

Commission Regulation (EU) 2017/1151 of 1 June 2017 supplementing Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) No 1230/2012 and repealing Commission Regulation (EC) No 692/2008 (Text with EEA relevance)

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ANNEX I

ADMINISTRATIVE PROVISIONS FOR EC TYPE-APPROVAL

1. ADDITIONAL REQUIREMENTS FOR GRANTING OF EC TYPE-APPROVAL

1.1. Additional requirements for mono fuel gas vehicles, and bi-fuel gas vehicles.

1.1.1. The additional requirements for granting of type-approval for mono fuel gas vehicles, and bi-fuel gas vehicles shall be those set out in sections 1, 2 and 3 and Appendices 1 and 2 to Annex 12 to UN/ECE Regulation No 83, with the exceptions set out below.

1.1.2. The reference in paragraphs 3.1.2. and 3.1.4. of Annex 12 to UN/ECE Regulation No 83 to reference fuels of Annex 10a shall be understood as being reference to the appropriate reference fuel specifications in Section A of Annex IX to this Regulation.

[^{F1}1.1.3. For LPG or NG, the fuel to be used shall be the one selected by the manufacturer for the measurement of the net power in accordance with Annex XX to this Regulation. The selected fuel shall be specified in the information document set out in Appendix 3 of Annex I to this Regulation.]

Textual Amendments

F1 Inserted by [Commission Regulation \(EU\) 2018/1832 of 5 November 2018 amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation \(EC\) No 692/2008 and Commission Regulation \(EU\) 2017/1151 for the purpose of improving the emission type approval tests and procedures for light passenger and commercial vehicles, including those for in-service conformity and real-driving emissions and introducing devices for monitoring the consumption of fuel and electric energy \(Text with EEA relevance\).](#)

1.2. Additional requirements for flex fuel vehicles

The additional requirements for granting of type-approval for flex fuel vehicles shall be those set out in paragraph 4.9. of UN/ECE Regulation No 83.

2. ADDITIONAL TECHNICAL REQUIREMENTS AND TESTS

2.1. Small volume manufacturers

2.1.1. List of legislative acts referred to in Article 3(3):

Legislative Act	Requirements
The California Code of Regulations, Title 13, Sections 1961(a) and 1961(b)(1)(C) (1) applicable to 2001 and later model year vehicles, 1968.1, 1968.2, 1968.5, 1976 and 1975, published by Barclay's Publishing	Type-approval must be granted under the California Code of Regulations applicable to the most recent model year of light-duty vehicle.

2.2. Inlets to fuel tanks

2.2.1. The requirements for inlets to fuel tanks shall be those specified in paragraphs 5.4.1. and 5.4.2. of Annex XXI and point 2.2.2 below.

2.2.2. Provision shall be made to prevent excess evaporative emissions and fuel spillage caused by a missing fuel filler cap. This may be achieved by using one of the following:

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- (a) an automatically opening and closing, non-removable fuel filler cap,
- (b) design features which avoid excess evaporative emissions in the case of a missing fuel filler cap,
- (c) any other provision which has the same effect. Examples may include, but are not limited to, a tethered filler cap, a chained filler cap or one utilizing the same locking key for the filler cap as for the vehicle's ignition. In this case the key shall be removable from the filler cap only in the locked condition.

2.3. Provisions for electronic system security

[^{F2}2.3.1. Any vehicle with an emission control computer shall include features to deter modification, except as authorised by the manufacturer. The manufacturer shall authorise modifications if those modifications are necessary for the diagnosis, servicing, inspection, retrofitting or repair of the vehicle. Any reprogrammable computer codes or operating parameters shall be resistant to tampering and afford a level of protection at least equivalent to that afforded by the provisions of the standard ISO 15031-7:2013. Any removable calibration memory chips shall be potted, encased in a sealed container or protected by electronic algorithms and shall not be changeable without the use of specialised tools and procedures. Only features directly associated with emissions calibration or prevention of vehicle theft may be so protected.

Textual Amendments

F2 Substituted by [Commission Regulation \(EU\) 2018/1832 of 5 November 2018 amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation \(EC\) No 692/2008 and Commission Regulation \(EU\) 2017/1151 for the purpose of improving the emission type approval tests and procedures for light passenger and commercial vehicles, including those for in-service conformity and real-driving emissions and introducing devices for monitoring the consumption of fuel and electric energy \(Text with EEA relevance\).](#)

2.3.2. Computer-coded engine operating parameters shall not be changeable without the use of specialised tools and procedures (e.g. soldered or potted computer components or sealed (or soldered) enclosures).

2.3.3. At the request of the manufacturer, the approval authority may grant exemptions to the requirements in points 2.3.1. and 2.3.2. for those vehicles that are unlikely to require protection. The criteria that the approval authority shall evaluate in considering an exemption shall include, but are not limited to, the current availability of performance chips, the high-performance capability of the vehicle and the projected sales volume of the vehicle.]

[^{F1}2.3.4. Manufacturers using programmable computer code systems shall take the necessary measures to deter unauthorised reprogramming. Such measures shall include enhanced tamper protection strategies and write-protect features requiring electronic access to an off-site computer maintained by the manufacturer, to which independent operators shall also have access using the protection afforded in point 2.3.1. and point 2.2. of Annex XIV. Methods giving an adequate level of tamper protection shall be approved by the approval authority.

2.3.5. In the case of mechanical fuel-injection pumps fitted to compression-ignition engines, manufacturers shall take adequate steps to protect the maximum fuel delivery setting from tampering while a vehicle is in service.

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2.3.6. Manufacturers shall effectively deter reprogramming of the odometer readings, in the board network, in any powertrain controller as well as in the transmitting unit for remote data exchange if applicable. Manufacturers shall include systematic tamper-protection strategies and write-protect features to protect the integrity of the odometer reading. Methods giving an adequate level of tamper protection shall be approved by the approval authority.]

2.4. Application of tests

[^{F2}2.4.1. Figure I.2.4 illustrates the application of the tests for type-approval of a vehicle. The specific test procedures are described in Annexes II, IIIA, IV, V, VI, VII, VIII, XI, XVI, XX, XXI and XXII.

Figure I.2.4 Application of test requirements for type-approval and extensions

Reference fuel	Vehicles with positive ignition engines including hybrids ^{ab}								Vehicles with compression ignition engines including hybrids	Pure electric vehicles	Hydrogen fuel cell vehicles
	Mono fuel				Bi-fuel ^c			Flex-fuel ^c			
	Petrol (E10)	LPG	NG/ Biomethane	Hydrogen (H ₂)	Petrol (E10)	Petrol (E10)	Petrol (E10)	Petrol (E10)	Diesel (B7)	—	Hydrogen (Fuel Cell)
					LPG	NG/ Biomethane	Hydrogen (H ₂)	Ethanol (E85) ^d			
Gaseous pollutants (Type 1 test)	Yes	Yes	Yes	Yes ^d	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes	—	—
PM (Type 1 test)	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (both fuels)	Yes	—	—
PN	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (both fuels)	Yes	—	—
Gaseous pollutants, RDE	Yes	Yes	Yes	Yes ^d	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes	—	—

a Specific test procedures for hydrogen and flex fuel biodiesel vehicles will be defined at a later stage.

b Particulate mass and particle number limits and respective measurement procedures shall apply only to vehicles with direct injection engines

c When a bi-fuel vehicle is combined with a flex fuel vehicle, both test requirements are applicable.

d Only NO_x emissions shall be determined when the vehicle is running on hydrogen.

e The particle number RDE test only applies to vehicles for which Euro 6 PN emission limits are defined in Table 2 of Annex I to Regulation (EC) No 715/2007.]

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(Type 1A test)											
PN, RDE (Type 1A test) ^e	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (both fuels)	Yes	—	—
ATCT (14 °C test)	Yes	Yes	Yes	Yes ^d	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes	—	—
Idle emissions (Type 2 test)	Yes	Yes	Yes	—	Yes (both fuels)	Yes (both fuels)	Yes (petrol only)	Yes (both fuels)	—	—	—
Crankcase emissions (Type 3 test)	Yes	Yes	Yes	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	—	—	—
Evaporative emissions (Type 4 test)	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	—	—	—
Durability (Type 5 test)	Yes	Yes	Yes	Yes	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes	—	—
Low temperature emissions (Type 6 test)	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (both fuels)	—	—	—
In-service conformity	Yes	Yes	Yes	Yes	Yes (as at type approval)	Yes (as at type approval)	Yes (as at type approval)	Yes (both fuels)	Yes	—	—
On-board diagnostics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	—	—

a Specific test procedures for hydrogen and flex fuel biodiesel vehicles will be defined at a later stage.

b Particulate mass and particle number limits and respective measurement procedures shall apply only to vehicles with direct injection engines

c When a bi-fuel vehicle is combined with a flex fuel vehicle, both test requirements are applicable.

d Only NO_x emissions shall be determined when the vehicle is running on hydrogen.

e The particle number RDE test only applies to vehicles for which Euro 6 PN emission limits are defined in Table 2 of Annex I to Regulation (EC) No 715/2007.]

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CO ₂ emissions, fuel consumption, electric energy consumption and electric range	Yes	Yes	Yes	Yes	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes	Yes	Yes
Smoke opacity	—	—	—	—	—	—	—	—	Yes	—	—
Engine power	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

a Specific test procedures for hydrogen and flex fuel biodiesel vehicles will be defined at a later stage.

b Particulate mass and particle number limits and respective measurement procedures shall apply only to vehicles with direct injection engines

c When a bi-fuel vehicle is combined with a flex fuel vehicle, both test requirements are applicable.

d Only NO_x emissions shall be determined when the vehicle is running on hydrogen.

e The particle number RDE test only applies to vehicles for which Euro 6 PN emission limits are defined in Table 2 of Annex I to Regulation (EC) No 715/2007.]

3. EXTENSIONS TO TYPE-APPROVALS

3.1. Extensions for tailpipe emissions (type 1 and type 2 tests)

[^{F2}3.1.1. The type-approval shall be extended to vehicles if they conform to the criteria of Article 2 (1) or if they conform to Article 2 (1) (a) and (c) and fulfil all the following criteria:

- (a) the CO₂ emission of the tested vehicle resulting from step 9 of Table A7/1 of Sub-Annex 7 to Annex XXI is less than or equal to the CO₂ emission obtained from the interpolation line corresponding to the cycle energy demand of the tested vehicle;
- (b) the new interpolation range does not exceed the maximum range as set out in point 2.3.2.2. of Sub-Annex 6 to Annex XXI;
- (c) the pollutant emissions respect the limits set out in Table 2 of Annex I to Regulation (EC) No 715/2007.

[^{F1}3.1.1.1. The type-approval shall not be extended to create an interpolation family if it has been granted only in relation to Vehicle High.]]

3.1.2. Vehicles with periodically regenerating systems

[^{F2}For Ki tests undertaken under Appendix 1 to Sub-Annex 6 to Annex XXI (WLTP), the type-approval shall be extended to vehicles if they conform to the criteria of paragraph 5.9. of Annex XXI.]

For Ki tests undertaken under Annex 13 of UN/ECE Regulation No 83 (NEDC) the type-approval shall be extended to vehicles according to the requirements of Section 3.1.4. of Annex I to Regulation (EC) No 692/2008.

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[^F3.2. **Extensions for evaporative emissions (type 4 test)**

3.2.1. For tests performed in accordance with Annex 6 to UN/ECE Regulation No 83 [1 day NEDC] or the Annex to Regulation (EC) No 2017/1221 [2 days NEDC] the type-approval shall be extended to vehicles equipped with a control system for evaporative emissions which meet the following conditions:

3.2.1.1. The basic principle of fuel/air metering (e.g. single point injection) is the same.

3.2.1.2. The shape of the fuel tank is identical and the material of the fuel tank and liquid fuel hoses are technically equivalent.

3.2.1.3. The worst-case vehicle with regard to the cross-section and approximate hose length shall be tested. Whether non-identical vapour/liquid separators are acceptable is decided by the technical service responsible for the type-approval tests.

3.2.1.4. The fuel tank volume is within a range of $\pm 10\%$.

3.2.1.5. The setting of the fuel tank relief valve is identical.

3.2.1.6. The method of storage of the fuel vapour is identical, i.e. trap form and volume, storage medium, air cleaner (if used for evaporative emission control), etc.

3.2.1.7. The method of purging of the stored vapour is identical (e.g. air flow, start point or purge volume over the preconditioning cycle).

3.2.1.8. The method of sealing and venting of the fuel metering system is identical.

3.2.2. For tests performed according Annex VI [2 days WLTP] the type-approval shall be extended to vehicles equipped with a control system for evaporative emissions which meet the requirements of point 5.5.1. of Annex VI.

3.2.3. The type-approval shall be extended to vehicles with:

3.2.3.1. different engine sizes;

3.2.3.2. different engine powers;

3.2.3.3. automatic and manual gearboxes;

3.2.3.4. two and four wheel transmissions;

3.2.3.5. different body styles; and

3.2.3.6. different wheel and tyre sizes.]

3.3. **Extensions for durability of pollution control devices (type 5 test)**

3.3.1. The type-approval shall be extended to different vehicle types, provided that the vehicle, engine or pollution control system parameters specified below are identical or remain within the prescribed tolerances:

3.3.1.1. Vehicle:

Inertia category: the two inertia categories immediately above and any inertia category below.

Total road load at 80 km/h: + 5 % above and any value below.

3.3.1.2. Engine

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- (a) engine cylinder capacity ($\pm 15\%$),
- (b) number and control of valves,
- (c) fuel system,
- (d) type of cooling system,
- (e) combustion process.

3.3.1.3. Pollution control system parameters:

- (a) Catalytic converters and particulate filters:
 - number of catalytic converters, filters and elements,
 - size of catalytic converters and filters (volume of monolith $\pm 10\%$),
 - type of catalytic activity (oxidizing, three-way, lean NO_x trap, SCR, lean NO_x catalyst or other),
 - precious metal load (identical or higher),
 - precious metal type and ratio ($\pm 15\%$),
 - substrate (structure and material),
 - cell density,
 - temperature variation of no more than 50 K at the inlet of the catalytic converter or filter. This temperature variation shall be checked under stabilized conditions at a vehicle speed of 120 km/h and the load setting of the type 1 test.
- (b) Air injection:
 - with or without
 - type (pulsair, air pumps, other(s))
- (c) EGR:
 - with or without
 - type (cooled or non-cooled, active or passive control, high pressure or low pressure).

3.3.1.4. The durability test may be carried out using a vehicle, which has a different body style, gear box (automatic or manual) and size of the wheels or tyres, from those of the vehicle type for which the type-approval is sought.

3.4. Extensions for on-board diagnostics

3.4.1. The type-approval shall be extended to different vehicles with identical engine and emission control systems as defined in Annex XI, Appendix 2. The type-approval shall be extended regardless of the following vehicle characteristics:

- (a) engine accessories;
- (b) tyres;
- (c) equivalent inertia;
- (d) cooling system;
- (e) overall gear ratio;
- (f) transmission type; and

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(g) type of bodywork.

3.5 Extensions for low temperature test (type 6 test)

3.5.1. Vehicles with different reference masses

3.5.1.1. The type-approval shall be extended only to vehicles with a reference mass requiring the use of the next two higher equivalent inertia or any lower equivalent inertia.

3.5.1.2. For category N vehicles, the approval shall be extended only to vehicles with a lower reference mass, if the emissions of the vehicle already approved are within the limits prescribed for the vehicle for which extension of the approval is requested.

3.5.2. Vehicles with different overall transmission ratios

3.5.2.1. The type-approval shall be extended to vehicles with different transmission ratios only under certain conditions.

3.5.2.2. To determine whether type-approval can be extended, for each of the transmission ratios used in the type 6 test, the proportion,

$$(E) = (V_2 - V_1) / V_1$$

shall be determined where, at an engine speed of 1 000 min⁻¹, V₁ is the speed of the vehicle-type approved and V₂ is the speed of the vehicle type for which extension of the approval is requested.

3.5.2.3. If, for each transmission ratio, E ≤ 8 %, the extension shall be granted without repeating the type 6 test.

3.5.2.4. If, for at least one transmission ratio, E > 8 %, and if, for each gear ratio, E ≤ 13 %, the type 6 test shall be repeated. The tests may be performed in a laboratory chosen by the manufacturer subject to the approval of the technical service. The report of the tests shall be sent to the technical service responsible for the type-approval tests.

3.5.3. Vehicles with different reference masses and transmission ratios

The type-approval shall be extended to vehicles with different reference masses and transmission ratios, provided that all the conditions prescribed in paragraphs 3.5.1 and 3.5.2 are fulfilled.

4. CONFORMITY OF PRODUCTION

4.1. Introduction

4.1.1. Every vehicle produced under a Type Approval according to this Regulation shall be so manufactured as to conform to the type approval requirements of this Regulation. The Manufacturer shall implement adequate arrangements and documented control plans and carry-out at specified intervals as given in this regulation the necessary emission and OBD tests to verify continued conformity with the approved type. The approval authority shall verify and agree with these arrangements and control plans of the manufacturer and perform audits and conduct emission and OBD tests at specific intervals, as given in this regulation, at the premises of the manufacturer, including production and test facilities as part of the product conformity and continued verification arrangements as described in Annex X of Directive 2007/46/EC.

[^{F2}4.1.2. The manufacturer shall check the conformity of production by testing the emissions of pollutants (given in Table 2 of Annex I to Regulation (EC) No 715/2007), the emission of CO₂ (along with the measurement of electric energy consumption, EC and, where

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applicable, the monitoring of the OBFCM device accuracy), the crankcase emissions, evaporative emissions and the OBD in accordance with the test procedures described in Annexes V, VI, XI, XXI and XXII. The verification shall therefore include the tests of types 1, 3, 4 and the test for OBD, as described in section 2.4.

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

The specific procedures for conformity of production are set out in Sections 4.2 to 4.7 and Appendixes 1 and 2.]

[^{F2}4.1.3. For the purposes of the manufacturer's conformity of production check, the family means the conformity of production (COP) family for tests of Type 1, including the monitoring of the OBFCM device accuracy, and Type 3, includes for the Type 4 test the extensions described in point 3.2 and the OBD family with the extensions described in point 3.4 for the OBD tests.

[^{F1}4.1.3.1. COP family criteria

4.1.3.1.1. For Category M vehicles and for Category N1 class I and class II vehicles, the COP family shall be identical to the interpolation family, as described in paragraph 5.6. of Annex XXI.

4.1.3.1.2 For Category N1 Class III and Category N2 vehicles, only vehicles that are identical with respect to the following vehicle/powertrain/transmission characteristics may be part of the same COP family:

- (a) Type of internal combustion engine: fuel type (or types in the case of flex-fuel or bi-fuel vehicles), combustion process, engine displacement, full-load characteristics, engine technology, and charging system, and also other engine subsystems or characteristics that have a non-negligible influence on CO₂ mass emission under WLTP conditions;
- (b) Operation strategy of all CO₂ mass emission influencing components within the powertrain;
- (c) Transmission type (e.g. manual, automatic, CVT) and transmission model (e.g. torque rating, number of gears, number of clutches, etc.);
- (d) Number of powered axles.]]

[^{F2}4.1.4. The frequency for product verification performed by the manufacturer shall be based on a risk assessment methodology consistent with the international standard ISO 31000:2018 — Risk Management — Principles and guidelines and at least for Type 1 with a minimum frequency per COP family of one verification per 5 000 vehicles produced or once per year, whichever comes first.]

4.1.5. The Approval Authority which has granted type-approval may at any time verify the conformity control methods applied in each production facility.

For the purpose of this regulation the Approval Authority shall perform audits for verifying the manufacturers arrangements and documented control plans at the premises of the manufacturer on a risk assessment methodology consistent with the international standard ISO 31000:2009 — Risk Management — Principles and guidelines and, in all cases, with a minimum frequency of one audit per year.

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[^{F2}If the approval authority is not satisfied with the auditing procedure of the manufacturer, physical test shall directly be carried out on production vehicles as described in points 4.2 to 4.7.]

4.1.6. The normal frequency of physical test verifications by the Approval Authority shall be based on the results of the auditing procedure of the manufacturer on a risk assessment methodology and in all cases with a minimum frequency of one verification test per three years. [^{F2}The approval authority shall conduct these physical emission tests and OBD tests on production vehicles as described in points 4.2 to 4.7.]

In the case of the manufacturer running the physical tests, the Approval Authority shall witness the tests at the manufacturer's facility.

4.1.7. The Approval Authority shall report the results of all audit checks and physical tests performed on verifying conformity of the manufacturers and file it for a period of minimum 10 years. These reports should be available for other type approval authorities and the European Commission on request.

4.1.8. In case of non-conformity Article 30 of Directive 2007/46/EC shall apply.

4.2. **Checking the conformity of the vehicle for a type 1 test**

[^{F2}4.2.1. The Type 1 test shall be carried out on production vehicles of a valid member of the COP family as described in point 4.1.3.1. The test results shall be the values after all corrections according to this Regulation are applied. The limit values against which to check conformity for pollutants are set out in Table 2 of Annex I to Regulation (EC) No 715/2007. As regards CO₂ emissions, the limit value shall be the value determined by the manufacturer for the selected vehicle in accordance with the interpolation methodology set out in Sub-Annex 7 of Annex XXI. The interpolation calculation shall be verified by the approval authority.

4.2.2. A sample of three vehicles shall be selected at random in the COP family. After selection by the approval authority, the manufacturer shall not undertake any adjustment to the vehicles selected.]

^{F3}4.2.2.1.

Textual Amendments

F3 Deleted by Commission Regulation (EU) 2018/1832 of 5 November 2018 amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) 2017/1151 for the purpose of improving the emission type approval tests and procedures for light passenger and commercial vehicles, including those for in-service conformity and real-driving emissions and introducing devices for monitoring the consumption of fuel and electric energy (Text with EEA relevance).

[^{F2}4.2.3. The statistical method for calculating the test criteria is described in Appendix 1.

The production of a COP family shall be deemed to not conform when a fail decision is reached for one or more of the pollutants and CO₂ values, in accordance with the test criteria in Appendix 1.

The production of a COP family shall be deemed to conform once a pass decision is reached for all the pollutants and CO₂ values in accordance with the test criteria in Appendix 1.]

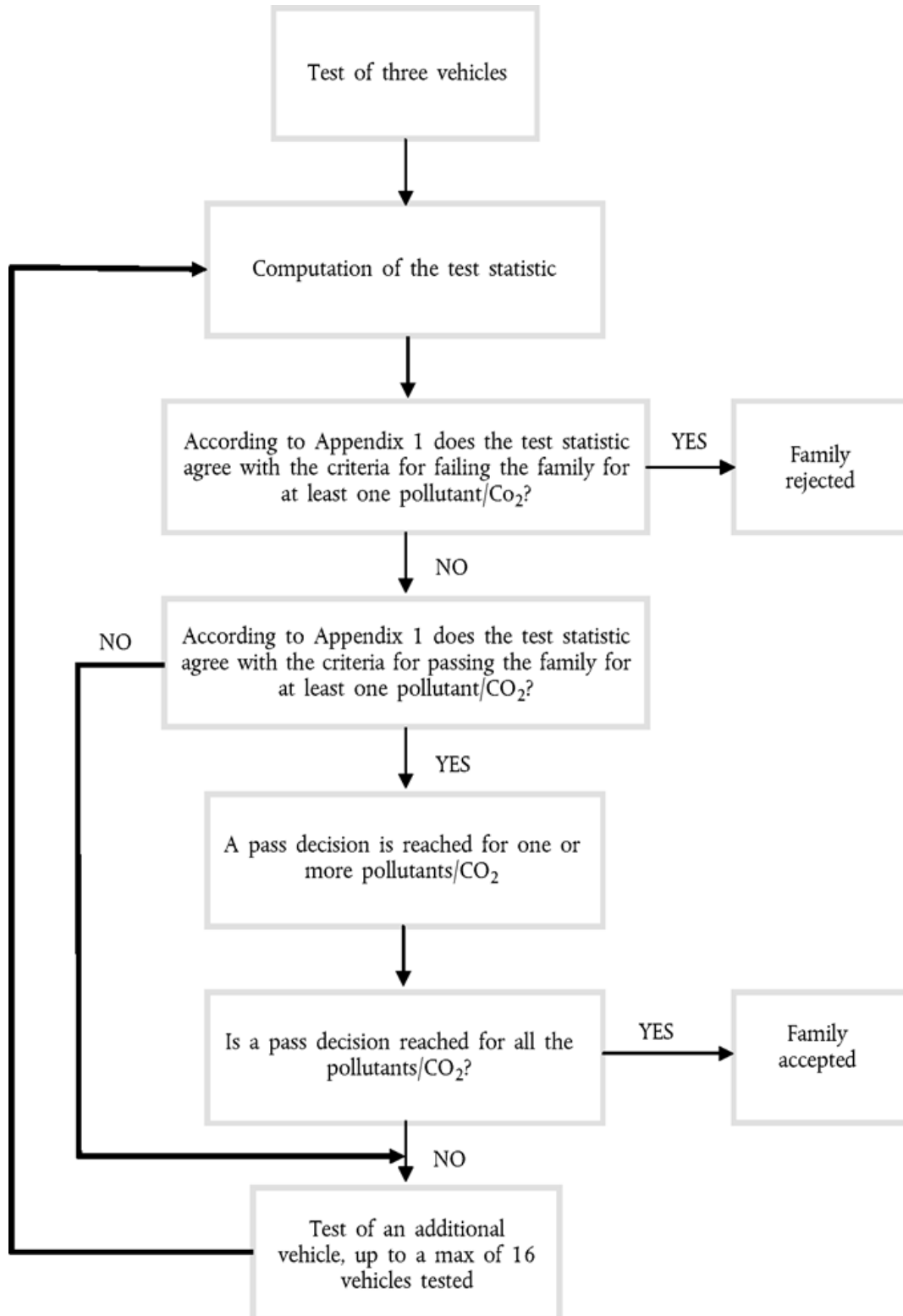
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When a pass decision has been reached for one pollutant, that decision shall not be changed by any additional tests carried out to reach a decision for the other pollutants and CO₂ values.

If a pass decision is not reached for all the pollutants and CO₂ values, a test shall be carried out on another vehicle, up to the maximum of 16 vehicles, and the procedure described in Appendix 1 for taking a pass or fail decision shall be repeated (see Figure I.4.2).

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Figure



I.4.2

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- [^{F2}4.2.4. At the request of the manufacturer and with the acceptance of the approval authority, tests may be carried out on a vehicle of the COP family with a maximum of 15 000 km in order to establish measured evolution coefficients EvC for pollutants/CO₂ for each COP family. The running-in procedure shall be conducted by the manufacturer, who shall not to make any adjustments to these vehicles.]
- 4.2.4.1. In order to establish a measured evolution coefficient with a run-in vehicle the procedure shall be as follows:
- (a) the pollutants/CO₂ shall be measured at a mileage of at most 80 km and at 'x' km of the first tested vehicle;
 - (b) the evolution coefficient (EvC) of the pollutants/CO₂ between 80 km and 'x' km shall be calculated as:

$$EvC_{\text{meas}} = \text{values at } x \text{ km} / \text{values at 80 km}$$
 - (c) [^{F2}the other vehicles in the COP family shall not be run in, but their zero km emissions/EC/CO₂ shall be multiplied by the evolution coefficient of the first run-in vehicle. In this case, the values to be taken for testing as in Appendix 1 shall be:]
 - (i) the values at 'x' km for the first vehicle;
 - (ii) the values at zero km multiplied by the relevant evolution coefficient for the other vehicles.
- 4.2.4.2. All these tests shall be conducted with commercial fuel. However, at the manufacturer's request, the reference fuels described in Annex IX may be used.
- 4.2.4.3. When checking the conformity of production for CO₂, as an alternative to the procedure mentioned in Section 4.2.4.1 the vehicle manufacturer may use a fixed evolution coefficient EvC of 0,98 and multiply all values of CO₂ measured at zero km by this factor.
- 4.2.5 Tests for conformity of production of vehicles fuelled by LPG or NG/biomethane may be performed with a commercial fuel of which the C3/C4 ratio lies between those of the reference fuels in the case of LPG, or of one of the high or low caloric fuels in the case of NG/biomethane. In all cases a fuel analysis shall be presented to the approval authority.
- 4.2.6. Vehicles fitted with eco-innovations
- 4.2.6.1. In the case of a vehicle type fitted with one or more eco-innovations, within the meaning of Article 12 of Regulation (EC) No 443/2009 for M1 vehicles or Article 12 of Regulation (EU) No 510/2011 for N1 vehicles, the conformity of production shall be demonstrated with respect to the eco-innovations, by checking the presence of the correct eco-innovation(s) in question.
- 4.3. **PEVs**
- 4.3.1 Measures to ensure the conformity of production with regard to electric energy consumption (EC) shall be checked on the basis of the type-approval certificate set out in Appendix 4 to this Annex.
- 4.3.2. Electric energy consumption verification for conformity of production

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4.3.2.1. During the conformity of production procedure, the break-off criterion for the Type 1 test procedure according to paragraph 3.4.4.1.3 of Sub-Annex 8 to Annex XXI of this Regulation (consecutive cycle procedure) and paragraph 3.4.4.2.3. of Sub-Annex 8 to Annex XXI of this Regulation (Shortened Test Procedure) shall be replaced with the following:

The break-off criterion for the conformity of production procedure shall be reached with having finished the first applicable WLTP test cycle.

4.3.2.2. During this first applicable WLTP test cycle, the DC energy from the REESS(s) shall be measured according to the method described in Appendix 3 of Sub-Annex 8 to Annex XXI of this Regulation and divided by the driven distance in this applicable WLTP test cycle.

4.3.2.3. The value determined according to paragraph 4.3.2.2 shall be compared to the value determined according to paragraph 1.2 of Appendix 2.

4.3.2.4. Conformity for EC shall be checked using the statistical procedures described in Section 4.2 and Appendix 1. For the purposes of this conformity check, the terms pollutants/CO₂ shall be replaced by EC.

4.4. OVC-HEVs

4.4.1. Measures to ensure the conformity of production with regard to CO₂ mass emission and electric energy consumption from OVC-HEV shall be checked on the basis of the description in the type-approval certificate set out in Appendix 4 to this Annex.

4.4.2. CO₂ mass emission verification for conformity of production

4.4.2.1. The vehicle shall be tested according to the charge-sustaining Type 1 test as described in paragraph 3.2.5. of Sub-Annex 8 to Annex XXI of this Regulation.

4.4.2.2. During this test, the charge-sustaining CO₂ mass emission shall be determined according to Table A8/5 of Sub-Annex 8 to Annex XXI of this Regulation and compared to the charge-sustaining CO₂ mass emission according to paragraph 2.3 of Appendix 2.

4.4.2.3. Conformity for CO₂ emissions shall be checked using the statistical procedures described in Section 4.2 and Appendix 1.

4.4.3. Electric energy consumption verification for conformity of production

4.4.3.1. During the conformity of production procedure, the end of the charge-depleting Type 1 test procedure according to paragraph 3.2.4.4. of Sub-Annex 8 to Annex XXI of this Regulation shall be replaced with the following:

The end of the charge-depleting Type 1 test procedure for the conformity of production procedure shall be reached with having finished the first applicable WLTP test cycle.

4.4.3.2. During this first applicable WLTP test cycle, the DC energy from the REESS(s) shall be measured according to the method described in Appendix 3 of Sub-Annex 8 to Annex XXI of this Regulation and divided by the driven distance in this applicable WLTP test cycle.

[^{F2}4.4.3.3] The value determined in accordance with point 4.4.3.2. shall be compared to the value determined in accordance with point 2.4. of Appendix 2.]

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4.4.1.4. Conformity for EC shall be checked using the statistical procedures described in Section 4.2 and Appendix 1. For the purposes of this conformity check, the terms pollutants/CO₂ shall be replaced by EC.

4.5. Checking the conformity of the vehicle for a Type 3 test

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

4.5.1.1. When the approval authority determines that the quality of production seems unsatisfactory, a vehicle shall be randomly taken from the family and subjected to the tests described in Annex V.

4.5.1.2. The production shall be deemed to conform if this vehicle meets the requirements of the tests described in Annex V.

4.5.1.3. If the vehicle tested does not satisfy the requirements of Section 4.5.1.1, a further random sample of four vehicles shall be taken from the same family and subjected to the tests described in Annex V. The tests may be carried out on vehicles which have completed a maximum of 15 000 km with no modifications.

4.5.1.4. The production shall be deemed to conform if at least three vehicles meet the requirements of the tests described in Annex V.

4.6. Checking the conformity of the vehicle for a Type 4 test

4.6.1. If a verification of the Type 4 test is to be carried out, it shall be conducted in accordance with the following requirements:

4.6.1.1. When the approval authority determines that the quality of production seems unsatisfactory, a vehicle shall be randomly taken from the family and subjected to the tests described in Annex VI, or at least as in paragraph 7 of Annex 7 of UN Regulation 83.

4.6.1.2. The production shall be deemed to conform if this vehicle meets the requirements of the tests described in Annex VI, or paragraph 7 of Annex 7 of UN Regulation 83 depending on the test performed.

4.6.1.3. If the vehicle tested does not satisfy the requirements of section 4.6.1.1, a further random sample of four vehicles shall be taken from the same family and subjected to the tests described in Annex VI, or at least as in paragraph 7 of Annex 7 of UN Regulation 83. The tests may be carried out on vehicles which have completed a maximum of 15 000 km with no modifications.

4.6.1.4. The production shall be deemed to conform if at least three vehicles meet the requirements of the tests described in Annex VI, or paragraph 7 of Annex 7 of UN Regulation 83 depending on the test performed.

4.7. Checking the conformity of the vehicle for On-board Diagnostics (OBD)

4.7.1. If a verification of the performance of the OBD system is to be carried out, it shall be conducted in accordance with the following requirements:

4.7.1.1. When the approval authority determines that the quality of production seems unsatisfactory, a vehicle shall be randomly taken from the family and subjected to the tests described in Appendix 1 to Annex XI.

Changes to legislation: *There are outstanding changes not yet made to Commission Regulation (EU) 2017/1151. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) [View outstanding changes](#)*

- 4.7.1.2. The production shall be deemed to conform if this vehicle meets the requirements of the tests described in Appendix 1 to Annex XI.
- 4.7.1.3. If the vehicle tested does not satisfy the requirements of section 4.7.1.1, a further random sample of four vehicles shall be taken from the same family and subjected to the tests described in Appendix 1 to Annex XI. The tests may be carried out on vehicles which have completed a maximum of 15 000 km with no modifications.
- 4.7.1.4. The production shall be deemed to conform if at least three vehicles meet the requirements of the tests described in Appendix 1 to Annex XI.

Changes to legislation:

There are outstanding changes not yet made to Commission Regulation (EU) 2017/1151. Any changes that have already been made to the legislation appear in the content and are referenced with annotations.

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Changes and effects yet to be applied to the whole legislation item and associated provisions

- Signature words omitted by [S.I. 2022/1273 reg. 80\(16\)](#)
- Annex 2 Part B point 7.7 omitted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(viii\)](#)
- Annex 2 Part B point 5.8 Table B.1 word substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(iv\)\(bb\)](#)
- Annex 2 Part A point 2.4 words inserted by [S.I. 2022/1273 reg. 81\(3\)\(a\)\(iii\)\(aa\)](#)
- Annex 2 Part B point 5.7.1 words inserted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(iii\)\(aa\)](#)
- Annex 2 Part B point 5 words omitted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(i\)\(aa\)](#)
- Annex 2 Part B point 5 words omitted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(i\)\(bb\)](#)
- Annex 2 Part B point 5 words omitted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(i\)\(cc\)](#)
- Annex 2 Part B point 5.9 heading words omitted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(v\)\(aa\)](#)
- Annex 2 Part B point 5.9 words omitted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(v\)\(bb\)](#)
- Annex 2 Part B point 7.9 words omitted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(viii\)](#)
- Annex 2 Appendix 1 table words omitted by [S.I. 2022/1273 reg. 81\(3\)\(c\)\(i\)](#)
- Annex 2 Part A point 2.1 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(a\)\(i\)](#)
- Annex 2 Part A point 2.3 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(a\)\(ii\)](#)
- Annex 2 Part A point 2.4 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(a\)\(iii\)\(bb\)](#)
- Annex 2 Part A point 2.5 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(a\)\(iv\)](#)
- Annex 2 Part A point 2.6 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(a\)\(v\)](#)
- Annex 2 Part B point 5.1 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(ii\)](#)
- Annex 2 Part B point 5.7.1 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(iii\)\(bb\)](#)
- Annex 2 Part B point 5.8 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(iv\)\(aa\)](#)
- Annex 2 Part B point 5.10.1 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(vi\)](#)
- Annex 2 Part B point 7.6 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(vii\)](#)
- Annex 2 Part B point 7.10 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(x\)\(aa\)](#)
- Annex 2 Part B point 7.10 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(x\)\(bb\)](#)
- Annex 2 Part B point 7.11 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(xi\)\(aa\)](#)
- Annex 2 Part B point 7.11 words substituted by [S.I. 2022/1273 reg. 81\(3\)\(b\)\(xi\)\(bb\)](#)
- Annex 2 Appendix 1 table words substituted by [S.I. 2022/1273 reg. 81\(3\)\(c\)\(ii\)](#)
- Annex 2 Appendix 1 table words substituted by [S.I. 2022/1273 reg. 81\(3\)\(c\)\(iii\)](#)
- Annex 2 Appendix 1 table words substituted by [S.I. 2022/1273 reg. 81\(3\)\(c\)\(iv\)](#)
- Annex 2 Appendix 1 table words substituted by [S.I. 2022/1273 reg. 81\(3\)\(c\)\(v\)](#)
- Annex 1 Appendix 4 Addendum heading word substituted by [S.I. 2022/1273 reg. 81\(2\)\(j\)](#)
- Annex 1 Appendix 6 heading word substituted by [S.I. 2022/1273 reg. 81\(2\)\(l\)\(i\)](#)
- Annex 1 Appendix 6 point 1 word substituted by [S.I. 2022/1273 reg. 81\(2\)\(l\)\(i\)](#)
- Annex 1 Appendix 6 point 2.1 word substituted by [S.I. 2022/1273 reg. 81\(2\)\(l\)\(ii\)\(bb\)](#)
- Annex 1 Appendix 6 point 2.2 word substituted by [S.I. 2022/1273 reg. 81\(2\)\(l\)\(iii\)\(bb\)](#)
- Annex 1 Appendix 4 words inserted by [S.I. 2022/1273 reg. 81\(2\)\(i\)\(ii\)](#)
- Annex 1 Appendix 7 words inserted by [S.I. 2022/1273 reg. 81\(2\)\(m\)](#)
- Annex 1 Appendix 3 point 16.3 notes words omitted by [S.I. 2022/1273 reg. 81\(2\)\(h\)\(ii\)](#)
- Annex 1 Appendix 4s. 2 point 8 notes words omitted by [S.I. 2022/1273 reg. 81\(2\)\(i\)\(iii\)](#)
- Annex 1 Appendix 4 Addendum notes words omitted by [S.I. 2022/1273 reg. 81\(2\)\(k\)\(ii\)](#)
- Annex 1 Appendix 6 point 2.1 words omitted by [S.I. 2022/1273 reg. 81\(2\)\(l\)\(ii\)\(aa\)](#)

- Annex 1 Appendix 6 point 2.2 words omitted by S.I. 2022/1273 reg. 81(2)(l)(iii)(aa)
- Annex 1 Appendix 3 heading words substituted by S.I. 2022/1273 reg. 81(2)(g)(i)
- Annex 1 Appendix 3 point 3.2.18.1 words substituted by S.I. 2022/1273 reg. 81(2)(g)(i)
- Annex 1 Appendix 3 point 3.5.8 words substituted by S.I. 2022/1273 reg. 81(2)(g)(ii)
- Annex 1 Appendix 3 point 9.1 words substituted by S.I. 2022/1273 reg. 81(2)(g)(iii)
- Annex 1 Appendix 3 point 16.3 notes words substituted by S.I. 2022/1273 reg. 81(2)(h)(i)
- Annex 1 Appendix 4 heading words substituted by S.I. 2022/1273 reg. 81(2)(i)(i)
- Annex 1 Appendix 4 words substituted by S.I. 2022/1273 reg. 81(2)(i)(i)
- Annex 1 Appendix 4 Addendum notes words substituted by S.I. 2022/1273 reg. 81(2)(k)(i)
- Art. 2(2) words substituted by S.I. 2022/1273 reg. 80(2)(a)(i)
- Art. 2(2) words substituted by S.I. 2022/1273 reg. 80(2)(a)(ii)
- Art. 2(32c) words substituted by S.I. 2022/1273 reg. 80(2)(b)
- Annex 3A point 2.3 omitted by S.I. 2022/1273 reg. 81(4)(a)
- Annex 3A Appendix 6 point 2.1 word substituted by S.I. 2022/1273 reg. 81(4)(j)(i)(bb)
- Annex 3A Appendix 7 point 5.2 word substituted by S.I. 2022/1273 reg. 81(4)(k)(ii)(aa)
- Annex 3A Appendix 7 point 5.3 word substituted by S.I. 2022/1273 reg. 81(4)(k)(iii)
- Annex 3A point 7.4 words omitted by S.I. 2022/1273 reg. 81(4)(h)
- Annex 3A Appendix 7 point 5.2 words omitted by S.I. 2022/1273 reg. 81(4)(k)(ii)(bb)
- Annex 3A point 2.4 words substituted by S.I. 2022/1273 reg. 81(4)(b)
- Annex 3A point 3.1.3.2 words substituted by S.I. 2022/1273 reg. 81(4)(c)
- Annex 3A point 3.1.3.2.1 words substituted by S.I. 2022/1273 reg. 81(4)(d)
- Annex 3A point 6.4 words substituted by S.I. 2022/1273 reg. 81(4)(e)
- Annex 3A point 6.5 words substituted by S.I. 2022/1273 reg. 81(4)(f)
- Annex 3A point 6.9 words substituted by S.I. 2022/1273 reg. 81(4)(g)(i)
- Annex 3A point 6.9 words substituted by S.I. 2022/1273 reg. 81(4)(g)(ii)
- Annex 3A Appendix 5 point 4.4.2 words substituted by S.I. 2022/1273 reg. 81(4)(i)(i)
- Annex 3A Appendix 5 point 4.4.3 words substituted by S.I. 2022/1273 reg. 81(4)(i)(i)
- Annex 3A Appendix 5 point 4.4.3 words substituted by S.I. 2022/1273 reg. 81(4)(i)(ii)
- Annex 3A Appendix 6 point 2.1 words substituted by S.I. 2022/1273 reg. 81(4)(j)(i)(aa)
- Annex 3A Appendix 6 point 2.3 words substituted by S.I. 2022/1273 reg. 81(4)(j)(ii)
- Annex 3A Appendix 7 point 1 words substituted by S.I. 2022/1273 reg. 81(4)(k)(i)
- Art. 9(8)(a) words substituted by S.I. 2022/1273 reg. 80(9)(f)(i)
- Art. 9(8)(b) words substituted by S.I. 2022/1273 reg. 80(9)(f)(ii)(aa)
- Art. 9(8)(b) words substituted by S.I. 2022/1273 reg. 80(9)(f)(ii)(bb)
- Annex 11 Appendix 1 point 3.1.2 words omitted by S.I. 2022/1273 reg. 81(5)(c)(i)(aa)
- Annex 11 Appendix 1 point 3.1.2 words omitted by S.I. 2022/1273 reg. 81(5)(c)(ii)(aa)
- Annex 11 Appendix 1 point 3.1.2 words omitted by S.I. 2022/1273 reg. 81(5)(c)(ii)(bb)
- Annex 11 Appendix 1 point 3.1.2 words substituted by S.I. 2022/1273 reg. 81(5)(c)(i)(bb)
- Annex 13 Appendix 3 image substituted by S.I. 2022/1273 reg. 81(7)(k)(ii)
- Annex 13 Appendix 1 heading word substituted by S.I. 2022/1273 reg. 81(7)(i)
- Annex 13 Appendix 1 point 000.7 word substituted by S.I. 2022/1273 reg. 81(7)(i)
- Annex 13 Appendix 2 point 000.7 word substituted by S.I. 2022/1273 reg. 81(7)(j)(ii)

- Annex 13 Appendix 3 heading word substituted by S.I. 2022/1273 reg. 81(7)(k)(i)
- Annex 13 Appendix 3 words omitted by S.I. 2022/1273 reg. 81(7)(k)(iii)
- Annex 13 Appendix 2 words substituted by S.I. 2022/1273 reg. 81(7)(j)(i)
- Annex 14 Appendix 1 words inserted by S.I. 2022/1273 reg. 81(8)(b)
- Art. 15(5)(c) word substituted by S.I. 2022/1273 reg. 80(15)(e)