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NOTE

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Subject:	Proposal for a Directive of the European Parliament and of the Council amending Directive 2014/45/EU on periodic roadworthiness tests for motor vehicles and their trailers and Directive 2014/47/EU on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union - General approach

This Annex contains the Presidency compromise for amendments to the Annexes of the above two Directives.

ANNEX

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) ADAS and other safety related 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 made available by the vehicle manufacturers in accordance with Article 4(5) and (6) 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 of the OBD system);

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;
   - activation of a safety system and evaluating sensor values and/or measuring the performance with external test equipment.

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 or to the environment.’;‘

(ia) in the table, the following item 0.3 is inserted:

‘

0.3. Vehicle under ongoing recall campaign (X)[2]	Member States may verify the vehicle subject to an ongoing recall campaign where they have identified the deficiencies underlying the campaign presenting as:	(a) Affecting safe operation of the vehicle or the environment. (b) Presenting an immediate danger to health of persons on board or of other road users.		X	X

’;

(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, electronic actuated parking brake including four-wheel parking brake Description electronic actuated parking brake: the parking brake function is triggered or transmitted electronically or electromechanically. Description four-wheel parking brake: the system applies the maximum brake pressure in the wheel cylinders at all four wheels.	Visual inspection of the components while the braking system is operated 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) 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) System or any component missing		X	
		(e) System or component damaged		X	
		(f) Software version or -integrity incorrect		X	
		(g) Wiring damaged		X	
		(h) Warning device shows system malfunction.		X	
		(i) 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
		(j) System or components not operating, or implausible operation		X	
		(k) 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

’;

(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). Lining or pad excessively worn (minimum mark not visible).		X 	 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 replaced by the following:

‘

1.1.19. Endurance braking system (where fitted or required) Description: an additional braking system that can maintain braking over a period of time without a significant reduction in performance, for example in accordance with UNECE-R 13 and Regulation (EU) 2019/2144.	Visual inspection (with command activated and not activated, if possible) complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing (for example Insecure connectors or mountings)		X	
		(b) System or components damaged		X	
		(c) Software version or -integrity incorrect		X	
		(d) Wiring damaged		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(vi) in the table, item 1.1.23 is replaced by the following items 1.1.23 to 1.1.25:

‘

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	
1.1.24 Trailer stabilisation (if fitted) (X)[2] 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
1.1.25 Bus stop brake (if fitted) (X)[2] Description: the system ensures the application of brake pressure when stationary, independent of the brake pedal activation. Buses can only start moving when the doors are closed.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(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.		X	
		No braking effort on one or more wheels.			X
		(b) Braking effort from any wheel is less than 70 % of the maximum effort recorded from the other wheel on the same axle. Or, in the case of testing on the road, the vehicle deviates excessively from a straight line.		X	
		Braking effort from any wheel is less than 50 % of the maximum effort recorded from the other wheel on the same axle in the case of steered axles.			X
		(c) No gradual variation in brake effort (grabbing).		X	
		(d) Abnormal lag in brake operation of any wheel.		X	
		(e) Excessive fluctuation of brake force during each complete wheel revolution. Or, in the case of testing on the road, excessive vibration is produced at the service brake pedal/lever or steering wheel.		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,	Does not give at least the minimum figure as follows ([1]): 1. Vehicles registered for the first time after 1/1/2012: — Category M_1: 58 % — Categories M_2 and M_3: 50 % — Category N_1: 50 % — Categories N_2 and N_3: 50 % — Categories O_2, O_3 and O_4: — for semi-trailers: 45 % ([2]) — for draw-bar trailers: 50 %		X	
		2. Vehicles registered for the first time before 1/1/2012: — Categories M_1, M_2 and M_3: 50 % ([3]) — Category N_1: 45 % — Categories N_2 and N_3: 43 % ([4]) — Categories O_2, O_3 and O_4: 40 % ([5])		X	
		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% .		X	

	— brake actuation level by the inspector must always be proportional to the current load of the axle. Information on system values may be retrieved using electronic vehicle interface. Road tests should be carried out under dry conditions on a flat, straight road. In cases where vehicles of T category are tested on the road or on a brake tester, and the minimum figure of braking ratio is not achieved, at least meaningful brake testing is performed. For all methods of brake testing, in case of doubt, the braking efficiency shall be demonstrated in loaded or partially loaded condition.	Less than 50 % of the above values reached			X

’.

’;

(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.		X	
		No braking effort on one or more wheels.			X
		(b) Braking effort from any wheel is less than 70 % of the maximum effort recorded from another wheel on the same axle specified. Or, in the case of testing on the road, the vehicle deviates excessively from a straight line.		X	
		Braking effort from any wheel is less than 50 % of the maximum effort recorded from the other wheel on the same axle in the case of steered axles.			X
		(c) No gradual variation in brake effort (grabbing).		X	

’;

(ix) in the table, item 1.4.1 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 item 1.4.2 reached in relation to the vehicle mass during testing.		X	X

’;

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

‘

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

’;

(xi) in the table, item 1.6 is replaced by the following:

‘

1.6. Anti-lock braking system (ABS) 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

’;

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

‘

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

’;

(xiia) in the table, item 2.2.2 is replaced by the following:

‘

2.2.2. Steering column and forks and steering dampers including electronic dampers Description electronic damping: Steering damping is controlled electronically.	With the vehicle over a pit or on a hoist and the mass of the vehicle on the ground, push and pull the steering wheel in line with column, push steering wheel/ handle bar in various directions at right angles to the column/forks. Visual inspection of play, and condition of flexible couplings or universal joints 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) Excessive movement of centre of steering wheel up or down.		X	
		(b) Excessive movement of top of column radially from axis of column.		X	
		(c) Deteriorated flexible coupling.		X	
		(d) Attachment defective. Very serious risk of unlinking.		X	 X
		(e) Unsafe modification[3.]			X
		(f) System or any component missing.		X	
		(g) System or components damaged.		X	
		(h) Software version or -integrity incorrect.		X	
		(i) Wiring damaged.		X	
		(j) Warning device shows system malfunction.		X	

		(k) 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
		(l) System or components not operating, or implausible operation Steering affected		X	X
		(m) 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

’;

(xiii) in the table, item 2.6 is replaced by the following items 2.6 to 2.8:

‘

2.6. Electronic Power Steering (EPS), including Superimposed steering Description: the supporting power for steering is generated by an electric motor. Description superimposed steering: depending on the driving situation, the system varies the transmission ratio of the steering.	Visual inspection and consistency check between the angle of the steering wheel and the angle of the wheels when switching on/off the engine, 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 (for example Power assistance not working), or implausible operation (for example inconsistency between the		X	

		angle of the steering wheel and the angle of the wheels). Steering affected.			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
2.7 Electronic four-wheel steering (if fitted) Description: two axles are steered, with a steering angle greater than 3° on all steered wheels, for example in accordance with UNECE-R 79 and Regulation (EU) 2019/2144	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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	
		Steering affected			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
2.8 Electronically controlled leading and trailing axle (if fitted) (X)[2] Description: the steered axles are additional axles with electronically controlled steering. The	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	

steering force is generated by a hydraulic pump or by the lateral force on the wheels.		(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

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’;

(xiiia) in the table, item 3.1 is replaced by the following:

‘

3.1. Field of vision including indirect field of vision via Camera monitor (if fitted) Description camera monitor: 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 from driving seat 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) Obstruction within driver's field of view that materially affects his view in front or to the sides (outside cleaning area of windscreen wipers). Inside cleaning area of windscreen wipers affected or outer mirrors not visible.	X	X	
		(b) System or any component missing.		X	
		(c) System or components damaged.		X	
		(d) Software version or -integrity incorrect.		X	
		(e) Wiring damaged.		X	
		(f) Warning device shows system malfunction.		X	
		(g) 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
		(h) 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	X

(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 Including functions such as cornering light, high beam assist, adaptive headlights and bending lights. Description cornering light: 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 Description high beam assist: the system automatically activates and deactivates the high beam according to the driving situation and lighting conditions. Description adaptive headlight: 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. Description bending light: during cornering and depending on the steering angle and speed, the light beam is swivelled and/or an additional headlight is activated, for example in accordance with UNECE-R 48; UNECE-R 98; UNECE-R 112; or UNECE-R 123.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface.	(a) Defective or missing light source. Multiple light sources (in the case of LED, up to 1/3 not functioning). Seriously affected visibility (single light source, or, in the case of LED, less than 2/3 functioning).	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 or any component missing.		X	
		(e) System or any component damaged.		X	
		(f) Software version or -integrity incorrect.		X	
		(g) Wiring damaged.		X	
		(h) Warning device shows system malfunction.		X	
		(i) 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
		(j) System or components not operating, or implausible operation.		X	
		(k) 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

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 categories: — h ≤ 0,8m: upper limit -0.5%; lower limit -2.5% — 0.8 < h ≤ 1m: upper limit -0.5%; lower limit -3% — h > 1m: upper limit -1% lower limit -3% — h > 1.2m, category N3G (all-terrain): upper limit -1.5%; lower limit -3.5% (ii) L category (Commission Delegated Regulation (EU) No 3/2014): — upper limit -0.5% — h ≤ 0,8m: lower limit -2,5% — h > 0.8m: lower limit -3,0% (-2,5% on L3e category) (iii) T category: — upper limit -0.5% — h ≤ 1,2m: lower limit -4% — h > 1,2m: lower limit -6%		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	

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

‘

4.1.5 Automatic and manual levelling devices (where mandatory) Description automatic levelling devices: 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
		(i) Manual device cannot be operated from driver’s seat.		X	

’;

(xvi) in the table, items 4.2.1 and 4.2.2 are replaced by the following:

‘

4.2.1. Condition and operation	Visual inspection and by operation.	(a) Defective or missing light source		X	
		Multiple light sources (in the case of LED, up to 1/3 not functioning); one of several lateral light sources defective.	X		
		Single light sources: in the case of LED, less than 2/3 functioning; Two or more of several lateral light sources defective.		X	
		(b) Defective lens.		X	
		(c) Lamp not securely attached.	X		
		Very serious risk of falling off.		X	
4.2.2. Switching	Visual inspection and by operation.	(a) Switch does not operate in accordance with the requirements[1].		X	
		Rear position lamps and side marker lamps can be switched off when headlamps are on.		X	
		(b) Function of control device impaired.		X	
4.2.2.1 Automatic light (if required) 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	
		(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

’.

’;

(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[1]. 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).	X		
		Single light sources; in the case of LED less than 2/3 functioning.		X	
		No light source functioning.			X
		(b) Slightly defective lens (no influence on emitted light).	X		
		Heavily defective lens (emitted light affected).		X	
		(c) Lamp not securely attached.	X		
		Very serious risk of falling off.		X	

’;

(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).	X		
		Single light sources; in the case of LED less than 2/3 functioning.		X	
		(b) Slightly defective lens (no influence on emitted light).	X		
		Heavily defective lens (emitted light affected).		X	
		(c) Lamp not securely attached.	X		
		Very serious risk of falling off or dazzling oncomingtraffic.		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).	X		
		Single light sources; in the case of LED less than 2/3 functioning.		X	
		(b) Defective lens.	X		
		(c) Lamp not securely attached.	X		
		Very serious risk of falling off.		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; in the case of LED up to 1/3 not functioning).	X		
		Defective or missing light source. (Single light source; in the case of LED less than 2/3 functioning).		X	
		(c) Lamp not securely attached.	X		
		Very serious risk of falling off.		X	

’;

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

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

(xxiia) in the table, item 4.12 is replaced by the following:

‘

4.12. Non obligatory lamps and retro-reflectors, for example basic exterior lights (X)[2] Description basic exterior lights: the system switches on/switches off the basic lighting devices (for example indicators).	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface.	(a) A lamp/retro-reflector fitted not in accordance with the requirements[1]. Emitting/reflecting red light to the front or white light to the rear.	X 	 X	
		(b) Lamp operation not in accordance with the requirements[1]. Number of headlights simultaneously operating exceeding permitted light brightness; Emitting red light to the front or white light to the rear.	X 	 X	
		(c) Lamp/retro-reflector not securely attached. Very serious risk of falling off.	X 	 X	
		(d) System or any component missing		X	
		(e) System or components damaged		X	
		(f) Software version or -integrity incorrect		X	
		(g) Wiring damaged.		X	
		(h) Warning device shows system malfunction.		X	
		(i) 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
		(j) System or components not operating, or implausible operation.		X	

		(k) 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

’;

(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 items 4.14 and 4.15 are inserted:

‘

4.14 High-voltage systems					
4.14.1 Electrical safety	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) Indicator or vehicle interface shows system malfunction.		X	
		(b) Software version or -integrity incorrect.		X	
4.14.2 Traction battery enclosure	Visual inspection.	(a) Slightly deteriorated Heavily deteriorated.	X	 X	
		(b) Defective attachment Very serious risk of falling off.		X	 X
		(c) Obstructed ventilation port(s).	X		
4.14.3 Rechargeable energy storage system (REESS), traction battery and battery management system Description: REESS means the rechargeable energy storage system that provides electric energy for electric propulsion. The REESS may include subsystem(s) together with the necessary ancillary systems for physical support, thermal management, electronic control and enclosures	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 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 likely to be disconnected Wiring likely to touch hot parts, rotating parts or the ground, connectors disconnected.	X	 X	 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 Ω (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.	Deteriorated Trace of beginning of melting or electric arcs Foreign material, modified, or moisture.	X	 X X	
4.14.4.6 Charging cable (if available)	Visual inspection and by operation.	Deteriorated.	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) Type-approved hardware and software not in accordance with the requirements[1.]		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 (if required)	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	Indicator malfunction.	X		
4.15 Emergency braking signal Description: during strong deceleration,	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the	(a) System or any component missing.		X	
		(b) System or components damaged.		X	

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.	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	
		(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

’;

(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 demolishment.		X 	 X
		(b) Wheel bearing too tight, jammed. Danger of overheating; danger of demolishment.		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 in accordance with Regulation (EU) 2024/1257 (emission type approval of components and separate technical units).		X	
		Insufficient load capacity or speed category for actual use, tyre touches other fixed vehicle parts impairing safe driving.			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.		X	
		Cord visible or damaged.			X
		(e) Tyre tread wear indicator becomes exposed.		X	
		Tyre tread depth not in accordance with the requirements[1].			X
		(f) Tyre rubbing against other components (flexible anti spray devices).	X		
		Tyre rubbing against other components (safe driving not impaired).		X	
		(g) Re-grooved tyres not in accordance with requirements[1].		X	
		Cord protection layer affected.			X
		(h) Tyre obviously underinflated.	X		

5.2.3.1 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 physical 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

’.

’;

(xxvii) in the table, item 5.3.2 and 5.3.2.1 are replaced by the following:

‘

5.3.2 Shock absorbers, including electronic damping (if fitted) Description: depending on the driving situation, the rebound and compression stage of the shock absorbers is adjusted by the system.	Visual inspection with vehicle over a pit or a hoist or using special equipment if available 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
		(i) Insecure attachment of shock absorbers to chassis or axle Shock absorber loose.	X	X	
		(j) Damaged shock absorber showing signs of severe leakage or malfunction.		X	
5.3.2.1. efficiency testing of damping (X)[2]	Using special equipment and comparing left/ right differences, or based on oscillation behaviour or damping of the vehicle	(a) Significant difference between left and right.		X	
		(b) Given minimum values not reached.		X	

’;

(xxviiia) in the table, item 5.3.5 is replaced by the following:

‘

5.3.5. Air suspension, including height levelling (if fitted) Description height levelling: 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
		(i) Audible system leakage.		X	

’;

(xxviiib) in the table, item 6.1.3 is replaced by the following:

‘

6.1.3. Fuel tank and pipes (including heating fuel tank and pipes and hydrogen installation) Description hydrogen installation: 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 with vehicle over a pit or on a hoist, use of leak detecting devices in the case of LPG/CNG/LNG/H systems 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) Insecure tank or pipes, creating particular risk of fire.			X
		(b) Leaking fuel or missing or ineffective filler cap Risk of fire; excessive loss of hazardous material.		X	X
		(c) Chafed pipes Damaged pipes.	X	X	
		(d) Fuel stopcock (if required) not operating correctly.		X	
		(e) Fire risk due to: — leaking fuel; — fuel tank or exhaust not properly shielded; — engine compartment condition.			X
		(f) LPG/CNG/LNG or hydrogen system not in accordance with requirements; any part of the system defective[1.]			X
		(g) System or any component missing.		X	
		(h) System or components damaged.		X	
		(i) Software version or -integrity incorrect.		X	
		(j) Wiring damaged		X	
		(k) Warning device shows system malfunction.		X	
		(l) 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
		(m) System or components not operating, or implausible operation.		X	
		(n) 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

’;

(xxviiic) in the table, the following item 6.1.10 is inserted:

‘

6.1.10 Sliding joint stabilisation (if fitted) (X)[2] Description: The articulated joint is stabilised by damping, depending on vehicle speed, cylinder pressure of the articulated dampers, steering and articulation-angle.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(xxviiid) in the table, items 7.1.3 is replaced by the following:

‘

7.1.3 Safety 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	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board.	X	X	X

’;

(xxviiie) in the table, item 7.1.5 is replaced by the following:

‘

7.1.5. 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.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or components (for example seat occupancy detection) obviously missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(xxviiif) in the table, items 7.1.4 and 7.1.6 are deleted;

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

‘

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

’;

(xxx) in the table, item 7.9 is replaced by the following;

‘

7.9. Tachograph (if fitted/required) Description: a system to record the driving time, breaks, rest periods as well as periods of other work undertaken by a driver, for example, in accordance with Regulation (EU) No 165/2014 of the European Parliament and of the Council***	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface.	(a) System or any component missing (for example seals, plaques), or not fitted in accordance with the requirements[1] (for example plaque out of date).		X	
		(b) System or components damaged (for example illegible plaque).		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(xxxa) in the table, item 7.10 is replaced by the following:

‘

7.10. Speed limitation device (if fitted/required) Description: While driving, the system prevents exceeding a defined maximum speed. Relevant, if mandatory, for example in accordance with UNECE-R 89 and Regulation (EU) 2019/2144.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing (for example seals, plaques), or not fitted in accordance with the requirements[1].		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

’;

(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). If the inspection shows that the odometer has been manipulated, the inspector shall indicate this on the roadworthiness certificate as a notification to the vehicle owner	Obviously inoperative.		X	

’;

(xxxia) in the table, item 7.12 is replaced by the following:

‘

7.12. Electronic Stability Control (ESC) if fitted/required Description: the system stabilizes the vehicle or the complete vehicle train in critical, dynamic driving situations, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 140.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component (for example wheel speed sensors) missing.		X	
		(b) System or components (for example wheel speed sensors) damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(xxxii) in the table, item 7.13 is replaced by the following:

‘

7.13 eCall (if fitted, in accordance with EU type approval legislation)	Method	Reason for failure	Minor	Major	Dangerous
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 For eCall systems which uses older cellular networks, and those networks are no longer in service causing the eCall-system to indicate malfunction, this shall not be a reason for failure.	(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 (eCall MIL) 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, or implausible operation: - audio components (for example failing echo-test).		X	

		(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

’;

(xxxiia) in the table, the following item 7.14 is inserted:

7.14 – Vehicle’s diagnostic link connector (OBD port) (if fitted)	Method	Reason for failure	Minor	Major	Dangerous
7.14.1 – Vehicle’s diagnostic link connector (OBD port)	Visual inspection complemented with use of electronic interface.	(a) Interface not accessible.		X	
		(b) Obviously inoperative.		X	
		(c) System or component damaged.		X	
		(d) System or component missing.		X	

’;

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

‘

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

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 or for M1 and N1 registered for the first time after 31 August 2019 and M2, M3, N2 and N3 registered for the first time after 31 December 2013: 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 specified in accordance with implementing acts 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 implementing acts] 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 implementing acts], 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;	Measurement result exceeds the limit values to be specified in accordance with implementing acts		X	

	— 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 implementing acts]. 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 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 requirements[1].	(a) Either gaseous emissions exceed the specific levels given by the manufacturer;		X	

	Measurements not applicable for two-stroke engines.	(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 requirements[1]. (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 requirements[1].		X	
		(c) Lambda coefficient outside the range 1 ± 0,03 or not in accordance with the manufacturer's specification;		X	

8.2.2.3. NO_X measurement	Vehicle preparation, measuring instrument preparation, check of the sampling system and test procedure to be further specified by way of implementing act reflecting the testing environment of positive ignition engine and taking into account existing methods of testing gaseous emissions.	Measurement result exceeds the limit to be specified in accordance with implementing acts.		X	
8.2.3 Exhaust emission measurement – compression ignition engines	Test procedures: For vehicles as of emission classes Euro 5b and Euro VI and newer or for M1 and N1 registered for the first time after 31 December 2012 and M2, M3, N2 and N3 registered for the first time after 31 December 2013: 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, or for M1 registered for the first time after 2 July 2007 and N1 registered for the first time after 31 August 2010 and M2, M3, N2 and N3 registered for the first time after 30 September 2008, Member States may apply PN measurement in accordance with 8.2.3.1 instead of opacity measurement. For vehicles specified in accordance with implementing acts 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	Measurement result exceeds 250 000 ($1/cm^3$). For vehicles up to emission class Euro 5a and Euro V, equipped with particle filters, Member States may apply a limit up to 1 000 000 ($1/cm^3$).		X	

	Commission Recommendation (EU) 2023/688, as adopted on 20 March 2023) preparation: — The instrument is powered on for at least the warm-up time 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 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 requirements[1]: opacity exceeds the level recorded on the manufacturer's plate on the vehicle.		X	

	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: 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.	(b) Where this information is not available or requirements[1] 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 requirements[1] or first registered or put into service for the first time after the date specified in requirements[1]: 1,5 m^{-1} ([9]) or 0,7 m^{-1} ([8]).			

	During each free acceleration cycle, the engine shall reach cut-off speed or, the speed specified by the manufacturer or, if this data is not available, then two thirds of the cut-off speed, before the throttle is released. This could be checked, for instance, by monitoring engine speed or by allowing a sufficient time to elapse between initial throttle depression and release, which in the case of vehicles of categories M_2, M_3, N_2 and N_3, should be at least two seconds. 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. 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.				

Item	Method	Reasons for failure	Assessment of deficiencies		
			Minor	Major	Dangerous
8.2.3.3. NO_X measurement	Vehicle preparation: For conditions below -10ºC: 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. When the outside temperature is -10◦C or above: Prior to testing, the vehicle's exhaust aftertreatment system shall be warmed up, to the conditions that allow effective abatement of NOx emissions by the NOx reduction system of the vehicle. The conditioning of the NOx reduction system shall be further specified by implementing acts. 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 implementing acts 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:	Measurement result exceeds 40 ppm or the electronic interface indicates malfunction.		X	

	— 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: A stabilization period of at least 15 seconds with the engine running at idle speed. 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.				

';

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

‘

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

’.

;

(xxxiva) in the table, item 9.11.1 is replaced by the following:

‘

9.11.1. Doors, ramps, lifts, and kneeling-system if fitted in accordance with UNECE R107	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(s) 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
		(i) Not in accordance with the requirements[1].		X	

‘

(xxxivb) in the table, the following item 9.13 is added:

‘

9.13. Alarm and fire suppression system	Method	Reason for failure	Minor	Major	Dangerous
9.13.1. Alarm system (if fitted, in accordance with EU type approval legislation)	Visual inspection and by operation (where appropriate) and/or using electronic interface	(a) Not operational at all, not working properly.		X	
		(b) System indicates failure via the electronic interface.		X	
		(c) Missing		X	
		(d) Not in accordance with requirements[1.]		X	
9.13.2. Fire suppression system (if fitted, in accordance with EU type approval legislation)	Visual inspection and/or using electronic interface	(a) Missing, activated.		X	
		(b) System indicates failure via the electronic vehicle interface.		X	
		(c) Not in accordance with requirements[1]		X	
		(d) Detection agent vessel, propellant gas vessel, extinguishing agent vessel pressureless, empty.		X	
		(e) Vessel inspection and exchange period(s) expired.		X	

’;

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

‘

10. ADAS AND OTHER SAFETY RELATED SYSTEMS					
10.1 Intelligent speed assistance (if required in accordance to type approval or fitted) Description intelligent speed assistance: system to aid the driver in maintaining the appropriate speed for the road environment by providing dedicated and appropriate feedback, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2021/1958*****.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged, 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
		(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
10.2 Active Headrest (if fitted) (X)[2] 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
10.3 Active hood (if fitted) (X)[2] Description: by automatically lifting the bonnet, the system ensures a larger collapsible zone in the event of an accident involving a pedestrian.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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
10.4 Automatic hold function (if fitted) (X)[2] 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 Affecting safe operation of the vehicle Danger to health of persons on board or of other road users.	X	X	X
10.5 Automatic emergency braking system (if required in accordance to type approval or fitted) Description: the system independently starts braking in	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged, or sensors obviously misaligned.		X	
		(c) Software version or -integrity incorrect.		X	

order to avoid a collision with an obstacle or another road user, or to reduce the consequences of an 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 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
10.6 Assisted steering systems (if fitted) 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. 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	(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 audio components).		X	

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*. 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).		(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 Pre-crash system (if fitted) (X)[2] 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 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 power windows).		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 Roll over protection (active) (if fitted) (X)[2] 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
10.9 Start-up aid (if fitted) (X)[2] 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
		(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
10.10 Differential lock deactivation (if fitted) (X)[2] 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
10.11 Steering brake (if fitted) (X)[2] Description: during cornering, dosed braking is applied to one or more wheels.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(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
10.12 Active roll stabilisation (if fitted) (X)[2] Description: via appropriate actuators the system produces a roll	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	

movement which counters the vehicle's body roll movement depending on the current driving situation.		(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
10.13 Acoustic vehicle alerting (if required in accordance to type approval) 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
		(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 Turning assistant (Blind spot detection system) (if required in accordance to type approval) 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 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
10.15 Reversing detection (if required in accordance to type approval) Description: system to make the driver aware of people and objects at the rear of the vehicle with the primary aim of avoiding collisions	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	

when reversing, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 158.		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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
10.16 Driver drowsiness and attention warning (if required in accordance to type approval) 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 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
10.17 Advanced driver distraction warning (if required in accordance to type approval) Description: system that helps the driver to continue to pay attention to the traffic situation and that warns the driver when he or she is distracted, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2023/2590*******.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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
10.18 Event data recorder (if required in accordance to type approval) Description: system with the only purpose of recording and storing critical crash-related parameters and information shortly before, during	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	

and immediately after a collision, for example in accordance with Regulation (EU) 2019/2144, Commission Delegated Regulation (EU) 2022/545********, and UNECE-R 160.		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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		
10.19 Automated driving system (if fitted) (X)[2] Description: systems that are capable of performing the entire dynamic driving task of the fully automated vehicle on a sustained basis, for example in accordance with Regulation (EU) 2019/2144 and Commission Implementing Regulation (EU) 2022/1426*********.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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
10.20 Driver availability monitoring systems (automated driving) (if fitted) (X)[2]	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the	(a) System or any component missing.		X	
		(b) System or components damaged.		X	

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.	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 (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

10.21 Adaptive cruise control (if fitted) (X)[2] Description adaptive cruise control: 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.		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

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

‘(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) point 15 is replaced and the following points (16) to (18) are added as follows:

‘(15) A device to detect LPG/CNG/LNG and hydrogen leakage, if such vehicles are tested;

(16) A device to measure particle number emissions from compression ignition engines with sufficient accuracy;

(17) A device to measure nitrogen oxide (NOx) emissions from compression ignition engines with sufficient accuracy. The device shall be operational in the testing centre by the date specified in Article 6(2);

(18) A device to measure nitrogen oxide (NO_X) emissions and a device to measure particle number emissions from positive ignition engines with sufficient accuracy. The devices shall be operational in the testing centre by the date specified in Article 6(2).’;

(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	18
1. Motorcycles			[1]																		
		L1e	P	x								x	x		x	x	x				
		L1e	E	x											x	x	x				
		L3e, L4e	P	x								x	x		x	x	x				
		L3e, L4e	D	x								x		x	x	x	x				
		L3e, L4e	E	x											x	x	x				
		L2e	P	x	x							x	x		x	x	x				
		L2e	D	x	x							x		x	x	x	x				
		L2e	E	x	x										x	x	x				
		L5e	P	x	x							x	x		x	x	x				
		L5e	D	x	x							x		x	x	x	x				
		L5e	E	x	x										x	x	x				

		L6e	P	x	x							x	x		x	x	x				
		L6e	D	x	x							x		x	x	x	x				
		L6e	E	x	x										x	x	x				
		L7e	P	x	x							x	x		x	x	x				
		L7e	D	x	x							x		x	x	x	x				
		L7e	E	x	x										x	x	x				
2. Vehicles for the carriage of persons																					

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	18
	Up to 3 500 kg	M_1, M_2	P	x	x		x					x	x		x	x	x	x	x		x
	Up to 3 500 kg	M_1, M_2	D	x	x		x					x		x	x	x	x		x	x	
	Up to 3 500 kg	M_1, M_2	E	x	x		x								x	x	x				
	> 3 500 kg	M1, M_2, M_3	P	x	x	x		x	x	x	x	x	x		x	x	x	x	x		x
	> 3 500 kg	M1, M_2, M_3	D	x	x	x		x	x	x	x	x		x	x	x	x		x	x	
	> 3 500 kg	M1, M_2, M_3	E	x	x	x		x	x	x	x				x	x	x				
3. Vehicles for the carriage of goods																					
	Up to 3 500 kg	N_1	P	x	x		x					x	x		x	x	x	x	x		x
	Up to 3 500 kg	N_1	E	x	x		x								x	x	x				
	Up to 3 500 kg	N_1	D	x	x		x					x		x	x	x	x		x	x	
	> 3 500 kg	N_2, N_3	P	x	x	x		x	x	x	x	x	x		x	x	x	x	x	x	x
	> 3 500 kg	N_2, N_3	D	x	x	x		x	x	x	x	x		x	x	x	x		x	x	
	> 3 500 kg	N_2, N_3	E	x	x	x		x	x	x	x				x	x	x				

4. Special vehicles derived from a category N vehicle, T5, T1b, T2b, T3b, T4.1b, T4.2b and T4.3b																					
	Up to 3 500 kg	N_1	P	x	x		x					x	x		x	x	x	x	x	x	x
	Up to 3 500 kg	N_1	D	x	x		x					x		x	x	x	x		x	x	
	Up to 3 500 kg	N_1	E	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	18
	> 3 500 kg	N_2, N_3, M1, T5, T1b, T2b, T3b, T4.1b, T4.2b and T4.3b	P	x	x	x		x	x	x	x	x	x		x	x	x	x	x	x	x
	> 3 500 kg	N_2, N_3, M1, T5, T1b, T2b, T3b, T4.1b, T4.2b and T4.3b	D	x	x	x		x	x	x	x	x		x	x	x	x		x	x	
	> 3 500 kg	N_2, N_3, M1, T5, T1b, T2b, T3b, T4.1b, T4.2b and T4.3b	E	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) ; E…electric (BEV – battery electric vehicle)';

(3) Annex IV is amended as follows:

(a) in point 2, point (a), points (i) and (ii) are replaced by the following:

‘(i) vehicle technology:

— braking systems;

— steering systems;

— fields of vision;

— light installation, lighting equipment and electronic components;

— axles, wheels and tyres;

— chassis and bodywork;

— nuisance and emissions;

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

— additional requirements for special vehicles;

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

(b) point 3 is replaced by the following:

‘*3. Certificate of competence*

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

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

— vehicle categories for which the inspector is authorised to carry out roadworthiness tests

— for inspectors specialised to certain areas, the limitation in types of vehicles and/or tests which the inspector has been authorised to carry out;

— name of the issuing authority;

— date of issue.’.

ANNEX [II]

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

(4) Annex II is amended as follows:

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

‘(10) ADAS and other safety related 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 require-ments[1].		X	
		(c) Multi-circuit protection valve or pressure relief valve not working.		X	
		(d) Air leak causing a noticeable drop in pressure or audible air leaks 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, electronic actuated parking brake including four-wheel parking brake Description electronic actuated parking brake: the parking brake function is triggered or transmitted electronically or electromechanically. Description four-wheel parking brake: the system applies the maximum brake pressure in the wheel cylinders at all four wheels.	Visual inspection of the components while the braking system is operated 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) 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) System or any component missing.		X	
		(e) System or component damaged.		X	
		(f) Software version or -integrity incorrect.		X	
		(g) Wiring damaged.		X	
		(h) Warning device shows system malfunction.		X	
		(i) 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
		(j) System or components not operating, or implausible operation.		X	
		(k) 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

’.

(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). Lining or pad excessively worn (minimum mark not visible).		X 	 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 replaced by the following:

‘

1.1.19. Endurance braking system (where fitted or required) Description: an additional braking system that can maintain braking over a period of time without a significant reduction in performance, for example in accordance with UNECE-R 13 and Regulation (EU) 2019/2144.	Visual inspection (with command activated and not activated, if possible) complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing (for example Insecure connectors or mountings).		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(vi) in the table, item 1.1.23 is replaced by the following items 1.1.23 to 1.1.25:

‘

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	
1.1.24 Trailer stabilization (if fitted) (X)[2] 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
1.1.25 Bus stop brake (if fitted) (X)[2] Description: the system ensures the application of brake pressure when stationary, independent of the brake pedal activation. Buses can only start moving when the doors are closed.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(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.		X	
		No braking effort on one or more wheels.			X
		(b) Braking effort from any wheel is less than 70 % of the maximum effort recorded from the other wheel on the same axle. Or, in the case of testing on the road, the vehicle deviates excessively from a straight line.		X	
		Braking effort from any wheel is less than 50 % of the maximum effort recorded from the other wheel on the same axle in the case of steered axles.			X
		(c) No gradual variation in brake effort (grabbing).		X	
		(d) Abnormal lag in brake operation of any wheel.		X	
		(e) Excessive fluctuation of brake force during each complete wheel revolution. Or, in the case of testing on the road, excessive vibration is produced at the service brake pedal/lever or steering wheel.		X	
1.2.2. Efficiency (E)	Test with a brake tester at the presented weight or, if one cannot be used for technical reasons, by a road test usinga deceleration recording instrument ([1]).	Does not give at least the minimum figure as follows ([2]): 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%.		X	

		Less than 50 % of the above values reached			X

’;

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

‘

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

’;

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

‘

1.4.1. Performance (E)	Apply the brake during a test on a brake tester or by road test.	Brake inoperative on one side or, in the case of testing on the road, the vehicle deviates excessively from a straight line. Less than 50 % of the braking effort values as referred to in item 1.4.2 reached in relation to the vehicle mass during testing.		X	X

’;

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

‘

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

’;

(xi) in the table, item 1.6 is replaced by the following:

‘

1.6. Anti-lock braking system (ABS) 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

’;

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

‘

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

’;

(xib) in the table, item 2.2.2 is replaced by the following:

‘

2.2.2. Steering column/yokes and steering dampers including electronic dampers Description electronic damping: Steering damping is controlled electronically.	Push and pull the steering wheel in line with column, push steering wheel in various directions at right angles to the column. Visual inspection of play, and condition of flexible couplings or universal joints 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) Excessive movement of centre of steering wheel up or down.		X	
		(b) Excessive movement of top of column radially from axis of column.		X	
		(c) Deteriorated flexible coupling.		X	
		(d) Attachment defective. Very serious risk of unlinking.		X	 X
		(e) Unsafe modification[3].			X
		(f) System or any component missing.		X	
		(g) System or components damaged		X	
		(h) Software version or -integrity incorrect.		X	
		(i) Wiring damaged.		X	
		(j) Warning device shows system malfunction.		X	
		(k) 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
		(l) System or components not operating, or implausible operation Steering affected.		X	 X
		(m) 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

’;

(xii) in the table, item 2.6 is replaced by the following items 2.6 to 2.8:

‘

2.6. Electronic Power Steering (EPS), including Superimposed steering Description: the supporting power for steering is generated by an electric motor. Description superimposed steering: depending on the driving situation, the system varies the transmission ratio of the steering.	Visual inspection and consistency check between the angle of the steering wheel and the angle of the wheels when switching on/off the engine, 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 (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
		(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
2.7 Electronic four-wheel steering (if fitted) Description: two axles are steered, with a steering angle greater than 3° on all steered wheels, for example in accordance with UNECE-R 79 and Regulation (EU) 2019/2144	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	

		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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	
		Steering affected.			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
2.8 Electronically controlled leading and trailing axle (if fitted) (X)[2] 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	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 Steering affected.		X	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

’;

(xiia) in the table, item 3.1 is replaced by the following:

‘

3.1. Field of vision including indirect field of vision via Camera monitor (if fitted) Description camera monitor: 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 from driving seat 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) Obstruction within driver's field of view that materially affects his view in front or to the sides (outside cleaning area of windscreen wipers). Inside cleaning area of windscreen wipers affected or outer mirrors not visible.	X	X	
		(b) System or any component missing.		X	
		(c) System or components damaged.		X	
		(d) Software version or -integrity incorrect.		X	
		(e) Wiring damaged.		X	
		(f) Warning device shows system malfunction.		X	
		(g) 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
		(h) 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	X

'

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

‘

4.1.1. Condition and operation including functions such as cornering light, high beam assist, adaptive headlights and bending lights. Description cornering light: 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 Description high beam assist: the system automatically activates and deactivates the high beam according to the driving situation and lighting conditions. Description adaptive headlight: 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. Description bending light: during cornering and depending on the steering angle and speed, the light beam is swivelled and/or an additional headlight is activated, for example in accordance with UNECE-R 48; UNECE-R 98; UNECE-R 112; or UNECE-R 123.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface.	(a) Defective or missing light source. Multiple light sources (in the case of LED, up to 1/3 not functioning).	X		
		Seriously affected visibility (single light source, or, in the case of LED, less than 2/3 functioning).		X	
		(b) Slightly defective projection system (reflector and lens).	X		
		Heavily defective or missing projection system (reflector and lens).		X	
		(c) Lamp not securely attached.		X	
		(d) System or any component missing.		X	
		(e) System or any component damaged.		X	
		(f) Software version or -integrity incorrect.		X	
		(g) Wiring damaged.		X	
		(h) Warning device shows system malfunction.		X	
		(i) 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
		(j) System or components not operating, or implausible operation.		X	
		(k) 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

‘

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

‘

4.1.5 Automatic and manual levelling devices (where mandatory) Description automatic levelling devices: 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
		(i) Manual device cannot be operated from driver’s seat.		X	

’;

(xv) in the table, items 4.2.1 and 4.2.2 are replaced by the following:

‘

4.2.1. Condition and operation	Visual inspection and by operation.	(a) Defective or missing light source		X	
		Multiple light sources (in the case of LED, up to 1/3 not functioning); one of several lateral light sources defective.	X		
		Single light sources: in the case of LED, less than 2/3 functioning; Two or more of several lateral light sources defective.		X	
		(b) Defective lens.		X	
		(c) Lamp not securely attached.	X		
		Very serious risk of falling off.		X	
4.2.2. Switching	Visual inspection and by operation.	(a) Switch does not operate in accordance with the requirements[1].		X	
		Rear position lamps and side marker lamps can be switched off when headlamps are on.		X	
		(b) Function of control device impaired.		X	
4.2.2.1 Automatic light (if required) 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	
		(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

’.

’;

(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).	X		
		Single light sources; in the case of LED less than 2/3 functioning.		X	
		All light sources not functioning.			X
		(b) Slightly defective lens (no influence on emitted light).	X		
		Heavily defective lens (emitted light affected).		X	
		(c) Lamp not securely attached.	X		
		Very serious risk of falling off.		X	

’;

(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).	X		
		Single light sources; in the case of LED less than 2/3 functioning.		X	
		No light source functioning.			X
		(b) Slightly defective lens (no influence on emitted light).	X		
		Heavily defective lens (emitted light affected).		X	
		(c) Lamp not securely attached.	X		
		Very serious risk of falling off.		X	

’;

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

‘

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

’;

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

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

(xxia) in the table, item 4.12 is replaced by the following:

‘

4.12. Non obligatory lamps and retro-reflectors, for example basic exterior lights (X)[2] Description basic exterior lights: the system switches on/switches off the basic lighting devices (for example indicators).	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) A lamp/retro-reflector fitted not in accordance with the requirements[1]. Emitting/reflecting red light to the front or white light to the rear.	X	X	
		(b) Lamp operation not in accordance with the requirements[1]. Number of headlights simultaneously operating exceeding permitted light brightness; Emitting red light to the front or white light to the rear.	X	X	
		(c) Lamp/retro-reflector not securely attached. Very serious risk of falling off.	X	X	
		(d) System or any component missing.		X	
		(e) System or components damaged.		X	
		(f) Software version or -integrity incorrect.		X	
		(g) Wiring damaged.		X	
		(h) Warning device shows system malfunction.		X	

		(i) 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
		(j) System or components not operating, or implausible operation.		X	
		(k) 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

’;

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

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

(xxiii) the following items 4.14 and 4.15 are inserted:

‘

4.14 High-voltage systems					
4.14.1 Electrical safety	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) Indicator or vehicle interface shows system malfunction.		X	
		(b) Software version or -integrity incorrect.		X	
4.14.2 Traction battery enclosure	Visual inspection.	(a) Slightly deteriorated	X		
		Heavily deteriorated.		X	
		(b) Defective attachment		X	
		Very serious risk of falling off.			X
		(c) Obstructed ventilation port(s).	X		
4.14.3 Rechargeable energy storage system (REESS), traction battery and battery management system Description: REESS means the rechargeable energy storage system that provides electric energy for electric propulsion. The REESS may include subsystem(s) together with the necessary ancillary systems for physical support, thermal management, electronic control and enclosures	Visual inspection, complemented by using the vehicle interface (where made possible by the technical characteristics of the vehicle, and where the necessary data is available).	(a) Marks of leakage		X	
		Leaking (presence of droplets).			X
		(b) Incorrect software or hardware, or readiness-code not active.		X	
4.14.4 High voltage electrical wiring					
4.14.4.1 High voltage wiring harness and connector	Visual inspection with the vehicle over a pit or on a hoist, including inside the engine compartment and the boot (where applicable)	(a) Slightly deteriorated	X		
		Heavily deteriorated		X	
		Risk of short-circuit fault.			X
		(b) Wiring insecure or not adequately secured	X		
		Fixings loose, touching sharp edges, connectors likely to be disconnected		X	
		Wiring likely to touch hot parts, rotating parts or the ground, connectors disconnected.			X

		(c) Imminent risk of fire, formation of sparks.			X
4.14.4.2 Ground braid, including their attachment	Visual inspection and by operation.	Slightly deteriorated Heavily deteriorated.	X	 X	
4.14.4.3 Ground continuity (X)[2]	Measurement using an ohmmeter	Test not feasible Too high resistance (over 100 Ω (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.	Deteriorated Trace of beginning of melting or electric arcs Foreign material, modified, or moisture.	X	 X X	
4.14.4.6 Charging cable (if available)	Visual inspection and by operation.	Deteriorated.	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) Type-approved hardware and software not in accordance with the requirements[1.]		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[1.]		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[1]		X		
4.14.7. Anti-starting system						
4.14.7.1. Anti-starting system (if required)	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	Indicator malfunction.	X			
4.15 Emergency braking signal Description: during strong deceleration,	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the	(a) System or any component missing.		X		
		(b) System or components damaged.		X		

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.	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	
		(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

’;

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

‘

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

‘

(xxiva) 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. 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		

5.2.3.1. 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 physical 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

(xxivb) in the table, item 5.3.2 and 5.3.2.1 are replaced by the following:

‘

5.3.2 Shock absorbers, including electronic damping (if fitted) Description electronic damping: 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
		(i) Insecure attachment of shock absorbers to chassis or axle Shock absorber loose.	X	X	
		(j) Damaged shock absorber showing signs of severe leakage or malfunction.		X	
5.3.2.1. efficiency testing of damping (X)[2]	Using special equipment and comparing left/ right differences, or based on oscillation behaviour or damping of the vehicle	(a) Significant difference between left and right.		X	
		(b) Given minimum values not reached.		X	

’.
;

(xxivc) in the table, item 5.3.5 is replaced by the following:

‘

5.3.5. Air suspension, including height levelling (if fitted) Description height levelling: 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
		(i) Audible system leakage.		X	

’;

(xxivd) in the table, item 6.1.3 is replaced by the following:

‘

6.1.3. Fuel tank and pipes (including heating fuel tank and pipes and hydrogen installation) Description hydrogen installation: 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 with vehicle over a pit or on a hoist, use of leak detecting devices in the case of LPG/CNG/LNG/H systems 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) Insecure tank or pipes, creating particular risk of fire.			X
		(b) Leaking fuel or missing or ineffective filler cap. Risk of fire; excessive loss of hazardous material.		X	X
		(c) Chafed pipes. Damaged pipes.	X	X	
		(d) Fuel stopcock (if required) not operating correctly.		X	
		(e) Fire risk due to: — leaking fuel; — fuel tank or exhaust not properly shielded; — engine compartment condition.			X
		(f) LPG/CNG/LNG or hydrogen system not in accordance with requirements; any part of the system defective[1.]			X
		(g) System or any component missing.		X	
		(h) System or components damaged.		X	
		(i) Software version or -integrity incorrect.		X	
		(j) Wiring damaged.		X	
		(k) Warning device shows system malfunction.		X	
		(l) 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
		(m) System or components not operating, or implausible operation.		X	
		(n) 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

’;

(xxive) in the table, the following item 6.1.10 is inserted:

‘

6.1.10 Sliding joint stabilisation (if fitted) (X)[2] Description: The articulated joint is stabilised by damping, depending on vehicle speed, cylinder pressure of the articulated dampers, steering and articulation-angle.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(xxivf) in the table, items 7.1.3 is replaced by the following:

‘

7.1.3 Safety 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	
		(h) Other failure Not affecting the safe operation Affecting safe operation of the vehicle Danger to health of persons on board.	X	 X	 X

’;

(xxv) in the table, item 7.1.5 is replaced by the following:

‘

7.1.5 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.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or components (for example seat occupancy detection) obviously missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(xxva) in the table, items 7.1.4 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, item 7.9 is replaced by the following;

‘

7.9. Tachograph (if fitted/required) Description: a system to record the driving time, breaks, rest periods as well as periods of other work undertaken by a driver, for example, in accordance with Regulation (EU) No 165/2014 of the European Parliament and of the Council****.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface.	(a) System or any component missing (for example seals, plaques), or not fitted in accordance with the requirements[1] (for example plaque out of date).		X	
		(b) System or components damaged (for example illegible plaque).		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(xxviia) in the table, item 7.10 is replaced by the following:

‘

7.10. Speed limitation device (if fitted/required) (+E) Description: While driving, the system prevents exceeding a defined maximum speed. Relevant, if mandatory, for example in accordance with UNECE-R 89 and Regulation (EU) 2019/2144.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing (for example seals, plaques), or not fitted in accordance with the requirements[1].		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

’;

(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). If the inspection shows that the odometer has been manipulated, the inspector shall indicate this on the roadworthiness certificate as a notification to the vehicle owner	Obviously inoperative.		X	

’;

(xxix) in the table, item 7.12 is replaced by the following:

‘

7.12. Electronic Stability Control (ESC) if fitted/required (X)[1] Description: the system stabilises the vehicle or the complete vehicle train in critical, dynamic driving situations, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 140.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component (for example wheel speed sensors) missing.		X	
		(b) System or components (for example wheel speed sensors) damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

’;

(xxixa) in the table, the following item 7.13 is inserted:

‘

7.13 eCall (if fitted, inaccordance with EU type approval legislation)	Method	Reason for failure	Minor	Major	Dangerous
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 For eCall systems which uses older cellular networks (2g/3g) and those networks are no longer in service and the eCall-system indicates malfunction, this shall not be a reason for failure.	(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 (eCall MIL) 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, or implausible operation: - audio components (for example failing echo-test).		X	

		(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

’;

(xxxixb) in the table, the following item 7.14 is inserted:

7.14 – Vehicle’s diagnostic link connector (OBD port) (if fitted)	Method	Reason for failure	Minor	Major	Dangerous
7.14.1 – Vehicle’s diagnostic link connector (OBD port)	Visual inspection complemented with use of electronic interface.	(a) Interface not accessible.		X	
		(b) Obviously inoperative.		X	
		(c) System or component damaged.		X	
		(d) System or component missing.		X	

’;

(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)	Subjective evaluation (unless the inspector considers that the noise level may be borderline, in which case a measurement of noise emitted by stationary vehicle using a sound level meter may be conducted)	(a) Noise levels in excess of those permitted in the requirements[1].		X	
		(b) Any part of the noise suppression system loose, damaged, incorrectly fitted, missing or obviously modified in a way that would adversely affect the noise levels. Very serious risk of falling off.		X	X
	Alternatively, measurement using remote sensing equipment and confirmed by standard test methods	(c) Remote sensing measurement showing significant non-compliance.		X	

8.2. Exhaust emissions

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

		(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 or for M1 and N1 registered for the first time after 31 August 2019 and M2, M3, N2 and N3 registered for the first time after 31 December 2013: 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 specified in accordance with implementing acts : NO_X measurement in accordance with 8.2.2.3.				
8.2.2.1 Particle number measurement (E)	Vehicle preparation: — [to be specified in accordance with implementing acts] Measuring instrument preparation: — The device to measure PN is powered on for at least the warm-up time indicated by the manufacturer;	Measurement result exceeds the limit values to be specified in accordance with implementing acts.		X	

	— Self-checks of the instrument [to be specified in accordance with implementing acts], 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 [as specified in accordance with implementing acts]. 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 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 (E)	Measurement using an exhaust gas analyser in accordance with the requirements[1]. 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;		X	
		(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 requirements[1]. (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 requirements[1].		X	
		(c) Lambda coefficient outside the range 1 ± 0,03 or not in accordance with the manufacturer's specification.		X	
8.2.2.3. NO_X measurement (E)	Vehicle preparation, measuring instrument preparation, check of the sampling system and test procedure to be further specified by way of implementing act reflecting the testing environment of positive ignition engine and taking into account existing methods of measuring gaseous emissions. Alternatively, measurement using remote sensing equipment and confirmed by standard test methods in accordance with item 8.2.2. in this table or with item 8.2.2 in point 3 of Annex I to Directive 2014/45/EU.	(a) Measurement result exceeds the limit to be specified in accordance with implementing acts.		X	

		(b) OBD or OBM read-out indicating significant malfunction.		X	

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 or for M1 and N1 registered for the first time after 31 December 2012 and M2, M3, N2 and N3 registered for the first time after 31 December 2013: 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, or for M1 registered for the first time after 2 July 2007 and N1 registered for the first time after 31 August 2010 and M2, M3, N2 and N3 registered for the first time after 1 January 2014, 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 or for M_1 and N_1 registered for the first time after 31 August 2019 and M_2, M_3, N_2 and N_3 registered for the first time after 1 January 2014: NO_X measurement in accordance with 8.2.3.3.				
8.2.3.1 Particle number measurement (E)	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	Measurement result exceeds 250 000 ($1/cm^3$). For vehicles up to emission class Euro 5a and Euro V, equipped with particle filters, Member States may apply a limit up to 1 000 000 ($1/cm^3$).		X	

	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 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: 3. 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, 4. 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 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 requirements[1]: opacity exceeds the level recorded on the manufacturer's plate on the vehicle.		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 requirements[1] 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 requirements[1] or first registered or put into service for the first time after the date specified in requirements[1]: 1,5 m^{-1} ([9]) or 0,7 m^{-1} ([8]).			
	Test procedure: 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
	During each free acceleration cycle, the engine shall reach cut-off speed or, the speed specified by the manufacturer or, if this data is not available, then two thirds of the cut-off speed, before the throttle is released. This could be checked, for instance, by monitoring engine speed or by allowing a sufficient time to elapse between initial throttle depression and release, which in the case of vehicles of categories M_2, M_3, N_2 and N_3, should be at least two seconds. 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. 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 usingremote sensing equipment and confirmed by standard test methods in accordance with item 8.2.3 of this table or with item 8.2.3 in point 3 of Annex I to Directive 2014/45/EU.				

Item	Method	Reasons for failure	Assessment of deficiencies		
			Minor	Major	Dangerous
8.2.3.3. NO_X measurement (E)	Vehicle preparation: For conditions below -10ºC: 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 When the outside temperature is -10◦C or above: Prior to testing, the vehicle's exhaust aftertreatment system shall be warmed up, to the conditions that allow effective abatement of NOx emissions by the NOx reduction system of the vehicle. 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 implementing acts to monitor the proper operation of the instrument during operation and trigger a warning or message in case of malfunction;	Measurement result exceeds 40 ppm or the electronic interface indicates malfunction.		X	

	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 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: A stabilization period of at least 15 seconds with the engine running at idle speed. 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.				

(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

(xxxia) in the table, item 9.11.1 is replaced by the following:

‘

9.11.1. Doors, ramps, lifts, and kneeling-system if fitted in accordance with UNECE R107	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(s) 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
		(i) Not in accordance with the requirements[1].		X	

‘

(xxxib) in the table, the following item 9.13 is added:

‘

9.13. Alarm and fire suppression system	Method	Reason for failure	Minor	Major	Dangerous
9.13.1. Alarm system (if fitted, in accordance with EU type approval legislation)	Visual inspection and by operation (where appropriate) and/or using electronic interface	(a) Not operational at all, not working properly.		X	
		(b) System indicates failure via the electronic interface.		X	
		(c) Missing		X	
		(d) Not in accordance with requirements[1]		X	
9.13.2. Fire suppression system (if fitted, in accordance with EU type approval legislation)	Visual inspection and/or using electronic interface	(a) Missing, activated.		X	
		(b) System indicates failure via the electronic vehicle interface.		X	
		(c) Not in accordance with requirements[1]		X	
		(d) Detection agent vessel, propellant gas vessel, extinguishing agent vessel pressureless, empty.		X	
		(e) Vessel inspection and exchange period(s) expired.		X	

’.

;

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

‘

10. ADAS AND OTHER SAFETY RELATED SYSTEMS					
10.1 Intelligent speed assistance. (if required in accordance to type approval or fitted) Description intelligent speed assistance: system to aid the driver in maintaining the appropriate speed for the road environment by providing dedicated and appropriate feedback, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2021/1958*****.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged, 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
		(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
10.2 Active Headrest (if fitted) (X)[2] 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
10.3 Active hood (if fitted) (X)[2] Description: by automatically lifting the bonnet, the system ensures a larger collapsible zone in the event of an accident involving a pedestrian.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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
10.4 Automatic hold function (if fitted) (X)[2] 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 Affecting safe operation of the vehicle Danger to health of persons on board or of other road users.	X	 X	 X
10.5 Automatic emergency braking system (if required in accordance to type approval or fitted) Description: the system independently starts braking in	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing		X	
		(b) System or components damaged, or sensors obviously misaligned.		X	
		(c) Software version or -integrity incorrect.		X	

order to avoid a collision with an obstacle or another road user, or to reduce the consequences of an 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 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
10.6 Assisted steering systems (if fitted) 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. 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	(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 audio components).		X	

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*. 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).		(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 Pre-crash system (if fitted) (X)[2] 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 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 power windows).		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 Roll over protection (active) (if fitted) (X)[2] 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
10.9 Start-up aid (if fitted) (X)[2] 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
		(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
10.10 Differential lock deactivation (if fitted) (X)[2] 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
10.11 Steering brake (if fitted) (X)[2] Description: during cornering, dosed braking is applied to one or more wheels.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(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
10.12 Active roll stabilisation (if fitted) (X)[2] Description: via appropriate actuators the system produces a roll movement which counters the vehicle's body roll movement depending on the current driving situation.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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
10.13 Acoustic vehicle alerting (if required in accordance to type approval) Description: at low speed, the system generates an external,	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	

specific sound in order to warn, for example pedestrians.		(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
10.14 Turning assistant (Blind spot detection system) (if required in accordance to type approval) 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 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
10.15 Reversing detection (if required in accordance to type approval) 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	
		(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
10.16 Driver drowsiness and attention warning (if required in accordance to type approval) Description: system that assesses the driver's alertness through vehicle systems analysis and warns the driver if needed, for example in	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	

accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2021/1341******.		(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
10.17 Advanced driver distraction warning (if required in accordance to type approval) Description: system that helps the driver to continue to pay attention to the traffic situation and that warns the driver when he or she is distracted, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2023/2590*******.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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
10.18 Event data recorder (if required in accordance to type approval) Description: system with the only purpose of recording and storing critical crash-related parameters and information shortly before, during and immediately after a collision, for example in accordance with Regulation (EU) 2019/2144, Commission Delegated Regulation (EU) 2022/545********, and UNECE-R 160.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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		
10.19 Automated driving system (if fitted) (X)[2] 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	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	

Regulation (EU) 2022/1426*********.		(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
10.20 Driver availability monitoring systems (automated driving) (if fitted) (X)[2] Description: System that assesses whether the driver is capable of taking over the driving function of a self-driving vehicle, if necessary, in certain situations, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 157.	Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface	(a) System or any component missing.		X	
		(b) System or components damaged.		X	
		(c) Software version or -integrity incorrect.		X	
		(d) Wiring damaged.		X	
		(e) Warning device shows system malfunction.		X	
		(f) System indicates failure via the electronic vehicle interface 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

10.21 Adaptive cruise control (if fitted) (X)[2] Description adaptive cruise control: 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.		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

‘

* 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).

(5) 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.’;

(6) 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) ADAS and other safety related 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. ADAS and other safety related systems in accordance with Annex II to Directive 2014/47/EU'.

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

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

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

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

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

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

Results of more detailed inspections

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

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

Defect detail

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

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

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

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