchanging) of odometer readings or develop agreements to recognise each other's roadworthiness certificates. However, the systemic problem of insufficient and inefficient exchange of roadworthiness-related vehicle data would remain, hindering effective implementation and enforcement of existing rules.

As road transport and the automotive industry are international sectors, it is much more efficient and effective to address the issues at the EU level than at the level of Member States. While national practices differ historically, a certain minimum level of harmonisation in vehicle testing and commonly agreed solutions to exchange vehicle data between Member States is more effective than multiple uncoordinated national solutions.

With common rules applied to testing modern vehicle technologies (EVs, ADAS, and the most recent emission control equipment), Member States will enjoy economies of scale and testing equipment manufacturers can operate on a more uniform market. The functioning of the single market would also be improved by vehicles being subject to similar tests under similar conditions, and transport operators facing similar costs.

Coordinating the conditions of access and exchange of vehicle data at the EU level will not only be more efficient than bilateral agreements and negotiations with individual manufacturers, but also level the playing field among Member States and put them, collectively, in a stronger position vis-à-vis the automotive industry.

1.5.3. *Lessons learned from similar experiences in the past*

Various measures have been introduced at EU level since 1977, as Member States had begun developing their own national regulations regarding vehicle roadworthiness testing, leading to a lack of harmonisation. The 2014 RWP built on requirements included in the previous Directives related to the roadworthiness tests, roadside inspections, and rules on the registration documents of vehicles. To meet the objective to enhance the safety of vehicles on the road, the minimum EU standards for periodic roadworthiness tests (PTI) were strengthened and mandatory standards were introduced, together with the introduction of random roadside inspections (RSI). This was seen as essential to avoid reducing the effectiveness of roadworthiness enforcement. To meet the objective of making the necessary data for and from roadworthiness testing available, the PTI Directive also encourages cooperation and information exchange among Member States including records of roadworthiness tests.

The relevance of the RWP has been diminished in recent years by the widening gap between the existing roadworthiness requirements and the new systems installed in modern vehicles. On advanced driver assistance systems (ADAS), Intelligent Transportation Systems (ITS), human-machine interface (HMI) and electronic safety features the three Directives do not seem to provide a sufficiently comprehensive framework. The RWP currently does not cover specific testing protocols to ensure the compliance and maintenance of electric and hybrid vehicles, including software updates, in a safe and efficient manner.

Regarding the RWP's objective to contribute to emissions reduction from road transport, some of the tests used in PTI are no longer sufficiently sensitive to detect emission failures in internal combustion powered vehicles. Modern vehicle engines and exhaust gas systems have critical detection criteria that are not covered by the currently prescribed test methods, and the current RWP's contribution to reducing the number of vehicles in circulation with high emissions has become less relevant. Additionally, there are currently no EU roadworthiness provisions for testing vehicles for NO_x manipulation/defect or manipulation/defect of diesel particulate filter.

Regarding improvement of the exchange of information on testing results between Member States, the current framework for information exchange has not been effective. Although the legislation mentions electronic data exchanges between Member States authorities as a possibility, not all countries use this. Even if the harmonisation of vehicle registration documents made it easier for people to register vehicles from other Member States and the EEA, there is room for improvement of the digitalisation process, to make it even easier.

1.5.4. Compatibility with the multiannual financial framework and possible synergies with other appropriate instruments

The proposal is consistent with the objectives and priorities set in the 2020 Sustainable and Smart Mobility Strategy (SSMS) and the EU Green Deal by ensuring that vehicles on the roads maintain an adequate level of safety and environmental performance over time.

It is in line with the objectives set in the EU Road Safety Policy Framework and it is also expected to have a significant contribution towards the EU's clean air policy objectives, including those of the Ambient Air Quality Directives and of the National Emission reduction Commitments Directive, by better identifying and reducing the presence of high polluters that represent a very large share of total emissions from road transport.

The proposal will facilitate online access to vehicle-related information, relevant administrative procedures and assistance and problem-solving services, which is in line with the Single Digital Gateway Regulation. Exchange of information related to roadworthiness and registration data will be aligned with relevant rules on data protection (GDPR).

The proposal is also aligned with the safety and environmental requirements as set out in the Type-Approval Regulations, including with the General Safety Regulation. It includes measures which will ensure that minimum standards are maintained by owners throughout the lifetime of the vehicle. The proposal ensures alignment between PTI and RSI testing and the type-approval process, including in relation to the use of electronic PTI (ePTI). The proposal is also coherent with the requirements of the legislation on end-of-life vehicles (ELV).

The proposal is therefore considered consistent with relevant EU strategies and legal instruments and contributes to EU policy priorities.

1.5.5. Assessment of the different available financing options, including scope for redeployment

The one-off costs in 2027 and ongoing adjustment costs of the Commission are mainly related to the upgrade of the IT system acting as a common interface to

support interactions between governmental authorities/organisations, in particular related to the exchanging vehicle-related information. The information functionality will build on the existing platform (MOVE-HUB) developed and run by the Commission for the purpose of exchanging various road transport-related information among Member States. The upgrade of this system would present the best use of the current organisation and invested resources up to now.

The full implementation of the revised Roadworthiness Package will also require additional human resources at the level of 1 FTE/year from 2027 onwards related to the work on implementing legislation, including support to the Member States to set up the required technical and digital framework.

1.6. Duration of the proposal/initiative and of its financial impact

☒ **limited duration**

- ☐ in effect from [DD/MM]YYYY to [DD/MM]YYYY
- ☐ financial impact from YYYY to YYYY for commitment appropriations and from YYYY to YYYY for payment appropriations.

☐ **unlimited duration**

- Implementation with a start-up period from YYYY to YYYY,
- followed by full-scale operation.

1.7. Method(s) of budget implementation planned⁵⁷

☒ **Direct management** by the Commission

- ☒ by its departments, including by its staff in the Union delegations;
- ☐ by the executive agencies

☐ **Shared management** with the Member States

☐ **Indirect management** by entrusting budget implementation tasks to:

- ☐ third countries or the bodies they have designated
- ☐ international organisations and their agencies (to be specified)
- ☐ the European Investment Bank and the European Investment Fund
- ☐ bodies referred to in Articles 70 and 71 of the Financial Regulation
- ☐ public law bodies
- ☐ bodies governed by private law with a public service mission to the extent that they are provided with adequate financial guarantees
- ☐ bodies governed by the private law of a Member State that are entrusted with the implementation of a public-private partnership and that are provided with adequate financial guarantees

⁵⁷

Details of budget implementation methods and references to the Financial Regulation may be found on the BUDGpedia site: <https://myintracomm.ec.europa.eu/corp/budget/financial-rules/budget-implementation/Pages/implementation-methods.aspx>.

- ☐ bodies or persons entrusted with the implementation of specific actions in the common foreign and security policy pursuant to Title V of the Treaty on European Union, and identified in the relevant basic act
- ☐ bodies established in a Member State, governed by the private law of a Member State or Union law and eligible to be entrusted, in accordance with sector-specific rules, with the implementation of Union funds or budgetary guarantees, to the extent that such bodies are controlled by public law bodies or by bodies governed by private law with a public service mission, and are provided with adequate financial guarantees in the form of joint and several liability by the controlling bodies or equivalent financial guarantees and which may be, for each action, limited to the maximum amount of the Union support.

Comments

The implementation of the proposal requires the update and maintenance of an existing IT system. This system should connect existing networks of national IT systems and interoperable access points, operating under the individual responsibility and management of each Member State, to ensure a secure and reliable exchange of vehicle-related information. The Commission will define appropriate IT solutions in implementing acts, including the design/architecture and technical specifications for an interface platform to interconnect national systems to exchange the information.

The adjustment costs for the Commission are expected to consist of two main cost elements (calculated in present net value), as follows:

- the non-recurring adjustment (one-off) costs in 2027 incurred by the necessary technical update of the IT platform and its testing of the exchange of vehicle-related information between Member States estimated at EUR 200 000;
- ongoing adjustment costs (maintenance and support of the dedicated platform) estimated at approx. EUR 50 000 per year intended for interactive exchange of information between Member States authorities.

The work on implementation of the RWP, including subsequent support to the Member States to set up the required technical and digital framework requires an increase of human resources at the level of 1 FTE/year from 2027 onwards, for a period of at least three years.

2. MANAGEMENT MEASURES

2.1. Monitoring and reporting rules

The tasks directly implemented by DG MOVE will follow the annual cycle of planning and monitoring, as implemented in the Commission and the executive agencies, including reporting the results through the Annual Activity Report of DG MOVE.

Regarding periodical technical inspections, according to the Article 20a of the PTI directive, Member States shall communicate to the Commission through the online reporting platform⁵⁸ ('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 indicate (per calendar year):

- the number of testing centres per Member State;
- the total number of vehicles inspected;
- the number of vehicles inspected per category;
- the areas checked, and the items failed, in accordance with point 3 of Annex I;
- where vehicles registered in another Member State were tested, the number, category and test result of those vehicles.

Regarding roadside inspections, according to the Article 20 of the RSI Directive, Member States shall communicate to the Commission, through the online reporting platform ('e-platform', same as the above), the data collected relating to each of the previous three calendar years and concerning the vehicles inspected in their territory. Those data shall indicate (per calendar year):

- the total number of vehicles inspected;
- the number of vehicles inspected per category;
- the country of registration of each vehicle inspected;
- in the case of more detailed inspections, the areas checked and the items failed, in accordance with point 10 of Annex IV;
- the results of the remote sensing measurements carried out in accordance with Article 4a.

The new reporting period of Member States is extended from current two years to three years in order to help reducing the administrative burden on national authorities. The e-platform is intended to facilitate automatic compilation of data by specific reporting features.

⁵⁸ 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).

2.2. Management and control system(s)

2.2.1. *Justification of the budget implementation method(s), the funding implementation mechanism(s), the payment modalities and the control strategy proposed*

The unit within DG MOVE in charge of the policy field will manage the implementation of the Directive

The expenditure will be implemented under direct management, in full application of the provisions of the Financial Regulation. The control strategy for procurements and grants in DG MOVE includes specific *ex ante* legal, operational and financial controls on the procedures (including, for procurements; a review by the advisory committee for procurement and contracts) as well as on the signature of contracts and agreements. In addition, expenditure made to procure goods and services is subject to *ex ante* and, when necessary, *ex post* and financial controls.

2.2.2. *Information concerning the risks identified and the internal control system(s) set up to mitigate them*

As regards the implementation of the tasks related to the setup of the mechanism, the risks identified are linked to use of procurement procedures: delay, availability of data, timely information to the market, etc. These risks are covered under the Financial Regulation and mitigated by the set of internal controls deployed by DG MOVE for procurement of this value.

2.2.3. *Estimation and justification of the cost-effectiveness of the controls (ratio between the control costs and the value of the related funds managed), and assessment of the expected levels of risk of error (at payment & at closure)*

The requested budgetary increase applies to the upgrade and maintenance of the IT system. Concerning the control activities related to the IT systems developed or managed by the directorate responsible for the proposal, the IT steering committee is regularly monitoring the directorate databases and progress made, taking into account the simplification and cost-efficiency of the Commission IT resources.

DG MOVE reports annually, in its Annual Activity Report, on the cost of control of its activities. The risk profile and cost of controls for procurement activities are in line with the requirements.

2.3. Measures to prevent fraud and irregularities

The regular Commission prevention and protection measures would apply, specifically:

- payments for any services are checked by the Commission staff prior to payment, taking into account any contractual obligations, economic principles and good financial or management practice. Anti-fraud provisions (supervision, reporting requirements, etc.) will be included in all agreements and contracts concluded between the Commission and recipients of any payments;
- to combat fraud, corruption and other unlawful activities the provisions of Regulation (EU, Euratom) No 883/2013 of the European Parliament and of the Council of 25 May 1999 concerning investigations conducted by the European Anti-fraud Office (OLAF) shall apply without restriction.

DG MOVE adopted a revised Anti-fraud Strategy (AFS) in 2020. The MOVE AFS is based on the Commission Anti-fraud Strategy and a specific risk assessment carried

out internally to identify the areas most vulnerable to fraud, the controls already in place and the actions necessary to improve DG MOVE's capacity to prevent, detect and correct fraud.

The contractual provisions applicable to public procurement ensure that audits and on-the-spot checks can be carried out by the Commission services, including OLAF, using the standard provisions recommended by OLAF.

3. ESTIMATED FINANCIAL IMPACT OF THE PROPOSAL/INITIATIVE

3.1. Heading(s) of the multiannual financial framework and expenditure budget line(s) affected

- Existing budget lines

In order of multiannual financial framework headings and budget lines.

Heading of multiannual financial framework	Budget line	Type of expenditure	Contribution			
	Number	Diff./Non-diff. ⁵⁹	from EFTA countries ⁶⁰	from candidate countries and potential candidates ⁶¹	From other third countries	other assigned revenue
01	02.20.04.01	Diff.	NO	NO	NO	NO

- New budget lines requested

In order of multiannual financial framework headings and budget lines.

Heading of multiannual financial framework	Budget line	Type of expenditure	Contribution			
	Number	Diff./Non-diff.	from EFTA countries	from candidate countries and potential candidates	from other third countries	other assigned revenue
	[XX.YY.YY.YY]	Diff./Non-diff.	YES/NO	YES/NO	YES/NO	YES/NO
	[XX.YY.YY.YY]	Diff./Non-diff.	YES/NO	YES/NO	YES/NO	YES/NO
	[XX.YY.YY.YY]	Diff./Non-diff.	YES/NO	YES/NO	YES/NO	YES/NO

⁵⁹ Diff. = Differentiated appropriations / Non-diff. = Non-differentiated appropriations.

⁶⁰ EFTA: European Free Trade Association.

⁶¹ Candidate countries and, where applicable, potential candidates from the Western Balkans.

3.2. Estimated financial impact of the proposal on appropriations

3.2.1. Summary of estimated impact on operational appropriations

- ☐ The proposal/initiative does not require the use of operational appropriations
- ☒ The proposal/initiative requires the use of operational appropriations, as explained below

3.2.1.1. Appropriations from voted budget

EUR million (to three decimal places)

Heading of multiannual financial framework		Number 01	Single Market, Innovation and Digital				
DG: MOVE			Year	Year	Year	Year	TOTAL MFF 2021-2027
			2024	2025	2026	2027 ⁶²	
Operational appropriations							
Budget line 02 20 04 01	Commitments	(1a)				0.25	0.250
	Payments	(2a)				0.25	0.250
Budget line	Commitments	(1b)					0.000
	Payments	(2b)					0.000
Appropriations of an administrative nature financed from the envelope of specific programmes ⁶³							
Budget line		(3)					0.000
TOTAL appropriations for DG MOVE	Commitments	=1a+1b+3	0.000	0.000	0.000	0.250	0.250
	Payments	=2a+2b+3	0.000	0.000	0.000	0.250	0.250
			Year	Year	Year	Year	TOTAL MFF 2021-2027
			2024	2025	2026	2027	
TOTAL operational appropriations	Commitments	(4)	0.000	0.000	0.000	0.250	0.250

⁶² Year 2027 is the year in which implementation of the proposal/initiative starts. For subsequent years, ongoing adjustment costs are estimated at the level of EUR 0.05 million, without prejudging the next MFF.

⁶³ Technical and/or administrative assistance and expenditure in support of the implementation of EU programmes and/or actions (former 'BA' lines), indirect research, direct research.

	Payments	(5)	0.000	0.000	0.000	0.250	0.250
TOTAL appropriations of an administrative nature financed from the envelope for specific programmes		(6)	0.000	0.000	0.000	0.000	0.000
TOTAL appropriations under HEADING 1 of the multiannual financial framework	Commitments	=4+6	0.000	0.000	0.000	0.250	0.250
	Payments	=5+6	0.000	0.000	0.000	0.250	0.250
			Year 2024	Year 2025	Year 2026	Year 2027	TOTAL MFF 2021-2027
• TOTAL operational appropriations (all operational headings)	Commitments	(4)	0.000	0.000	0.000	0.000	0.250
	Payments	(5)	0.000	0.000	0.000	0.000	0.250
• TOTAL appropriations of an administrative nature financed from the envelope for specific programmes (all operational headings)		(6)	0.000	0.000	0.000	0.000	0.000
TOTAL appropriations Under Heading 1 to 6 of the multiannual financial framework (Reference amount)	Commitments	=4+6	0.000	0.000	0.000	0.250	0.250
	Payments	=5+6	0.000	0.000	0.000	0.250	0.250

Heading of multiannual financial framework		7	‘Administrative expenditure’				
DG: MOVE			Year 2024	Year 2025	Year 2026	Year 2027 ⁶⁴	TOTAL MFF 2021- 2027
• Human resources			0.000	0.000	0.000	0.188	0.188
• Other administrative expenditure			0.000	0.000	0.000	0.000	0.000
TOTAL DG MOVE		Appropriations	0.000	0.000	0.000	0.188	0.188

TOTAL appropriations under HEADING 7 of the multiannual financial framework	(Total commitments = Total payments)	0.000	0.000	0.000	0.188	0.188
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EUR million (to three decimal places)

		Year 2024	Year 2025	Year 2026	Year 2027	TOTAL MFF 2021-2027
TOTAL appropriations under HEADINGS 1 to 7	Commitments	0.000	0.000	0.000	0.438	0.438
of the multiannual financial framework	Payments	0.000	0.000	0.000	0.438	0.438

⁶⁴

Technical and digital framework requires additional human resources at the level of 1 FTE/year from 2027 onwards. For subsequent years, this is without prejudging the next MFF.

3.2.2. Estimated output funded from operational appropriations (not to be completed for decentralised agencies)

Commitment appropriations in EUR million (to three decimal places)

Indicate objectives and outputs ↓			Year 2024		Year 2025		Year 2026		Year 2027		Enter as many years as necessary to show the duration of the impact (see Section1.6)								TOTAL	
	OUTPUTS																			
	Type ⁶⁵	Average cost	No	Cost	No	Cost	No	Cost	No	Cost	No	Cost	No	Cost	No	Cost	Total No	Total cost		
SPECIFIC OBJECTIVE No 1 ⁶⁶ ...																				
- Output																				
- Output																				
- Output																				
Subtotal for specific objective No 1																				
SPECIFIC OBJECTIVE No 2 ...																				
- Output																				
Subtotal for specific objective No 2																				
TOTALS																				

⁶⁵ Outputs are products and services to be supplied (e.g. number of student exchanges financed, number of km of roads built, etc.).

⁶⁶ As described in Section 1.3.2. 'Specific objective(s)'

3.2.3. Summary of estimated impact on administrative appropriations

- ☐ The proposal/initiative does not require the use of appropriations of an administrative nature
- ☒ The proposal/initiative requires the use of appropriations of an administrative nature, as explained below

3.2.3.1. Appropriations from voted budget

VOTED APPROPRIATIONS	Year	Year	Year	Year	TOTAL 2021 - 2027
	2024	2025	2026	2027	
HEADING 7					
Human resources	0.000	0.000	0.000	0.188	0.188
Other administrative expenditure	0.000	0.000	0.000	0.000	0.000
Subtotal HEADING 7	0.000	0.000	0.000	0.188	0.188
Outside HEADING 7					
Human resources	0.000	0.000	0.000	0.000	0.000
Other expenditure of an administrative nature	0.000	0.000	0.000	0.000	0.000
Subtotal outside HEADING 7	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.188	0.188

The appropriations required for human resources and other expenditure of an administrative nature will be met by appropriations from the DG that are already assigned to management of the action and/or have been redeployed within the DG, together, if necessary, with any additional allocation which may be granted to the managing DG under the annual allocation procedure and in the light of budgetary constraints.

3.2.4. Estimated requirements of human resources

- ☐ The proposal/initiative does not require the use of human resources
- ☒ The proposal/initiative requires the use of human resources, as explained below

3.2.4.1. Financed from voted budget

Estimate to be expressed in full-time equivalent units (FTEs)

VOTED APPROPRIATIONS	Year 2024	Year 2025	Year 2026	Year 2027 ⁶⁷
• Establishment plan posts (officials and temporary staff)				
20 01 02 01 (Headquarters and Commission's Representation Offices)	0	0	0	1
20 01 02 03 (EU Delegations)	0	0	0	0
01 01 01 01 (Indirect research)	0	0	0	0
01 01 01 11 (Direct research)	0	0	0	0
Other budget lines (specify)	0	0	0	0
• External staff (inFTEs)				

⁶⁷ Technical and digital framework requires additional human resources at the level of 1 FTE/year from 2027 onwards. For subsequent years, this is without prejudging the next MFF.

20 02 01 (AC, END from the 'global envelope')		0	0	0	0
20 02 03 (AC, AL, END and JPD in the EU Delegations)		0	0	0	0
Admin. Support line [XX.01.YY.YY]	- at Headquarters	0	0	0	0
	- in EU Delegations	0	0	0	0
01 01 01 02 (AC, END - Indirect research)		0	0	0	0
01 01 01 12 (AC, END - Direct research)		0	0	0	0
Other budget lines (specify) - Heading 7		0	0	0	0
Other budget lines (specify) - Outside Heading 7		0	0	0	0
TOTAL		0	0	0	1

Considering the overall strained situation in Heading 7, in terms of both staffing and the level of appropriations, the human resources required will be met by staff from the DG who are already assigned to the management of the action and/or have been redeployed within the DG or other Commission services.

3.2.5. Overview of estimated impact on digital technology-related investments

Compulsory: the best estimate of the digital technology-related investments entailed by the proposal/initiative should be included in the table below.

Exceptionally, when required for the implementation of the proposal/initiative, the appropriations under Heading 7 should be presented in the designated line.

The appropriations under Headings 1-6 should be reflected as "Policy IT expenditure on operational programmes". This expenditure refers to the operational budget to be used to re-use/ buy/ develop IT platforms/ tools directly linked to the implementation of the initiative and their associated investments (e.g. licences, studies, data storage etc). The information provided in this table should be consistent with details presented under Section 4 "Digital dimensions".

TOTAL Digital and IT appropriations	Year 2024	Year 2025	Year 2026	Year 2027	TOTAL MFF 2021 - 2027
HEADING 7					
IT expenditure (corporate)	0.000	0.000	0.000	0.000	0.000
Subtotal HEADING 7	0.000	0.000	0.000	0.000	0.000
Outside HEADING 7					
Policy IT expenditure on operational programmes	0.000	0.000	0.000	0.250	0.250
Subtotal outside HEADING 7	0.000	0.000	0.000	0.250	0.250
TOTAL	0.000	0.000	0.000	0.250	0.250

3.2.6. Compatibility with the current multiannual financial framework

The proposal/initiative:

- ☒ can be fully financed through redeployment within the relevant heading of the multiannual financial framework (MFF)
- ☐ requires use of the unallocated margin under the relevant heading of the MFF and/or use of the special instruments as defined in the MFF Regulation

- ☐ requires a revision of the MFF

3.2.7. Third-party contributions

The proposal/initiative:

- ☒ does not provide for co-financing by third parties
- ☐ provides for the co-financing by third parties estimated below:

Appropriations in EUR million (to three decimal places)

	Year 2024	Year 2025	Year 2026	Year 2027	Total
Specify the co-financing body					
TOTAL appropriations co-financed					

3.3. Estimated impact on revenue

- ☒ The proposal/initiative has no financial impact on revenue.
- ☐ The proposal/initiative has the following financial impact:
 - ☐ on own resources
 - ☐ on other revenue
 - ☐ please indicate, if the revenue is assigned to expenditure lines

EUR million (to three decimal places)

Budget revenue line:	Appropriations available for the current financial year	Impact of the proposal/initiative ⁶⁸			
		Year 2024	Year 2025	Year 2026	Year 2027
Article					

For assigned revenue, specify the budget expenditure line(s) affected.

Other remarks (e.g. method/formula used for calculating the impact on revenue or any other information).

⁶⁸ As regards traditional own resources (customs duties, sugar levies), the amounts indicated must be net amounts, i.e. gross amounts after deduction of 20% for collection costs.

4. DIGITAL DIMENSIONS

4.1. Requirements of digital relevance

R1: Require the roadworthiness certificate in electronic format

- Directive 2014/45/EU (PTI), Article 8(2).
- While the current PTI Directive allows the use of “electronically produced” roadworthiness certificates, it requires a certified printout to be handed to the person presenting the vehicle for PTI. The measure will limit the requirement to issuing an electronic document only, while providing a printout only if the person presenting the vehicle so requests.
- The exchange of PTI-related data under R1 will allow enforcing authorities to check the status of any vehicle registered in the EU in the case of a roadside check or for the purpose of re-registration, without the need for the owner of the vehicle to present a printed certificate.
- Stakeholders affected: Member States, vehicle owners.
- Management of existing national vehicle registers and PTI databases.

R2: Provide electronic access to relevant data, including on PTI reports stored in national databases, to the registration authorities of other EU Member States using a common interface

- Revised Directive 1999/37/EC (VRD), Article 15, Directive 2014/45/EU (PTI), Article 16, and Directive 2014/45/EU (PTI), Article 18a Directive 2014/47/EU (RSI).
- This measure will require that Member States provide access to other Member States requesting registration or PTI-related vehicle data and odometer history for the vehicles registered in their territory.
- Stakeholders affected: Member States, the Commission.
- In order to facilitate the data exchange, the measure would require Member States to connect their national databases (vehicle registers and related PTI databases as the case may be) to the existing MOVE-HUB platform developed and run by the Commission for the purpose of exchanging various road transport-related information among Member States.

R3: Introduce issuing the registration certificates in digital format to gradually replace current paper (and smart card) documents

- Revised Directive 1999/37/EC (VRD), Articles 2, 3, and 5, and Annex III.
- The measure will introduce the requirement to issue new registration certificates in a digital format by default. The technical details of the digital/mobile registration certificate will be defined in an implementing act and refer to the relevant ISO standards as in the case of the digital driving licence. Similarly to the mobile driving licence, the digital registration certificate will rely on the eIDAS initiative.
- Stakeholders affected: Member States, vehicle owners.
- The measure applies to all vehicle categories that are subject to registration in the Member States. For the purposes of identifying vehicles in road traffic as well as for re-registration, Member States will have to recognise the digital

version of the registration certificate. As the physical documents, the digital vehicle registration certificate would be used to confirm the registration of the vehicle, to check certain technical data about it (the digital version could store more data than the paper version), and to allow verification by the authorities.

R4: Add new data to the vehicle register – minimum mandatory set (including among others: country of 1st registration, registration status, PTI status, changes due to transformation)

- Revised Directive 1999/37/EC (VRD), Article 6, Annex I and II
- It will provide for a minimum set of mandatory data to be registered by Member States. New data elements could include among others: a. Country where the vehicle was registered for the first time; b. Vehicle status (e.g. de-registered, temporarily de-registered, suspended, exported, end-of-life, destructed) c. PTI status (passed with no or minor defects, limited validity with major defects, failed – critical defects) and validity of the roadworthiness certificate (including expiry date), as well as status of the battery (for EVs): battery identification number; and information if the battery has been repaired or replaced; d. Changes in documentation or transformation – any important vehicle refurbishment to be approved and registered; e. For a vehicle which is permanently de-registered, information on the reasons for de-registration.
- Stakeholders affected: Member States, vehicle owners.
- Management of existing national vehicle registers and PTI databases.

R5: Recording of odometer readings in national databases

- Article 4a of Directive 2014/45/EU (PTI)
- The measure requires that service providers carrying out repairs or maintenance work on a vehicle record the odometer readings in a dedicated national database or in the national vehicle register. Vehicle manufacturers must also send regular odometer readings from their connected vehicles. The article also requires Member States to share odometer history with inspectors, the holder of the registration certificate and competent the authorities in the Member States (cf. R2).
- Stakeholders affected: Member States, vehicle repairers, workshops, vehicle manufacturers, vehicle owners and potential buyers.

R6: Communication of information by Member States to the Commission

- Article 20a of Directive 2014/45/EU (PTI), Article 16 of revised Directive 1999/37/EC (VRD), Article 20 of Directive 2014/47/EU (RSI)
- Similar but simpler and less frequent than the current reporting requirement under the RSI Directive, Member States will be required to communicate a minimum set of information related to PTIs, RSIs, and re-registrations of vehicles every three years. Member States will use a common reporting platform rather than sending emails with Excel files attached. The reporting format will be laid down in an implementing act to be adopted by the Commission.
- Stakeholders affected: Member States.

4.2. Data

No data will be collected at the Commission level, apart from cumulative data as provided by Member States reporting (see R6 above and point 2.1 of this statement on monitoring and reporting for more details). Those data relate to the number of vehicles tested at periodic and roadside inspections, their country of registration and the number and types of deficiencies.

All other relevant requirements (R1, R2, R3, R4, R5 see above) are consistent with the Single Digital Gateway Regulation by facilitating online access to vehicle-related information, relevant administrative procedures and assistance and problem-solving services.

They are also serving the objectives of the EU's Data Strategy for the development of European Data spaces for public administrations that can support enforcement of legislation, including road safety and environmental legislation.

Exchange of information related to roadworthiness and registration data will have to be aligned with relevant rules on data protection (GDPR).

The once-only principle has been followed, and the possibility to reuse existing data has been explored.

4.3. Digital solutions

To facilitate the data exchange, R2 would require Member States to connect their national databases (vehicle registers and related PTI databases as the case may be) to the existing MOVE-HUB platform developed and run by the Commission for the purpose of exchanging various road transport-related information among Member States. There will be no need to develop additional software to gather messaging statistics. MOVE-HUB could also be used to communicate the odometer history of vehicles recorded following R5, at the time of re-registering a vehicle in another Member State.

Other requirements (R1, R3, R4) do not require central solution and will rely on the existing national digital solutions. R5 will require either the setting up of national databases (similar to the Belgian Car-Pass system), or use their national vehicle register to record odometer readings.

All proposed requirements (R1, R2, R3, R4, R5, R6) are coherent with digital policies (the Single Digital Gateway, Data Act) as well as the requirements of the EU cybersecurity framework. No use of AI technologies is envisaged for the stated requirements.

R6 will rely on the online platform established by the Commission ('e-platform'⁶⁹) to facilitate communication between the Commission and Member States.

Regarding both periodical technical inspections and roadside inspections, Member States must communicate to the Commission through the online reporting platform ('e-platform') the data relating to each of the previous three calendar years and concerning the vehicles

⁶⁹ 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).

inspected in their territory.

The reporting period of Member States is every three years, and the e-platform is intended to facilitate automatic compilation of data by specific reporting features.

4.4. Interoperability assessment

R2 will require that Member States provide access to other Member States requesting registration or PTI-related vehicle data for the vehicles registered in their territory. To facilitate the data exchange, the R2 would require Member States to connect their national databases (vehicle registers and related PTI databases as the case may be) to the existing MOVE-HUB platform developed and run by the Commission for the purpose of exchanging various road transport-related information among Member States.

For interoperability, R1, R2, R3, R4 and R5 will likely have:

1. a positive effect on legal cross-border interoperability because they provide a coherent legal framework for the use and access of the mentioned certificates and documents across borders.
2. A positive effect on semantic cross-border interoperability because they provide a clear framework to clarify a common format and meaning of the exchanged data.
3. A positive effect on technical cross-border interoperability because the structure of the message will make it suitable for use across border. This is further enhanced in case the Member States decides to use the MOVE-HUB solution, which is already provided by the Commission and is used by Member States for message exchange. If the Member States decide to develop their own systems, they need to ensure they do not pose barriers to interoperability.
4. A positive impact on organisational interoperability because it requires Member States to align their processes to allow for the use and access of the mentioned certificates and documents across borders.

4.5. Measures to support digital implementation

To facilitate the smooth implementation of the requirements of digital relevance identified in Section 4.1., the implementing/delegated acts will have to be adopted for the following purposes:

- Specify a minimum set of technical data necessary to carry out periodic technical inspections that must be made available free of charge and without delay to the competent authorities, which will then have to ensure that the testing centres authorised by them have the necessary access to it. Additional technical requirements should be laid down in an implementing act amending Commission Implementing Regulation 2019/621.
- Ensure uniform conditions for the implementation of the digital roadworthiness certificate, implementing powers should be conferred on the Commission to specify interoperability features and security measures applicable to the QR codes introduced on roadworthiness certificates.
- Address cross-border issues, Member States should assist one another in the implementation of the Directives 2014/45/EU and 2014/47/EU. For that purpose, rules on exchange of information and vehicle data are necessary to check a vehicle's legal and technical status, odometer history, the content of

roadworthiness certificates and of technical roadside inspection reports.

- The functionalities of the MOVE-HUB should be further extended to enable the necessary exchange of information and/or vehicle data for the purposes of Directives 2014/45/EU and 2014/47/EU, in particular to specify the format and content of the information/data to be exchanged. Member States should connect their electronic systems containing information on roadworthiness certificates and odometer history with the MOVE-HUB system.
- Ensure uniform conditions for the implementation of the reporting requirements by Member States, who should report on the implementation of the Directive 2014/45/EU and Directive 2014/47/EU every 3 years.



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ANNEXES 1 to 2

Roadworthiness package

ANNEXES

to the 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

{SEC(2025) 119 final} - {SWD(2025) 96 final} - {SWD(2025) 97 final} -
{SWD(2025) 98 final} - {SWD(2025) 99 final}

ANNEX I

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

(1) Annex I is amended as follows:

(a) 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.’;

(b) in point 2, the following point is added:

‘(10) Electronic safety systems.’;

(c) 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:

(a) 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;

(b) 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);

(c) 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;

- (d) 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:

‘

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. 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); at least two brake applications after the warning device has operated (or gauge shows an unsafe reading).		X	X
		(b) Time taken to build up air pressure/vacuum to safe working value is too long according to the requirements 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. Air leak causing a critical drop in pressure.		X	X
		(e) External damage likely to affect the function of the braking system. Secondary braking performance not met.		X	X
1.1.4. Low pressure warning device	Functional check	Malfunctioning or defective warning device. Low pressure not identifiable.	X	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. Excessive wear.	X		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	

’ ;

(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.). Braking performance affected.		X	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. 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. 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. No braking effort on one or more wheels.	X	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. 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	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.	X	

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 (a) to the maximum authorised mass or, (b) in the case of semi-trailers, to the sum of the authorised axle loads, or (c) to reference values. 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. 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: — the braking system is in good condition with no obvious defects, — 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, — brake actuation level by the inspector must always be proportional to the current load of the axle. Information on system values may be			X	
	Does not give at least the minimum figure as follows ⁽¹⁾: 1. Vehicles registered for the first time after 1/1/2012: — Category M₁: 58 % — Categories M₂ and M₃: 50 % — Category N₁: 50 % — Categories N₂ and N₃: 50 % — Categories O₂, O₃ and O₄: — for semi-trailers: 45 % ⁽²⁾ — for draw-bar trailers: 50 % 2. Vehicles registered for the first time before 1/1/2012: — Categories M₁, M₂ and M₃: 50 % ⁽³⁾ — Category N₁: 45 % — Categories N₂ and N₃: 43 % ⁽⁴⁾ — Categories O₂, O₃ and O₄: 40 % ⁽⁵⁾ 3. Other categories Categories L (both brakes together): — Category L1e: 42 % — Categories L2e, L6e: 40 % — Category L3e: 50 % — Category L4e: 46 % — Categories L5e, L7e: 44 % Category L (rear wheel brake): all categories: 25 % of the total vehicle mass Category T: 40% Less than 50 % of the above values reached.		X		X

	retrieved using electronic vehicle interface. 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. In case of doubt, the braking efficiency shall be demonstrated in loaded or partially loaded condition.			
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’;

(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. 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. No braking effort on one or more wheels. (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. 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. (c) No gradual variation in brake effort (grabbing).	X X X	X
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’;
(ix) in the table, item 1.4.1 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. 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
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’;
(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. (b) System not functioning.	X	
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’;
(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. (b) The system does not noticeably decelerate the vehicle, or the charge indicator (if fitted) does not display “on charge” when regeneration is activated. (c) Vehicle interface indicates system malfunction.	X	
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’;

(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.	(a) Defective or missing light source. Multiple light sources (in the case of LED, up to 1/3 not functioning). Seriously affected visibility.	X	X	
		(b) Slightly defective projection system (reflector and lens). Heavily defective or missing projection system (reflector and lens).	X	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): (i) M,N,O categories (Regulation No 48 UN/ECE [2016/1723], point 6.2.6.1.2): — $h \leq 0.8\text{m}$: upper limit -0.5%; lower limit -2.5% — $0.8 < h \leq 1\text{m}$: upper limit -0.5%; lower limit -3% — $h > 1\text{m}$: upper limit -1% e inferior -3% — $h > 1.2\text{m}$, category N3G (all-terrain): upper limit -1.5%; lower limit -3.5% (ii) L category (Commission Delegated Regulation (EU) No 3/2014 and Regulation No 53 UN/ECE): — upper limit -0.5% — $h \leq 0.8\text{m}$: lower limit -2,5% — $h > 0.8\text{m}$: lower limit -3,0% (-2,5% on L3e category) (iii) T category (Regulation No 86 UN/ECE):		X	

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)	X	
		Maximum permitted light brightness to the front exceeded.		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.		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 Multiple light sources (in the case of LED, up to 1/3 not functioning); one of several lateral light sources defective. Seriously affected visibility (in the case of LED, less than 2/3 functioning).	X	
		(b) Defective lens.		X
		(c) Lamp not securely attached. 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. Multiple light sources; in the case of LED up to 1/3 not functioning. Single light sources; in the case of LED less than 2/3 functioning. No light source functioning.	X	X	X
		(b) Slightly defective lens (no influence on emitted light), Heavily defective lens (emitted light affected).	X	X	
		(c) Lamp not securely attached. 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. Delayed operation. 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 Multiple light sources (in the case of LED up to 1/3 not functioning). Single light sources; in the case of LED less than 2/3 functioning. No light source functioning.	X	X	X
		(b) Slightly defective lens (no influence on emitted light). Heavily defective lens (emitted light affected).	X	X	
		(c) Lamp not securely attached. 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. Multiple light sources (in the case of LED up to 1/3 not functioning). Single light sources; in the case of LED less than 2/3 functioning.	X	X	
		(b) Slightly defective lens (no influence on emitted light). Heavily defective lens (emitted light affected).	X	X	
		(c) Lamp not securely attached. Very serious risk of falling off or dazzling oncoming traffic.	X	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 Multiple light sources (in the case of LED up to 1/3 not functioning). Single light sources; in the case of LED less than 2/3 functioning.	X	X	
			(b) Defective lens	X		
			(c) Lamp not securely attached. Very serious risk of falling off	X	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). Defective or missing light source. (Single light source).	X		X
			(c) Lamp not securely attached. Very serious risk of falling off.	X	X	

’;
(xxii) in the table, item 4.1.1, 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 Heavily deteriorated	X		
		(b) Defective attachment Very serious risk of falling off		X	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 is available).	(a) Marks of leakage Leaking (presence of droplets)		X	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 Heavily deteriorated Risk of short-circuit fault	X	X	X
		(b) Wiring insecure or not adequately secured Fixings loose, touching sharp edges, connectors	X	X	

		likely to be disconnected 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 Heavily deteriorated	X		X	
4.14.4.3 Ground continuity (X) ²	Measurement using an ohmmeter	Test not feasible Too high resistance (over 100 Ohms)	X		X	
4.14.4.4 Charging inlet cover	Visual inspection and by operation.	Deteriorated Missing	X		X	
4.14.4.5 Charging inlet	Visual inspection and by operation.	(a) Deteriorated Trace of beginning of melting or electric arcs (b) Foreign material or moisture	X		X X	
4.14.4.6 Charging cable	Visual inspection and by operation.	(a) Deteriorated (b) Charging cable not provided	X			
4.14.5. High voltage electrical and electronic equipment (X) ²						
4.14.5.1. High voltage electrical and electronic equipment	Visual inspection and by using the electronic vehicle interface.	(a) Slightly deteriorated	X		X	
		Heavily deteriorated			X	
		(b) Attachment defective				
		(c) Leaking			X	
4.14.5.2. Traction motor	Visual inspection	(a) Shield is deformed, not in-place or damaged, or corroded			X	
	Check of operational readiness of the systems by an applicable interface (OBD or OBM)	(b) Warning marking missing or illegible			X	
		(c) Connection of wiring harness insecure or corroded			X	
		(d) Electrical insulation damaged or deteriorated likely to cause injury when contacted.			X	X
	Measurement of equipotential bonding, where made possible by the technical characteristics of the vehicle	(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 Check of operational readiness of the systems by an applicable interface (OBD or OBM) 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 Likely to cause injuries or to fall off	X	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	
4.14.6.2. Insulation resistance between the high-voltage system and chassis	Visual inspection 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. 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. Directional stability impaired; danger of demolition.	X	X
		(b) Wheel bearing too tight, jammed. Danger of overheating; danger of demolition.	X	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. 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	

		(c) Tyres on same axle of different construction (radial/cross-ply).		X	
		(d) Any serious damage or cut to tyre. Cord visible or damaged.		X	X
		(e) Tyre tread wear indicator becomes exposed. Tyre tread depth not in accordance with the requirements ¹ .		X	X
		(f) Tyre rubbing against other components (flexible anti spray devices). Tyre rubbing against other components (safe driving not impaired)	X	X	
		(g) Re-grooved tyres not in accordance with requirements ¹ . Cord protection layer affected.		X	X
		(h) Tyre obviously underinflated.	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 . Missing (if required).	X	X	
		(b) Operation impaired. Not operational at all.	X	X	
		(c) Not capable of being sufficiently illuminated. Not capable of being illuminated at all.	X	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					
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.	(a) Noise levels in excess of those permitted in the requirements ¹ .		X	

	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)				
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	

8.2.2 Exhaust emission measurement – positive ignition engines	Test procedures: For vehicles that had a particle number (PN) limit at type-approval; Euro VI, Euro 6c and newer: Particle number measurement in accordance with 8.2.2.1. For all vehicles: Gaseous emissions test in accordance with 8.2.2.2. For vehicles as of emission classes Euro VI, 6d-TEMP and newer: NO_x measurement in accordance with 8.2.2.3.			
8.2.2.1 Particle number measurement	Vehicle preparation: — [to be specified in accordance with the delegated acts referred to in Article 17] Measuring instrument preparation: — The device to measure PN is powered on for at least the warm-up time indicated by the manufacturer; — 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; Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage. Test procedure: — The software of the particle counter automatically guides the instrument operator through the test procedure; — The probe is inserted at least 0,20 m into the outlet of the exhaust system. In justified	Measurement result exceeds [to be specified in accordance with the delegated acts referred to in Article 17] (1/cm³)	X	

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;	— 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;	— 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;	
— After the probe has been inserted into the tailpipe, the following steps shall be followed:	1. A stabilization period of at least 15 seconds with the engine running at idle speed.	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].	After the completion of the test procedure, the instrument reports (and stores) the PN concentration of the vehicle and a "PASS" or "FAIL" message: — If the test result is less than or equal to the limit, the instrument reports a "PASS" message. — 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 requirements¹. Measurements not applicable for two-stroke engines.	(a) Either gaseous emissions exceed the specific levels given by the manufacturer; (b) Or, if this information is not available, the CO emissions exceed, (i) for vehicles not controlled by an advanced emission control system, — 4,5 %, or — 3,5 % according to the date of first registration or use specified in requirements¹. (ii) for vehicles controlled by an advanced emission control system, — at engine idle: 0,5 % — at high idle: 0,3 % or — at engine idle: 0,3 % (7) — at high idle: 0,2 % or — at engine idle: 0,2 % (8) — at high idle: 0,1 % according to the date of first registration or use specified in requirements¹. (c) Lambda coefficient outside the range $1 \pm 0,03$ or not in accordance with the manufacturer's specification;	X	X
8.2.2.3. NO _x measurement	<u>Vehicle preparation:</u> [to be specified in accordance with the delegated acts referred to in Article 17]; - [...]] <u>Measuring instrument preparation:</u> — [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	

	— Self-checks of the instrument [to be specified in accordance with the delegated acts referred to in Article 17]; Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage. Test procedure: — [to be specified in accordance with the delegated acts referred to in Article 17 or combined with PN testing above].			
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8.2.3 Exhaust emission measurement compression ignition engines	Test procedures: For vehicles as of emission classes Euro 5b and Euro VI and newer: Particle number (PN) measurement in accordance with 8.2.3.1 For vehicles up to emission classes Euro 5a and Euro V: Opacity measurement in accordance with 8.2.3.2. For vehicles equipped with particle filters, Member States may apply PN measurement in accordance with 8.2.3.1 instead of opacity measurement. For vehicles as of emission classes Euro 6d-TEMP and Euro VI and newer: NO_x measurement in accordance with 8.2.3.3.						
8.2.3.1 Particle number measurement	Vehicle preparation: At the beginning of the test the vehicle's engine should be: — Hot, i.e., engine coolant temperature above 60 °C but preferably above 70 °C — 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. During the test, the vehicle shall not be performing an active particulate filter regeneration. A fast pass test is possible with engine coolant temperature below 60 °C. However, if the vehicle fails to pass the test, the test shall be repeated, and the vehicle should fulfil the requirements set for the engine coolant temperature and the conditioning. Measuring instrument (as specified in Sections 3, 4, and 5 of Commission Recommendation (EU) 2023/688, as adopted on 20 March 2023) preparation: — The instrument is powered on for at least the warm-up time	Measurement result exceeds 250 000 (1/cm³) 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/cm³)	X				

	indicated by the manufacturer; — 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; Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage. Test procedure: — The software of the particle counter automatically guides the instrument operator through the test procedure; — 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; — 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; — 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; — After the probe has been inserted into the tailpipe, the following steps shall be followed: 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, 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. After the completion of the test procedure, the instrument	
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	reports (and stores) the average PN concentration of the vehicle and a "PASS" or "FAIL" message: — If the test result is less than or equal to the limit, the instrument reports a "PASS" message. — If the test result is greater than the limit, the instrument reports a "FAIL" message.	
8.2.3.2. Opacity 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. Vehicle preconditioning: 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 requirements¹, opacity exceeds the level recorded on the manufacturer's plate on the vehicle;

	2. Precondition requirements: (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. (ii) Exhaust system shall be purged by at least three free acceleration cycles or by an equivalent method. Test procedure: 1. 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. 2. 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 requirements¹ do not allow the use of reference values, — for naturally aspirated engines: 2,5 m⁻¹, — for turbo-charged engines: 3,0 m⁻¹, or — for vehicles identified in requirements¹ or first registered or put into service for the first time after the date specified in requirements¹: 1,5 m⁻¹ ⁽⁹⁾ or 0,7 m⁻¹ ⁽⁸⁾		

	3. 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 M₂, M₃, N₂ and N₃, should be at least two seconds. 4. 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. 5. 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.			
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Item	Method	Reasons for failure	Assessment of deficiencies		
			Minor	Major	Dangerous
8.2.3.3. NO_x measurement	Vehicle preparation: 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 M₁ and N₁ vehicles and within 3.5 minutes for M₂, M₃, N₂ and N₃ 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). During the test, the vehicle shall not be performing an active particulate filter regeneration. Measuring instrument preparation: — The device to measure NO_x emissions is powered on for at least the warm-up time indicated by the manufacturer; — 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; Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage. Test procedure: — The software of the NO_x analyser automatically guides the instrument operator through the test procedure; — 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	Measurement result exceeds 40 ppm		X	

	m. The sampling probe shall not touch the walls of the tailpipe; — 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; — The vehicle operates at low idling; — After the probe has been inserted into the tailpipe, the following steps shall be followed: 1. A stabilization period of at least 15 seconds with the engine running at idle speed. 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. 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: — If the test result is less than or equal to the limit, the instrument reports a "PASS" message. — If the test result is greater than the limit, the instrument reports a "FAIL" message.				
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(xxxiv) in the table, item 8.4.1, is replaced by the following:

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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. Steady formation of drops that constitutes a very serious risk.	X	X
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;

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

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10. ELECTRONIC SAFETY SYSTEMS					
10.1. Cornering light 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.2 Adaptive cruise control	Visual inspection complemented, where	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	

Description: The system maintains the vehicle's speed, depending on the preferred speed and distance to the vehicle in front.	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, 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.3 Adaptive deflectors 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	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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	

10.4 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
				X	
			X	X	X
		(g) System or components not operating, or implausible operation			
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users			
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation	X	X	X
			Affecting safe operation of the vehicle			
			Danger to health of persons on board			
10.5 Active Headrest 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	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation	X		X	X
10.6 Active hood Description: by automatically lifting the bonnet, the system ensures a larger collapsible zone in the event of an accident involving a	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	Danger to health of persons on board				
		(g) System or components not operating, where applicable, or implausible operation			X	
		(h) Other failure Not affecting the safe operation	X		X	X
		Affecting safe operation of the vehicle				
		Danger to health of persons on board				
		(a) System or any component missing			X	
		(b) System or components damaged			X	
		(c) Software version or -integrity incorrect			X	

pedestrian.		(d) Wiring damaged		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.7 Automatic hold function 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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
10.8 Automatic headlamp levelling 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	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.9 Automatic emergency braking system 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	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	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	
		(b) System or components damaged, or sensors obviously misaligned		X	
		(c) Software version or -integrity incorrect		X	

inevitable impact.		(d) Wiring damaged		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.10 Anti-lock braking system 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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.11 Automatic light 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	
		(e) Warning device shows system malfunction.		X	
10.12 Electro-mechanic power steering Description: the supporting power	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	
		(b) System or components damaged		X	

for steering is generated by an electric motor.	the 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 Not affecting the safe operation Affecting safe operation of the vehicle 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.) Steering affected		X	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	(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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	

10.14 Electronic damping 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing			
		(b) System or components damaged			
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(g) System or components not operating, or implausible operation			

		(h) Other failure Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
10.15 Electronic brake system 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 Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
(g) System or components not operating, or implausible operation				X	
		(h) Other failure Not affecting the safe operation			
		Affecting safe operation of the vehicle	X		
		Danger to health of persons on board or of other road users		X	
		(a) System or any component (for example wheel speed sensors) missing		X	
		(b) System or components (for example wheel speed sensors) damaged		X	
10.16 Electronic stability program Description: the system stabilizes the vehicle or the complete vehicle train in critical, dynamic driving situations, 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				

accordance with Regulation (EU) 2019/2144 and UNECE-R 140.		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
10.17 High beam assist 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	(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X

10.18 Speed limiter 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	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X

10.19 Belt tensioner and belt force limiter 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
10.20 Taillight switching 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation	X	
		Affecting safe operation of the vehicle		X
		Danger to health of persons on board		X
		(g) System or components not operating, where applicable, or implausible operation		X
		(h) Other failure Not affecting the safe operation	X	
		Affecting safe operation of the vehicle		X
		Danger to health of persons on board		X
		(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

10.21 Bending light 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			
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation	X	
		Affecting safe operation of the vehicle	X	X
		Danger to health of persons on board or of other road users		
		(g) System or components not operating, or implausible operation	X	
		(h) Other failure Not affecting the safe operation		
		Affecting safe operation of the vehicle	X	X
		Danger to health of persons on board or of other road users		X
		(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 Not affecting the safe operation	X	
		Affecting safe operation of the vehicle	X	X
		Danger to health of persons on board or of other road users		X
		(g) System or components not operating, or implausible operation		X

		(h) Other failure Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
10.22 Steering assist 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.23 Height levelling 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	(g) System or components not operating, or implausible operative (for example audio components)		X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	
		(b) System or components damaged		X	
		(c) Software version or -integrity incorrect		X	

10.24 Emergency braking signal 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	(d) Wiring damaged	X	
		(e) Warning device shows system malfunction.	X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation	X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation	X	

		(f) Other failure Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
10.25 Pre-crash system 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 Not affecting the safe operation	X	X	X
10.26 Tyre pressure warning 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)	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	Danger to health of persons on board or of other road users			
		(g) System or components not operating, or implausible operation (for example power windows)		X	
		(h) Other failure Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
		(a) System or any component missing		X	
		(b) System or components damaged		X	
		(c) Software version or -integrity incorrect		X	

2019/2144 and UNECE-R 141.		(d) Wiring damaged		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.27 Traction control 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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
10.28 Superimposed steering 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 Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
		(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.)		X	
		Steering affected			X
10.29 Roll over protection (active) Description: in the event of an imminent rollover, support	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where	(h) Other failure Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
		(a) System or any component missing		X	
		(b) System or components damaged		X	

elements are extended to secure the survival space, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 21.	the 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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
10.30 Hydrogen installation 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	(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.31 Start-up aid 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.32 Trailer stabilization 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	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	
		(b) System or components damaged		X	

brakes, the complete vehicle train is stabilised.	the 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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
10.33 Endurance brake 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	(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
		(j) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.34 Differential lock deactivation 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(g) System or components not operating, or implausible operation Steering affected		X	X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X

10.35 Electronically controlled leading and trailing axle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
10.36 Electronic steering damper 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	(g) System or components not operating, or implausible operation Steering affected	X	X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(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	

10.37 Bus stop brake 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			
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation	X	
		Affecting safe operation of the vehicle	X	X
		Danger to health of persons on board or of other road users		
		(g) System or components not operating, or implausible operation	X	
		Steering affected		X
		(h) Other failure Not affecting the safe operation	X	
		Affecting safe operation of the vehicle	X	X
		Danger to health of persons on board or of other road users		
		(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 Not affecting the safe operation	X	
		Affecting safe operation of the vehicle	X	X
		Danger to health of persons on board or of other road users		
		(g) System or components not operating, or implausible operation	X	

		(h) Other failure Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
10.38 Kneeling 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 Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
10.39 Steering brake 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	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation			
		Affecting safe operation of the vehicle	X	X	
		Danger to health of persons on board or of other road users			X
		(a) System or any component missing		X	
		(b) System or components damaged		X	
		(c) Software version or -integrity incorrect		X	

10.40 Tyre pressure control 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	(d) Wiring damaged		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(g) System or components not operating, or implausible operation Steering affected		X	X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.41 Sliding joint stabilisation 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	
10.42 Four-wheel parking brake Description: the system applies the maximum brake pressure in the	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	
		(b) System or components damaged		X	

wheel cylinders at all four wheels.	the 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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
10.43 Front-wheel locking device 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	(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X

10.44 Adaptive headlights 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	(g) System or components not operating, or implausible operation	X		
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X		X
		(a) System or any component missing	X		
		(b) System or components damaged	X		
		(c) Software version or -integrity incorrect	X		
		(d) Wiring damaged	X		
10.45 Electrically actuated parking brake Description: the parking brake	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where	(e) Warning device shows system malfunction.	X		
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X		X
		(g) System or components not operating, or implausible operation	X		
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X		X
		(a) System or any component missing	X		
		(b) System or components damaged	X		

function is triggered or transmitted electronically or electromechanically.	the 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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
10.46 Lane change assistance 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	(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.47 Lane keeping assistance 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.48 Automatic eCall 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	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	
		(b) System or components damaged		X	

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***.	the necessary data is made available, with the use of electronic interface The verification of the minimum set of data (MSD) includes checking whether: - the mandatory fields are filled with plausible information; - 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; - 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		
10.49 Active roll stabilisation 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	(e) Warning device (eCall MIL) shows system malfunction.	X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation	X	
		Affecting safe operation of the vehicle	X	
		Danger to health of persons on board		X
		(g) System or components not operating, or implausible operation:	X	
		- audio components (for example failing echo-test);		
		- minimum set of data incorrect		
		(h) Other failure (for example mobile network communication device, electronic control unit, or GPS signal failure) Not affecting the safe operation	X	
		Affecting safe operation of the vehicle	X	
		Danger to health of persons on board		X
		(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	

10.50 Camera monitor 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
10.51 Acoustic vehicle alerting 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 Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
(g) System or components not operating, or implausible operative, or not respecting type-approved noise levels				X	
		(h) Other failure Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
		(a) System or any component missing		X	
		(b) System or components damaged		X	
10.52 Basic exterior lights Description: the system switches on/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	(c) Software version or -integrity incorrect		X	

10.53 Automated lane keeping system (ALKS) 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 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	(d) Wiring damaged	X	
		(e) Warning device shows system malfunction.	X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation	X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation	X	

		(h) Other failure Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
10.54 Turning assistant 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 Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
10.55 Tachograph 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	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	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation			
		Affecting safe operation of the vehicle	X	X	X
		Danger to health of persons on board or of other road users			
		(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	

Regulation (EU) No 165/2014 of the European Parliament and of the Council****.		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
10.56 Intelligent speed assistance 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****.		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
	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	

10.57 Reversing detection 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation	X	X	X
			Affecting safe operation of the vehicle			
			Danger to health of persons on board or of other road users			
10.58 Driver drowsiness and attention warning 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 Not affecting the safe operation	X		X	X
10.59 Advanced driver distraction warning 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	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	Danger to health of persons on board or of other road users				
		(g) System or components not operating, or implausible operation			X	
		(h) Other failure Not affecting the safe operation	X		X	X
		Affecting safe operation of the vehicle				
		Danger to health of persons on board or of other road users				
		(a) System or any component missing			X	
		(b) System or components damaged			X	
		(c) Software version or -integrity incorrect			X	

distracted, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2023/2590*****.		(d) Wiring damaged		X	
		(e) Warning device shows system malfunction.		X	
10.60 Event data recorder 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation	X		
		(g) System or components not operating, or implausible operation (for example data not accessible)		X	
		(h) Other failure Not affecting the safe operation	X		

10.61 Automated driving system 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 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
10.62 Driver availability monitoring systems (automated driving) 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	(g) System or components not operating, or implausible operation (for example HMI)	X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X

* 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 I (‘)

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			
		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			

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 ₁₁ , M ₂	P	x	x		x					x	x		x	x	x	x	x	x
	Up to 3 500 kg	M ₁₁ , M ₂	D	x	x		x					x		x	x	x			x	x
	> 3 500 kg	M ₂₂ , M ₃	P	x	x	x		x	x	x	x	x	x		x	x	x	x	x	x
	> 3 500 kg	M ₂₂ , 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 ₁₁	P	x	x		x					x	x		x	x	x	x	x	x
	Up to 3 500 kg	N ₁₁	D	x	x		x					x		x	x	x		x	x	x
	> 3 500 kg	N ₂₂ , N ₃	P	x	x	x		x	x	x	x	x	x		x	x	x	x	x	x
	> 3 500 kg	N ₂₂ , 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 ₁₁	P	x	x		x					x	x		x	x	x	x	x	x
	Up to 3 500 kg	N ₁₁	D	x	x		x					x		x	x	x		x	x	x

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 , T1b, T2b, T3b, T4.1b, T4.2b and T4.3b ◀ ▶ M1	P	x	x	x		x	x	x	x	x	x		x	x	x	x	x	x
	> 3 500 kg	N ₂ , N ₃ , T1b, T2b, T3b, T4.1b, T4.2b and T4.3b ◀ ▶ M1	D	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)
, ;

(3) 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);’.

ANNEX [III](#)

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. 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); at least two brake applications after the warning device has operated (or gauge shows an unsafe reading).		X	X
		(b) Time taken to build up air pressure/vacuum to safe working value is too long according to the requirements 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. Air leak causing a critical drop in pressure.		X	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. Low pressure not identifiable.	X		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. Excessive wear.	X	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	

’;

(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.). Braking performance affected.		X	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 (E)	During a test on a brake tester or, if impossible, during a road test, apply the brakes progressively up to maximum effort. 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. 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. No braking effort on one or more wheels.	X	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. 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	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.	X	
		Does not give at least the minimum figure as follows ⁽²⁾ : Categories M ₁ , M ₂ and M ₃ : 50 % ⁽³⁾ Category N ₁ : 45 % Categories N ₂ and N ₃ : 43 % ⁽⁴⁾ Categories O ₃ and O ₄ : 40 % ⁽⁵⁾ Category T: 40% Less than 50 % of the above values reached	X	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 using a deceleration recording instrument ⁽¹⁾ .			

’;

(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. It must be ensured that, where possible, the mechanical brakes are inspected without interference/blending of regenerative braking or other continuous braking.		X	X
		(a) Inadequate braking effort on one or more wheels. No braking effort on one or more wheels.		
		(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. 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	X
		(c) No gradual variation in brake effort (grabbing).	X	

’;

(ix) in the table, item 1.4.1 is replaced by the following:

,

1.4.1. Performance (E)	Apply the brake during a test on a brake tester or by road test.		X	X
		Brake inoperative on one side or, in the case of testing on the road, the vehicle deviates excessively from a straight line. 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) 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.	(a) Defective or missing light source. Multiple light sources (in the case of LED, up to 1/3 not functioning). Seriously affected visibility.	X	X	
		(b) Slightly defective projection system (reflector and lens). Heavily defective or missing projection system (reflector and lens).	X	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 Multiple light sources (in the case of LED, up to 1/3 not functioning); one of several lateral light sources defective. Seriously affected visibility (in the case of LED, less than 2/3 functioning).	X		
		(b) Defective lens.		X	
		(c) Lamp not securely attached. Very serious risk of falling off.	X		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. Multiple light sources; in the case of LED up to 1/3 not functioning). Single light sources; in the case of LED less than 2/3 functioning. All light sources not functioning.	X	X	X

		(b) Slightly defective lens (no influence on emitted light). Heavily defective lens (emitted light affected).	X	X	
		(c) Lamp not securely attached. 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 Multiple light sources (in the case of LED up to 1/3 not functioning). Single light sources; in the case of LED less than 2/3 functioning. No light source functioning.	X	X	X
		(b) Slightly defective lens (no influence on emitted light). Heavily defective lens (emitted light affected).	X	X	
		(c) Lamp not securely attached. Very serious risk of falling off.	X	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 Multiple light source; in the case of LED up to 1/3 not functioning. Single light sources; in the case of LED less than 2/3 functioning.	X	X	
		(b) Slightly defective lens (no influence on emitted light). Heavily defective lens (emitted light affected).	X	X	
		(c) Lamp not securely attached. Very serious risk of falling off or dazzling oncoming traffic.	X	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 Multiple light sources (in the case of LED up to 1/3 not functioning). Single light sources; in the case of LED less than 2/3 functioning.	X	X	
		(b) Defective lens.	X		
		(c) Lamp not securely attached. Very serious risk of falling off.	X	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 4.1.1, the title in the first column is replaced by the following:

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

(xxii) in the table, in item 4.1.3, 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 Heavily 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 Heavily deteriorated	X	X	
			(b) Attachment defective		X	
			(c) Leaking		X	
4.14.5.2. Traction motor	Visual inspection Check of operational readiness of the systems by an applicable interface (OBD or OBM) 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 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 Check of operational readiness of the systems by an applicable interface (OBD or OBM) 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 Likely to cause injuries or to fall off	X	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	(c) Insulation resistance is not in accordance with requirements or predefined values from the vehicle manufacturer			X	
4.14.6.2. Insulation resistance between the high-voltage system and chassis	Visual inspection 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	(d) Resistance of the protective earthing is not in accordance with requirements			X	
		(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. 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 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. Directional stability impaired; danger of demolishment.		X		X
		(b) Wheel bearing too tight, jammed. 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 . Missing (if required).	X	X	
		(b) Operation impaired. Not operational at all.	X	X	
		(c) Not capable of being sufficiently illuminated. 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;
(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.	(a) Noise levels in excess of those permitted in the requirements.		X	
	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).	(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. Very serious risk of falling off.		X	X
	Measurement using remote sensing equipment	(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	
		(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	

Item	Method	Reasons for failure	Assessment of deficiencies		
			Minor	Major	Dangerous
8.2.2 Exhaust emission measurement – positive ignition engines	Test procedures: For vehicles that had a particle number (PN) limit at type-approval; Euro VI, Euro 6c and newer: Particle number (PN) measurement in accordance with 8.2.2.1. For all vehicles: Gaseous emissions test in accordance with 8.2.2.2. For vehicles as of emission classes Euro VI, Euro 6d-TEMP and newer: NO_x measurement in accordance with 8.2.2.3.				
8.2.2.1 Particle number measurement (E)	Vehicle preconditioning: — [to be specified in accordance with the delegated acts referred to in Article 21]. Measuring instrument preparation: — The device to measure PN is powered on for at least the warm-up time indicated by the manufacturer; — 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; Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage. Test procedure: — The software of the particle counter automatically guides the instrument operator	Measurement result exceeds [to be specified in accordance with the delegated acts referred to in Article 21] (1/cm³).	X		

	through the test procedure; — 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; — 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; — 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; — After the probe has been inserted into the tailpipe, the following steps shall be followed: 1. A stabilization period of at least 15 seconds with the engine running at idle speed. 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 21]. After the completion of the test procedure, the instrument reports (and stores) the PN concentration of the vehicle and a "PASS" or "FAIL" message: — If the test result is less than or equal to the limit, the instrument reports a "PASS" message. — If the test result is greater than the limit, the
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	instrument reports a "FAIL" message.				
8.2.2.2. Gaseous emissions (E)	Measurement using an exhaust gas analyser in accordance with the requirements¹. Measurements not applicable for two-stroke engines. Alternatively, measurement using remote sensing equipment and confirmed by standard test methods.	(a) Either gaseous emissions exceed the specific levels given by the manufacturer; (b) Or, if this information is not available, the CO emissions exceed, (i) for vehicles not controlled by an advanced emission control system, — 4,5 %, or — 3,5 % according to the date of first registration or use specified in requirements¹. (ii) for vehicles controlled by an advanced emission control system, — at engine idle: 0,5 % — at high idle: 0,3 % or — at engine idle: 0,3 % (⁷) — at high idle: 0,2 % or — at engine idle: 0,2 % (⁸) — at high idle: 0,1 % according to the date of first registration or use specified in requirements¹. (c) Lambda coefficient outside the range $1 \pm 0,03$ or not in accordance with the manufacturer's specification;	X		
8.2.2.3. NO _x measurement (E)	<u>Vehicle preconditioning:</u> [to be specified in accordance with the delegated acts referred to in Article 21]; - [...]] <u>Measuring instrument preparation:</u> — [to be specified in accordance with the delegated acts referred to in Article 21) or combined with PN measurement in	(a) Measurement result exceeds [NO_x limit to be specified in accordance with the delegated acts referred to in Article 21].	X		

	accordance with 8.2.2.1]; — Self-checks of the instrument [to be specified in accordance with the delegated acts referred to in Article 21]; Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage. Test procedure: — [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]; 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.	(b) OBD or OBM read-out indicating significant malfunction.	X	
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Item	Method	Reasons for failure	Assessment of deficiencies		
			Minor	Major	Dangerous
8.2.3 Exhaust emission measurement compression ignition engines	Test procedures: For vehicles as of emission classes Euro 5b and Euro VI and newer: PN measurement in accordance with 8.2.3.1 For vehicles up to emission classes Euro 5a and Euro V: Opacity measurement in accordance with 8.2.3.2. For vehicles equipped with particle filters, Member States may apply PN measurement in accordance with 8.2.3.1 instead of opacity measurement. For vehicles as of emission classes Euro 6d-TEMP and Euro VI and newer: NOx measurement in accordance with 8.2.3.3.				
8.2.3.1 Particle number measurement (E)	Vehicle preconditioning: At the beginning of the test the vehicle's engine should be: — Hot, i.e., engine coolant temperature above 60 °C but preferably above 70 °C — 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. During the test, the vehicle shall not be performing an active particulate filter regeneration. A fast pass test is possible with engine coolant temperature below 60 °C. However, if the vehicle fails to pass the test, the test shall be repeated, and the vehicle should fulfil the requirements set for the engine coolant temperature and the conditioning. Measuring instrument preparation: — The instrument is powered on for at least the warm-up time indicated by the manufacturer;	Measurement result exceeds 250 000 (1/cm³) 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/cm³)	X		

— 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; Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage. Test procedure: — The software of the particle counter automatically guides the instrument operator through the test procedure; — 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; — 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; — 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; — After the probe has been inserted into the tailpipe, the following steps shall be followed: 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, 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. After the completion of the test procedure, the instrument	
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	reports (and stores) the average PN concentration of the vehicle and a "PASS" or "FAIL" message: — If the test result is less than or equal to the limit, the instrument reports a "PASS" message. — If the test result is greater than the limit, the instrument reports a "FAIL" message.						
8.2.3.2. Opacity 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. Vehicle preconditioning: 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.				X		

Item	Method	Reasons for failure	Assessment of deficiencies		
			Minor	Major	Dangerous
	2. Precondition requirements: (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. (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 requirements¹ do not allow the use of reference values, — for naturally aspirated engines: 2,5 m⁻¹, — for turbo-charged engines: 3,0 m⁻¹, or — for vehicles identified in requirements¹ or first registered or put into service for the first time after the date specified in requirements¹: 1,5 m⁻¹ ⁽⁹⁾ or 0,7 m⁻¹ ⁽⁸⁾			
	Test procedure: - 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. - 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.				

Item	Method	Reasons for failure	Assessment of deficiencies		
			Minor	Major	Dangerous
	3. 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 M₂, M₃, N₂ and N₃, should be at least two seconds. 4. 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. 5. 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. Alternatively, measurement using remote 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.				

Item	Method	Reasons for failure	Assessment of deficiencies		
			Minor	Major	Dangerous
8.2.3.3. NO _x measurement (E)	Vehicle preconditioning: 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 M₁ and N₁ vehicles and within 3.5 minutes for M₂, M₃, N₂ and N₃ 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). During the test, the vehicle shall not be performing an active particulate filter regeneration. Measuring instrument preparation: — The device to measure NO_x emissions is powered on for at least the warm-up time indicated by the manufacturer; — 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; Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage.	(a) Measurement result exceeds 40 ppm		X	

	Test procedure: — The software of the NO_x analyser automatically guides the instrument operator through the test procedure; — 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; — 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; — The vehicle operates at low idling; — After the probe has been inserted into the tailpipe, the following steps shall be followed: 1. A stabilization period of at least 15 seconds with the engine running at idle speed. 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. 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: — If the test result is less than or equal to the limit, the instrument reports a "PASS" message. — If the test result is greater than the limit, the instrument reports a "FAIL" message. Alternatively, measurement using remote sensing equipment and confirmed by standard test methods in accordance with item 8.2.3 in this table or item 8.2.3 in point 3 of Annex I to Directive 2014/45/EU.			
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(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. Steady formation of drops that constitutes a very serious risk.	X	X
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(xxxii) in the table, the following item 10 is added:

10. ELECTRONIC SAFETY SYSTEMS				
10.1. Cornering light 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation		X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X

10.2 Adaptive cruise control 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	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.3 Adaptive defectors Description: Depending on the vehicle's speed, the air defectors 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	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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	

10.4 Airbag 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.			(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
			(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board	X	X	X
10.5 Active Headrest 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	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board	X	X	X
10.6 Active hood 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	

10.7 Automatic hold function 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	(e) Warning device shows system malfunction.	X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating (for example outdated), where applicable, or implausible operation	X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation	X	

		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.8 Automatic headlamp levelling 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	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	
		(b) System or components damaged, or sensors obviously misaligned		X	
10.9 Automatic emergency braking system 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	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	(c) Software version or -integrity incorrect		X	
		(d) Wiring damaged		X	

inevitable impact. 10.10 Anti-lock braking system 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.		(e) Warning device shows system malfunction.	X		
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X		X
		(g) System or components not operating, or implausible operation (for example audio components)	X		
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X		X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X		X
	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	(g) System or components not operating, or implausible operation	X		

10.11 Automatic light 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	(h) Other failure Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
		(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 Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
10.12 Electro-mechanic power steering 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	(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			X
		(a) System or any component missing		X	
		(b) System or components damaged		X	
		(c) Software version or -integrity incorrect		X	
		(d) Wiring damaged		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	(e) Warning device shows system malfunction.	X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	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.) Steering affected	X	X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation	X	

		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.14 Electronic damping 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	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	
		(b) System or components damaged		X	
10.15 Electronic brake system 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.	(c) Software version or -integrity incorrect		X	
		(d) Wiring damaged		X	

10.16 Electronic stability program 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	(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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	

10.17 High beam assist system automatically activates 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	(h) Other failure Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
		(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 Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
10.18 Speed limiter 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	Danger to health of persons on board or of other road users			X
		(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.19 Belt tensioner and belt force limiter 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board	X	X	X
		(g) System or components not operating, where applicable, or implausible operation		X	

10.20 Taillight switching 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	(h) Other failure Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board			
		(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 Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
10.21 Bending light 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	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	Danger to health of persons on board or of other road users			X
		(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			
		(a) System or any component missing		X	
		(b) System or components damaged		X	
		(c) Software version or -integrity incorrect		X	
		(d) Wiring damaged		X	

UNECE-R 123.		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.22 Steering assist 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	(g) System or components not operating, or implausible operation (for example audio components)		X	

		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.23 Height levelling 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	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.24 Emergency braking signal 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	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	

13.		(e) Warning device shows system malfunction.		X	
			(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation	X	
			Affecting safe operation of the vehicle	X	X
			Danger to health of persons on board or of other road users		
			(g) System or components not operating, or implausible operation	X	
			(f) Other failure Not affecting the safe operation	X	
			Affecting safe operation of the vehicle	X	X
			Danger to health of persons on board or of other road users		
			(a) System or any component missing	X	
			(b) System or components damaged	X	
10.25 Pre-crash system 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	(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 Not affecting the safe operation	X	
			Affecting safe operation of the vehicle	X	X
			Danger to health of persons on board or of other road users		
			(g) System or components not operating, or implausible operation (for example power windows)	X	

10.26 Tyre pressure warning 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	(h) Other failure Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
		(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 Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
10.27 Traction control 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	Danger to health of persons on board or of other road users			X
		(g) System or components not operating, or implausible operation		X	
		(h) Other failure Not affecting the safe operation	X		
		Affecting safe operation of the vehicle		X	
		Danger to health of persons on board or of other road users			
		(a) System or any component missing		X	
		(b) System or components damaged		X	
		(c) Software version or -integrity incorrect		X	
		(d) Wiring damaged		X	

10.28 Superimposed steering 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	(e) Warning device shows system malfunction.	X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation		X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	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.) Steering affected		X

		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.29 Roll over protection (active) 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	(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(a) System or any component missing		X	
		(b) System or components damaged		X	
10.30 Hydrogen installation 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	(c) Software version or -integrity incorrect		X	
		(d) Wiring damaged		X	

10.31 Start-up aid 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	(e) Warning device shows system malfunction.	X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation		X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
		(g) System or components not operating, or implausible operation		X

		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.32 Trailer stabilization 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	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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	
10.33 Endurance brake 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				

10.34 Differential lock deactivation Description: when this system is activated, the differential locks are unlocked depending on parameters (for example wheel slip, steering angle, speed).		(e) Warning device shows system malfunction.	X		
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X		X
		(g) System or components not operating, or implausible operation	X		
		(i) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X		X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X		X
		(g) System or components not operating, or implausible operation Steering affected	X		X
		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			

10.35 Electronically controlled leading and trailing axle 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	(h) Other failure Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
		(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 Not affecting the safe operation	X	X	
		Affecting safe operation of the vehicle Danger to health of persons on board or of other road users			X
10.36 Electronic steering damper Description: Steering damping is controlled electronically.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where	(g) System or components not operating, or implausible operation Steering affected		X	X
		(h) Other failure Not affecting the safe operation	X		
		Affecting safe operation of the vehicle Danger to health of persons on board or of other road users		X	X
		(a) System or any component missing		X	
		(b) System or components damaged		X	

	the 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(g) System or components not operating, or implausible operation Steering affected		X	X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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	
10.37 Bus stop brake 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				

10.38 Kneeling 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
				X	
			X	X	X
		(g) System or components not operating, or implausible operation (h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users			
				X	
				X	
		(a) System or any component missing (b) System or components damaged (c) Software version or -integrity incorrect (d) Wiring damaged (e) Warning device shows system malfunction.			
				X	
				X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
				X	
				X	
		(g) System or components not operating, or implausible operation (h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users		X	
			X	X	X

10.39 Steering during brake coming, 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	
			(e) Warning device shows system malfunction.	X	
			(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
10.40 Tyre pressure control 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	(g) System or components not operating, or implausible operation Steering affected		X	X
			(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X
			(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	

10.41 Sliding joint stabilisation 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
				X	
			X	X	X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users			
				X	
				X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(g) System or components not operating, or implausible operation (h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users		X	
			X	X	X

10.42 Four-wheel parking brake 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	
		(d) Wiring damaged		X	
		(e) Warning device shows system malfunction.		X	
10.43 Front-wheel locking device 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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	

10.44 Adaptive headlights 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
				X	
			X	X	X
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users			
				X	
				X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users			
				X	
				X	
		(g) System or components not operating, or implausible operation (h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users			
				X	
			X	X	X

10.45 Electrically actuated parking brake 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	
		(e) Warning device shows system malfunction.		X	
10.46 Lane change assistance 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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	

10.47 Lane keeping assistance 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*.			(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
			(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X

10.48 Automatic eCall 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 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***.	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 The verification of the minimum set of data (MSD) includes checking whether: - the mandatory fields are filled with plausible information; - 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; - the deviation between the MSD timestamp and the timestamp of the reading is less than 60s.	(a) System or any component missing (b) System or components damaged (c) Software version or -integrity incorrect (d) Wiring damaged (e) Warning device (eCall MIL) shows system malfunction. (f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board (g) System or components not operating, or implausible operation: - audio components (for example failing echo-test); - minimum set of data incorrect (h) Other failure (for example mobile network communication device, electronic control unit, or GPS signal failure) Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board	X X X X X X X X X X	X
10.49 Active roll stabilisation 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 (b) System or components damaged (c) Software version or -integrity incorrect (d) Wiring damaged (e) Warning device shows system malfunction.	X X X X X	X

10.50 Camera monitor 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
				X	
			X	X	X
		(g) System or components not operating, or implausible operation (h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users			
				X	
				X	
		(a) System or any component missing (b) System or components damaged (c) Software version or -integrity incorrect (d) Wiring damaged (e) Warning device shows system malfunction.			
				X	
				X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
				X	
				X	
		(g) System or components not operating, or implausible operation (h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users			
			X	X	X

10.51 Acoustic vehicle alerting 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.52 Basic exterior lights 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	(g) System or components not operating, or implausible operation, or not respecting type-approved noise levels		X	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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	

10.53 Automated lane keeping system (ALKS) 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 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				
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X

10.54 Turning assistant 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	
				X	
				X	
				X	
				X	
				X	
10.55 Tachograph 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 Council¹****.	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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
				X	
				X	
				X	
				X	
				X	
				X	
				X	
				X	
				X	
		(a) System or any component missing (for example seals, plaques), or not fitted in accordance with the requirements (for example plaque out of date). (b) System or components damaged (for example illegible plaque) (c) Software version or -integrity incorrect (d) Wiring damaged (e) Warning device shows system malfunction.		X	
				X	
				X	
				X	
				X	
				X	

10.56 Intelligent speed assistance 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	(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	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	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
10.57 Reversing detection 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 Not affecting the safe operation Affecting safe operation of the vehicle 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	
10.58 Driver drowsiness and attention warning 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		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
			(a) System or any component missing		X	
			(b) System or components damaged		X	
			(c) Software version or -integrity incorrect		X	
			(d) Wiring damaged		X	

Delegated Regulation (EU) 2021/1341***** 10.59 Advanced driver distraction warning 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	(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation	X	X	X
		Affecting safe operation of the vehicle			
		Danger to health of persons on board or of other road users			
		(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 Not affecting the safe operation	X		
		(g) System or components not operating, or implausible operation (for example data not accessible)		X	
		(h) Other failure Not affecting the safe operation	X		
		(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	
10.60 Event data recorder 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				
10.61 Automated driving system 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 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				

10.62 Driver availability monitoring systems (automated driving) 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.		(f) System indicates failure via the electronic vehicle interface Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
		(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 Not affecting the safe operation Affecting safe operation of the vehicle 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 Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board or of other road users	X	X	X
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* 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:

- (a) on the front side of the form, point 6 is replaced by the following:

‘6. Category of vehicle^(a)

(a) N₁ (up to 3,5 t) ☐

(b) N₂ (3,5 to 12 t) ☐

(c) N₃ (more than 12 t) ☐

- (d) O₃ (3,5 to 10 t) ☐
- (e) O₄ (more than 10 t) ☐
- (f) M₂ (more than 9 seats^(b), up to 5 t) ☐
- (g) M₃ (more than 9 seats^(b), more than 5 t) ☐
- (h) T1b ☐
- (i) T2b ☐
- (j) T3b ☐
- (k) T4.1b ☐
- (l) T4.2b ☐
- (m) T4.3b ☐
- (n) Other vehicle category:
(please specify).'; ☐

- (b) 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)’;

- (c) 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
 - 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’.

- (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.

Summary table
of all (initial and more detailed) inspections

Reporting Member State:

Reporting period

year [X]

Vehicle Category: Country of registration	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
Belgium																				
Bulgaria																				
Czech Republic																				
Denmark																				
Germany																				
Estonia																				
Ireland																				
Greece																				
Spain																				
France																				
Croatia																				
Italy																				
Cyprus																				
Latvia																				
Lithuania																				

Vehicle Category: Country of registration	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
Luxembourg																				
Hungary																				
Malta																				
Netherlands																				
Austria																				
Poland																				
Portugal																				
Romania																				
Slovenia																				
Slovakia																				
Finland																				
Sweden																				
Albania																				
Andorra																				
Armenia																				
Azerbaijan																				

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
Country of registration																				
Belarus																				
Bosnia and Herzegovina																				
Georgia																				
Kazakhstan																				
Liechtenstein																				
Monaco																				
Montenegro																				
North Macedonia																				
Norway																				
Republic of Moldova																				
Russian Federation																				
San Marino																				
Serbia																				
Switzerland																				
Tajikistan																				
Türkiye																				
Turkmenistan																				

Vehicle Category: Country of registration	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
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.

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:	Ni		N2		N3		M2		M3		O3		O4		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																				

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	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	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.