EUROPEAN COMMISSION
DIRECTORATE-GENERAL
CLIMATE ACTION
Directorate C - Climate Strategy, Governance, and Emissions from non-trading sectors
CLIMA.C.4 – Road transport

Guidelines on the monitoring and reporting of CO_2 emissions from light-duty vehicles

Version 11 – December 2019

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DATA QUALITY CHECK LIST

Based on experience with past monitoring exercises, some recurring errors and omissions have been identified. **In order to increase data quality and decrease the need for follow-up clarifications, Member States are strongly encouraged to use this check list before data submission.**

1. Mandatory parameters

While all mandatory parameters are important and have to be provided, the completeness and accuracy of the following entries are particularly important for identifying the vehicles concerned and for determining the manufacturer's compliance situation:

(a) Vehicle identifiers

- Vehicle identification number (VIN)
- Vehicle interpolation family identifier (VFN)
- Type approval number (TAN)
- Type, Variant and Version code (T, Va, Ve)

(b) Compliance data

- NEDC CO_2 emissions (Enedc)
- WLTP CO_2 emissions (Ewltp)
- Mass in running order (M)

Where applicable, also:

- Eco-innovation savings and eco-innovation code (Ernedc, IT)
- Deviation factor (De)
- Verification factor (Vf)

2. Reporting format

Please ensure that the data is submitted to the Central Data Repository (CDR) of the European Environment Agency (EEA) and that particular attention is given to the following:

- file format should be .xml
- encoding should be "UTF-8"
- special characters should not be used (i.e. "****", "□", "Š")
- dot ("0.0") should be used as decimal separator (i.e. not comma)
- where entries are not reported because they are not applicable the fields should be left empty (not "0")
- do not change the root elements and elements of the .xsd file: the root elements should be "vehicles" (i.e. not "cars" or "details"), the elements should be "item" (i.e. not "cars")
- the entry formats (text, integer or float) should be correctly reported, as shown in the Annexes of these guidelines.

For more information about the CDR and how to submit data, see CIRCABC: https://circabc.europa.eu/sd/a/73c6bf7a-a799-4ba8-a63e-ff65b7d04186/EEA%20data%20delivery%20system-guidance.pdf

1. INTRODUCTION

1.1. Legal provisions

This document provides technical guidance to the Member States for the preparation of the data to be delivered to the Commission by 28 February 2020 (data covering the calendar year 2019), pursuant to the following legislation and documents:

- Article 8 of Regulation (EC) No 443/2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO_2 emissions from light-duty vehicles;
- Commission Regulation (EU) No 1014/2010 on monitoring and reporting of data on the registration of new passenger cars pursuant to Regulation (EC) No 443/2009 of the European Parliament and of the Council;
- Article 8 of Regulation (EU) No 510/2011 setting emission performance standards for new light commercial vehicles as part of the Community's integrated approach to reduce CO_2 emissions from light-duty vehicles;
- Commission Regulation (EU) No 293/2012 on monitoring and reporting of data on the registration of new light commercial vehicles pursuant to Regulation (EU) No 510/2011 of the European Parliament and of the Council;
- Commission Notice "Guidance on the monitoring and reporting of data on the registration of new light duty vehicles" (2017/C 218/01).

New Regulation (EU) 2019/631

- From 1 January 2020, Regulations (EC) No 443/2009 and (EU) No 510/2011 are repealed and replaced by **Regulation (EU) 2019/631**. The monitoring requirements are set out in Article 7(1) to (6) and are the same as those set out in the respective Article 8 of the repealed Regulations, with the exception of paragraph (6) which now also specifies that the Member States' designated authorities are responsible for the correctness and completeness of the data delivered to the Commission. Annexes II and III to Regulation (EU) 2019/631 set out the details of the monitoring and reporting requirements (corresponding to the respective Annex II to the repealed Regulations). The Commission monitoring Regulations and the notice remain applicable.

These documents can be accessed via the following URL:

Regulation (EC) No 443/2009 and Commission Regulation (EU) No 1014/2010:

https://ec.europa.eu/clima/policies/transport/vehicles/cars_en#tab-0-1

Regulation (EU) No 510/2011 and Commission Regulation (EU) No 293/2012:

https://ec.europa.eu/clima/policies/transport/vehicles/vans_en#tab-0-1

Regulation (EU) 2019/631:

https://ec.europa.eu/clima/policies/transport/vehicles/regulation_en#tab-0-1

1.2. Role of Member States and contact persons

Member States are responsible for the correctness and completeness of the data submitted (see Article 7(6) of Regulation (EU) 2019/631) and shall ensure the maintenance, collection, control, verification and transmission of the aggregated and the detailed monitoring data, as set out in Article 4 of Regulation (EU) No 1014/2010 and Article 5 of Regulation (EU) No 293/2012.

Member States shall appoint at least two representatives responsible for the monitoring of CO_2 from M1 and N1 vehicles. The contact details of the nominated persons shall be sent **before 15 February each year**, unless they are the same as already notified**,** to the following e-mail address: EC-CO2-LDV-IMPLEMENTATION@ec.europa.eu.

The contact persons must be accessible and ready to respond quickly to follow-up questions raised by the Commission after the submission of the data (see Article 7(6) of Regulation 2019/631).

1.3. World-wide harmonized Light vehicles Test Procedure (WLTP)

The World-wide harmonized Light vehicles Test Procedure (WLTP) set out in Implementing Regulation (EU) 2017/1151[1] applies or will apply for the following vehicles:

Vehicle category	Vehicles of new types registered from	New vehicles registered from	New end-of-series vehicles registered from
M1 and N1 class I	1 September 2017	1 September 2018	1 September 2019
N1 class II and class III	1 September 2018	1 September 2019	1 September 2020 In case of multi-stage vans: 28 February 2021 For certain specific HDV derived vans: 1 July 2022.

With WLTP, a specific CO_2 emission value is calculated and recorded in the certificate of conformity (CoC) of **each individual vehicle**. In order to effectively monitor and verify those values, vehicle identification numbers (VINs) have to be used as a basis for the monitoring.

This means that for the **2019 data**, in addition to the NEDC CO_2 emissions, also the WLTP CO_2 emissions should be reported for all cars (except end-of-series cars registered before 1 September 2019) and for most vans.

For each record that should have a WLTP CO_2 emissions value, also the vehicle interpolation family identifier (VFN) has to be reported.

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02017R1151-20190101 (consolidated version of 1 January 2019)

1.4. NEDC/WLTP Correlation procedure

The CO_2 emission fleet targets for cars and vans (cars: 130 g CO_2/km since 2015 and 95 g CO_2/km from 2020, vans: 175 g CO_2/km since 2017 and 147 g CO_2/km from 2020) have been set based on the emissions measured in accordance with the NEDC. Manufacturers' compliance with their specific emissions targets will be assessed on the basis of NEDC emission values until 2020 inclusive.

This means that for vehicles that are type approved in accordance with the WLTP in the period 2017 to 2020, the WLTP CO_2 emission values are to be correlated into corresponding NEDC values in accordance with the procedure set out in Implementing Regulations (EU) 2017/1152 (vans) and 2017/1153 (cars)[2].

From 2021 onwards, manufacturers' specific emission targets will be expressed in WLTP values and compliance will be checked using WLTP values only.

The 2021 specific WLTP emission target of a manufacturer will be determined taking into account its average specific NEDC emissions and its specific NEDC emission target in 2020, as well as its average specific WLTP emissions in that year (see point 4 of Part A and B of Annex I to Regulation (EU) 2019/631).

Hence it is of utmost importance that both NEDC and WLTP CO_2 emissions are correctly reported for all vehicles for the calendar year 2020.

1.5. Deviation and verification factors under the correlation procedure

The correlation procedure is based on the use of the CO_2MPAS simulation tool, developed by the Commission's Joint Research Centre. In order to ensure that the correlated NEDC values are correct, 10% of the vehicle interpolation families that are subject to a CO_2MPAS simulation are randomly selected for a physical vehicle test, using the "DICE" module of CO_2MPAS. For each such test, a **deviation factor (De)** should be calculated and recorded in the type approval certificate and the certificate of conformity. The De expresses the deviation between the CO_2 emissions determined through the physical vehicle test and the CO_2 emissions declared by the manufacturer in view of the CO_2MPAS simulation.

If, for one or more interpolation families of a manufacturer, the De is higher than 0.04, this triggers the calculation of a **correction factor,** by which the average specific CO_2 emissions of the manufacturer will be multiplied.

The application of a correction factor may also be triggered by the presence of a **verification factor (Vf)** of 1 for one or more interpolation families of a manufacturer. The Vf is recorded as "1" in the type approval certificate if the type approval authority finds that the input data for the correlation procedure as reported by the manufacturer were incorrect or where it has justified reasons to deem the CO_2 value declared by the manufacturer to be too low.

The De and the Vf must be recorded by a manufacturer in the certificate of conformity of the vehicles concerned (entry 49 of the CoC).

[2] Cars: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32017R1153
Vans: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32017R1152

The provisions on the calculation of the correction factor are set out in Article 6(2) of Implementing Regulation (EU) 2017/1152 (vans) and Article 7(2) of Implementing Regulation (EU) 2017/1153 (cars).

More information and a calculated example can be found in Annex 3 to this document.

The De and Vf reported may have a direct impact on the calculation of the average specific emissions of a manufacturer. It is therefore essential that the competent authorities, including type approval authorities, take care in recording and reporting these factors accurately.

In the course of the 2018 monitoring exercise, several errors were identified in this respect.

The following elements may help to identify possible errors that may require follow-up by the competent authorities, including by type approval authorities:

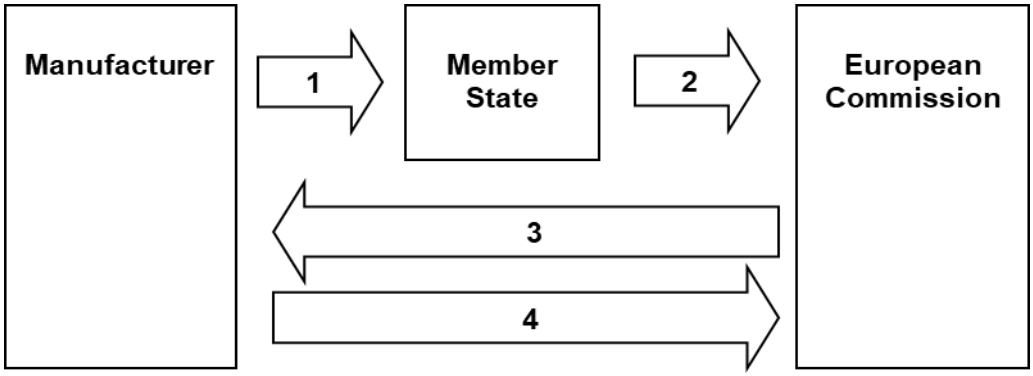
- Due to the random selection procedure for the physical vehicle testing under the correlation procedure, a De and Vf should be recorded for around 10% of the interpolation families of a manufacturer. If the number of De and Vf reported is much higher or lower, further checks should be performed;
- De factors exceeding 0.04 should be double-checked with the type approval documentation or through consultation of the competent type approval authority.

The Commission will support Member States in ensuring the completeness and accuracy of the De and Vf values reported by using the data collected by the Joint Research Centre through the "DICE" module of the CO_2MPAS correlation tool.

2. THE CO_2 MONITORING SYSTEM

2.1. Overview

The CO_2 monitoring system for verifying compliance with the CO_2 emission standards for cars and vans comprises the following four steps:



- Step 1: The manufacturer issues the certificate of conformity (CoC), in electronic and/or paper format, which is presented to the registration authority that incorporates the data in the national registry;
- Step 2: The Member State transmits the data for all new registered vehicles for a full calendar year to the Commission, by uploading the data on the Central Data Repository (CDR) of the EEA **at the latest by 28 February** of the following year;
- Step 3: The EEA and the Commission verify the data, and may, in agreement with the Member State concerned, correct the data. At the latest by 30 June of each year the Commission makes public the aggregated provisional data and notifies each manufacturer individually of its provisional average specific emissions of CO_2 and its specific emissions target based on the data received. VINs submitted by Member States will not be published but notified individually to the relevant manufacturers (based on the Mh-field in the monitoring data) with the corresponding ID.
- Step 4: The manufacturer may, during three months following receipt of the Commission's notification of the provisional data, verify the data and notify the Commission of the presence of any errors in the provisional dataset. Through access to the VINs, the manufacturer will be able to identify and retrieve the relevant technical data from the public database and cross-check with its own data records.

The timetable for the different steps is strict and delays may seriously disrupt the monitoring procedure as a whole. A delay in the delivery of data by one Member State will hold up the publication of the entire provisional data for the EU.

2.2. Data quality

High data quality is essential for the proper implementation of the CO_2 emission standards. It is therefore important that all parties concerned are aware of the need for accurate data and take the necessary steps for ensuring this. More precisely, errors in the data sets may occur at several different instances:

- at the moment of type approval, where incorrect values could be entered by **type approval authorities** into the type approval documentation and be reproduced by the

manufacturer in the certificate of conformity (e.g. this has been the case with deviation and verification factors in the 2018 monitoring exercise) (i.e. prior to step 1 in the overview);

- at the level of the **manufacturer or their dealers** when they complete the certificates of conformity (step 1);
- at the moment of registration and processing of the data by the Member States' **registration authorities** (step 2);

Note here the new provision in Article 7(6) of Regulation (EU) 2019/631:

"The designated competent authorities shall ensure the correctness and completeness of the data transmitted to the Commission, and shall provide a contact point that is to be available and respond quickly to requests from the Commission to address errors and omissions in the transmitted datasets."

Errors in or omissions of the vehicle identification numbers, vehicle family interpolation identifiers (VFNs), codes for type, variant and version and the type approval numbers in the data set are particularly serious since they will hamper the verification and correction of the record both by the EEA and by the manufacturer. Member States are therefore requested to pay special attention to the correct and complete reporting of these parameters.

2.3. Data verification

The data is verified by the EEA following the submission by Member States. The EEA will, in particular, check the completeness of the data submitted, variability and the presence of extreme outliers that can be indicative of systematic errors in the dataset. The EEA will follow up with Member State authorities in case of issues. It is therefore important that the designated contact persons can be reached in the period directly following the submission of the data.

Following the publication and notification of the provisional data, the burden of proof for incorrect data lies with the manufacturers. It is therefore necessary that manufacturers can verify the data and notify errors to the Commission. The main tools used by manufacturers for identifying the vehicles and the relevant data are the vehicle identifiers indicated in the check-list (VIN, VFN, TAN, TVV).

The Commission will, where necessary, inform Member States concerned of errors reported by manufacturers. Member States are expected to take remedial measures to ensure that such errors do not occur again in future data submissions. It should be noted that in case of systematic or numerous errors or omissions, and in the absence of remedial action, the Commission may consider enforcement action.

3. DATA SPECIFICATIONS

3.1. Data sources and reporting

Data shall be collected from valid and complete certificates of conformity (CoC). Where necessary, other appropriate documentation such as the registration certificate or type approval documentation may also be used.

The data shall be delivered to the Central Data Repository (CDR) managed by the European Environment Agency (EEA) using two separate files, one for the detailed monitoring data and one for the aggregated monitoring data. The layout of .xml files compatible with the EEA system is available on the CIRCABC website[3]. The procedure for data delivery is outlined in a separate document available on CIRCABC: "EEA data delivery system - guidance". For assistance as regards the up-loading on the CDR please contact CO2-monitoring@eea.europa.eu.

For the submission to be considered valid, the Member State has to notify the Commission as soon as data has been uploaded on the CDR, by sending an email to the functional mailbox EC-CO2-LDV-IMPLEMENTATION@ec.europa.eu with copy to the functional mailbox CO2-monitoring@eea.europa.eu.

Further details on the format to be used are given in section 3 of the Commission Notice "Guidance on the monitoring and reporting of data on the registration of new light duty vehicles" (2017/C 218/01)[4].

Details of the data specifications (text, text length, integer, decimal, number of decimal digits, etc.) are given in Annex 1 to this document for M1 vehicles and in Annex 2 for N1 vehicles.

For the purpose of these guidelines: "entry" means the content of a parameter (e.g. mass); "record" means a series of entries, specifying all the parameters for a vehicle version in the monitoring data.

Please note the following important points:

- Any deviation in the reporting of the data from the present guidelines should be presented and substantiated in a "readme" document, delivered in the CDR together with the monitoring data.
- In case of **missing values, a blank field should be used** (never use the zero value or special characters, e.g. "-" signs.

[3] https://circabc.europa.eu/w/browse/d55d9dee-99b8-4a42-8e0d-ad158c00288f

[4] http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1499841836289&uri=CELEX:52017XC0707(01)

3.2. Detailed data

The following table presents the parameters for data that has **to be delivered for each new vehicle registered in 2019 (including some optional parameters).**

Data Parameters	**Cars**	**Vans**	**Section in certificate of conformity** (unless otherwise specified)
Year	√	√	N/A
Member State	√	√	N/A
ID number (ID)	optional	optional	N/A
Vehicle identification number (VIN)	√	√	0.10
Vehicle family identification number (VFN)	√	√	0.2.3.1
Name of the manufacturer EU standard denomination (Mh)	√	√	0.5 [1]
Name of the manufacturer OEM declaration (MAN)	√	√	0.5
Name of the manufacturer National registry denomination (MMS)	√	√	N/A
Type approval number (TAN)	√	√	0.10
Type (T)	√	√	0.2
Variant (Va)	√	√	0.2
Version (Ve)	√	√	0.2
Make (Mk)	√	√	0.1
Commercial name (Cn)	√	optional	0.2.1
Category of the vehicle type approved (Ct)	√	√	0.4
Category of the vehicle registered (Cr)	√	√	Point J of Part I of the Registration certificate
Registrations (r)	√	√	N/A
Mass in running order (M) [2]	√	√ [2]	13 14 (mass in running order of base vehicle, in case of multi-stage N1 vehicles)
WLTP test mass (MT)	√	√	47.1.1
Technically permissible maximum laden mass (TPMLM)	N/A	√	16.1
Default added mass (DAM)	N/A	optional	N/A
Specific emissions of CO_2 (Enedc)	√	√	49.1

Data Parameters	**Cars**	**Vans**	**Section in certificate of conformity** (unless otherwise specified)
Specific emissions of CO_2 (Ewltp)	√	√	49.4
Foot-print – Wheelbase (W)	√	√	4
Foot-print – track width steering axle (At1)	√	√	30
Foot-print – track width other axle (At2)	√	√	30
Fuel type (Ft)	√	√	26
Fuel mode (Fm)	√	√	26.1
Engine capacity (Ec)	√	√	25
Engine power (Ep)	√	optional	27
Electric energy consumption (Z) [3]	√	√	49.2
Code for innovative technology or group of innovative technology (IT)	√	√	49.3.1
Total NEDC CO_2 emissions reduction due to an innovative technology (Ernedc)	√	√	49.3.2.1
Total WLTP CO_2 emissions reduction due to an innovative technology (Erwltp)	N/A in 2019	N/A in 2019	49.3.2.2
Deviation factor (De)	√	√	49.1
Verification factor (Vf)	√	√	49.1

[1] *In case of multi-stage N1 vehicles: section 0.5.1 of the CoC for the manufacturer name of the base vehicle*

[2] *In case of multi-stage N1 vehicles: also the mass in running order of the base vehicle (Mb) should be reported, see section 4.11 of this document*

[3] *NEDC value as recorded in section 49.2 of the CoC. From 2020 on, WLTP electric energy consumption (CoC section 49.5.1) will have to be reported as well as the WLTP electric range (CoC section 49.5.1 and 49.5.2)*

The following paragraphs explain in more detail each parameter.

For multi-stage N1 vehicles please consult section 4.11 of this document.

3.2.1. Year and Member State

These data can be reported only once in the detailed data file as part of the header. The year needs to be an integer number with 4 figures. The nomenclature of the Member State should be in accordance with ISO 3166 alpha-2[5] .

[5] With the exception of Greece and United Kingdom for which the code is "EL" and "UK" respectively, see http://publications.europa.eu/code/pdf/370000en.htm#pays

3.2.2. ID number (ID)

The ID number is the unique record number of the data contained in the national registry of each Member State. It can be specified in any format, but preferably as a number. Reporting of the ID is optional, but it may be useful in order to streamline and simplify exchanges with Member States over errors in the dataset.

3.2.3. Vehicle identification number (VIN)

Member States shall report the vehicle identification number (VIN) for all vehicles.

The complete VIN (17 characters) should be taken from section 0.10 of the certificate of conformity and must correspond with the VIN stamped on the vehicle body and stated on the manufacturer's statutory plate attached by the vehicle manufacturer on the vehicle.

The VIN should consist of 17 characters (see Commission Regulation (EU) 2011/19[6]), i.e.

(a) the world manufacturer identifier (WMI), comprising **three** alphanumeric characters, capital roman letters or Arabic numerals;

(b) the vehicle descriptor section (VDS) , comprising **six** alphanumeric characters, capital roman letters or Arabic numerals;

(c) the vehicle indicator section (VIS), comprising **eight** alphanumeric characters, capital Roman letters or Arabic numerals, of which the last four shall consist of digits only.

As regards multi-stage vehicles, there may be cases where two VINs are stamped on the vehicle and two manufacturer's plates are attached to the vehicle. In such cases the VIN for the base vehicle shall be delivered.

3.2.4. Vehicle Family Number (interpolation family identifier) (VFN)

The VFN is the interpolation family identifier as specified in section 0.2.3.1. of the certificate of conformity and recorded in accordance with the following formats:

For vehicles type approved until 31 December 2017, it should consist of the following five sections:

IP-TA-WMI-yyyy-nnnn

- IP is the interpolation family
- TA is the type approval authority
- WMI is the world manufacturer identifier (ISO 3780:2009)
- yyyy is the year when the test for the family was concluded
- nnnn is a four digit sequence number

For vehicles type approved from 1 January 2018, it should consist of the following four sections:

IP-nnnnnnnnnnnnnn-WMI-x

where

[6] Consolidated version: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02011R0019-20120411

- IP is the interpolation family,

- the ‘n’ string consists of a maximum 15 characters restricted to using the characters 0-9, A-Z and the underscore character ‘_’,

- WMI is as defined above;

- ‘x’ is set to ‘1’ or ‘0’ in accordance with the provisions set out in point 5.0 of Annex XXI to Regulation (EU) 2017/1151

3.2.5. Manufacturer name

The database contains three names for each manufacturer. These are needed in order to ensure the accurate identification of the obligated entity, allowing the matching of the manufacturer name recorded by the Member States with the manufacturer name declared by the manufacturers. The official list of manufacturer names (EU standard denomination and manufacturer denomination) is available on the CIRCABC website[7]. This list will be regularly updated. There are two separate lists for M1 and N1 that include all manufacturer names under which vehicles may have been registered.

Note the following special cases:

- for multi-stage vehicles the name of the base vehicle manufacturer should be reported;
- for individual approvals, no manufacturer name should be reported, only ‘AA-IVA’
- for national small series, no manufacturer name should be reported, only ‘AA-NSS’.

3.2.5.1. EU standard denomination (Mh)

The EU standard denomination is the name assigned by the Commission, on the basis of the information submitted by the Member States and the name declared by manufacturers in accordance with Article 8 of Regulation (EC) No 1014/2010 and Article 9 of Regulation (EU) No 293/2012.

3.2.5.2. Manufacturer denomination (MAN)

Member States shall also record the manufacturer name as declared by the manufacturer. The name should correspond to the one indicated in point 0.5 of the certificate of conformity or (0.5.1 in case of manufacturer of a base vehicle for completed vehicles).

Member States are asked to inform the Commission separately if they would identify in the monitoring data manufacturer names that are not yet present in the list published by the Commission.

3.2.5.3. National Registry denomination (MMS)

For transparency towards the manufacturer and the citizens, it is advisable that Member States match the official manufacturer name set out in the Commission list with the manufacturer name contained in the national registry.

Please note that for the individual vehicle approvals (IVA) and the national approvals of small series (NSS) the detailed data may be delivered on a voluntary basis. In that case, Member States may provide detailed data for the vehicle version concerned but leave out the

[7] https://circabc.europa.eu/sd/a/00e8fe6c-3ad8-4e9f-9a39-437501f609a4/Manufacturer_list.xls

manufacturer's name, i.e. this should be given as either AA-NSS or AA-IVA in accordance with Article 7 of Regulation (EU) No 1014/2010 and Article 8 of Regulation (EU) No 293/2012.

3.2.6. Type approval number (TAN)

The TAN is set out in section 0.10 of the certificate of conformity.

The TAN should consist of four sections, each separated by the '*'-character. Except for the lower case letter 'e' and, in case of small series or national type-approvals, the letters 'KS', resp. 'NKS', the TAN must include numbers and asterisks only. Please ensure that where the **number '0'** should be used, that it is not replaced by the **letter 'O'**.

3.2.7. Type (T), Variant (Va) and Version (Ve)

These three parameters allow identifying the data relating to the same version of the vehicle delivered from different Member States. A correct recording of the combined TVV code is important for allowing the verification by the EEA and the manufacturers of the data. The T, Va and Ve entries are set out in section 0.2 of the certificate of conformity or section 0.2.2. for the base vehicle in case of multistage vans (MSV).

3.2.8. Make (Mk)

The make of the vehicle is set out in section 0.1 of the certificate of conformity.

3.2.9. Commercial name (Cn)

The commercial name (Cn) is set out in section 0.2.1 of the certificate of conformity. This is a mandatory parameter for M1 vehicles but as the commercial name can be used to further identify the manufacturer and the vehicle record, Member States are asked to provide this parameter on a voluntary basis for the N1 monitoring.

3.2.10. Category of the vehicle type approved (Ct)

The vehicle category type approved (M1, N1 etc.) is set out in section 0.4 of the certificate of conformity. It should be noted that a vehicle may be type approved in one category and registered in another.

3.2.11. Category of the vehicle registered (Cr)

The vehicle category registered is indicated in point J of Part I of the Registration Certificate. **It is the vehicle category registered that determines whether a vehicle is considered as M1 or N1 for the purpose of the CO_2 emission standards**.

In the case of multi-stage vehicles, indicate the vehicle category registered of the completed vehicle.

3.2.12. Registrations (r)

Following the introduction of the VIN based data monitoring, the data entry for this field will by default be '1' since each vehicle will be reported separately.

3.2.13. Mass in running order (m)

Mass in running order (m) is used for the calculation of the specific emission target of a manufacturer.

Mass in running order refers to the mass of the vehicle with bodywork in running order, i.e. the vehicle with its fuel tank(s) filled to at least 90 % of its or their capacity/ies, including the mass of the driver, of the fuel and liquids, fitted with the standard equipment in accordance with the manufacturer's specifications and, when they are fitted, the mass of the bodywork, the cabin, the coupling and the spare wheel(s) as well as the tools (Regulation (EU) No 1230/2012).

It should be noted that the mass in running order is different from the actual mass of the vehicle. The mass in running order is set out in section 13 of the CoC.

3.2.14. WLTP test mass (MT)

The WLTP test mass is stated in section 47.1.1 of the certificate of conformity and must be reported starting from calendar year 2019.

Please note that the WLTP test mass is not the same as the actual mass of the vehicle.

3.2.15. Technically permissible maximum laden mass (TPMLM) (N1)

The TPMLM is as stated in section 16.1 of the certificate of conformity.

In the case of multi-stage N1 vehicles, the TPMLM of the base vehicle shall be provided.

The TPMLM will be needed to calculate the mass of the multi-stage vehicle to be used for the target calculation.

3.2.16. Specific NEDC CO_2 emissions (Enedc)

The specific NEDC CO_2 emissions (Enedc) are specified in point 49.1 of the certificate of conformity (entry "combined" or "weighted combined" in case of OVC hybrid-electric vehicles).

Which CO_2 emissions value is to be reported in relation to the combination of fuel type and fuel mode of the vehicle is clarified in section 3.2.19 of this document.

3.2.17. Specific WLTP CO_2 emissions (Ewltp)

The specific WLTP CO_2 emissions (Ewltp) are specified in section 49.4 of the certificate of conformity (entry "combined" or "weighted combined" in case of OVC hybrid-electric vehicles). Since this value is vehicle specific, the only data source is the certificate of conformity.

Which CO_2 emissions value is to be reported in relation to the combination of fuel type and fuel mode of the vehicle is clarified in section 3.2.19 of this document.

3.2.18. Footprint – Wheelbase (w), track width of steering axle (at1), track width of other axles (at2)

The wheelbase is specified in section 4 of the certificate of conformity.

Foot-print - axle track(s) are specified in section 30 of the certificate of conformity. In case the front and rear axle have different widths, the maximum value should be reported.

3.2.19. Fuel type (Ft) and Fuel mode (Fm)

Fuel type is specified in section 26 of the certificate of conformity.

Fuel mode is specified in section 26.1 of the certificate of conformity.

For the **fuel mode** the permitted entries are:

- "M" for mono-fuel vehicles, i.e. vehicles able to run on only one fuel, either petrol, diesel, LPG, natural gas (NG) or hydrogen. The latter category also covers Fuel Cell electric vehicles, i.e. vehicles equipped with a powertrain containing exclusively fuel cell(s) and electric machine(s) as propulsion energy converter(s).
- "B" for bi-fuel vehicles, i.e. vehicles with two separate fuel storage systems, which are designed to run primarily on only one fuel at a time. This covers vehicles that can run on petrol and either LPG, NG/biomethane or hydrogen.
- “F” for flex-fuel vehicles, i.e. vehicles with one fuel storage system that can run on different mixtures of two or more fuels; this concerns more specifically ‘flex fuel ethanol vehicles’, which can run on petrol or a mixture of petrol and ethanol up to an 85 per cent ethanol blend (E85);
- "E" for battery electric vehicles (BEV), i.e. "pure" electric vehicles (NOT hybrid vehicles). These vehicles can be identified using section 23 of the certificate of conformity.
- “P” for Off vehicle charging hybrid electric vehicles (OVC-HEV), i.e. plug-in hybrid vehicles. These vehicles can be identified using section 23.1 of the certificate of conformity. Their weighted average CO_2 values are specified in section 49.1. (NEDC) and section 49.4 (WLTP) of the certificate of conformity.
- “H” for Not-Off vehicle charging hybrid electric vehicles (NOVC-HEV). These vehicles can be identified using section 23.1 of the certificate of conformity. They cannot take electric energy from external sources and are only fuelled with one of fuel types specified in section 26 of the CoC. The CO_2 values for that fuel shall be reported.

The following table specifies the entries for fuel type and fuel mode, for each fuel combination, as well as the corresponding CO_2 value to be reported.

Fuel combination	**Fuel type to be reported**	**Fuel mode to be reported**	**Fuel for which the CO_2 value should be taken** (entry "combined" except where mentioned otherwise)
Petrol	Petrol	M	Petrol
Diesel	Diesel	M	Diesel
LPG	LPG	M	LPG
Natural Gas (NG)	NG	M	NG
Hydrogen	Hydrogen	M	Hydrogen In case of Fuel Cell vehicles, the value is zero.
Petrol-LPG	LPG	B	LPG
Petrol-NG	NG-biomethane	B	NG
Petrol-hydrogen	Hydrogen	B	Hydrogen
Petrol-E85	E85	F	Petrol
Electric	Electric	E	CO_2 emission value is zero

Fuel combination	**Fuel type to be reported**	**Fuel mode to be reported**	**Fuel for which the CO_2 value should be taken** (entry "combined" except where mentioned otherwise)
Off vehicle charging hybrid electric vehicle (OVC-HEV) (Plug-in hybrid)	Fuel type combination with electricity, e.g. Petrol/Electric; or E85/Electric; or Diesel/Electric; or Hydrogen/Electric	P	Weighted, combined CO_2 value (CoC should contain only this value)
Not off-vehicle charging hybrid electric vehicle (NOVC-HEV) (Non plug-in hybrid)	Fuel type stated in CoC: Petrol; or E85; or Diesel	H	Fuel type stated in CoC (CoC should contain only one value)

3.2.20. Engine capacity (Ec) and engine power (Ep)

The “engine capacity” is specified in Section 25 of the CoC.

The "engine power" (i.e. the declared maximum net power) is specified in Section 27.3 of the CoC. In case of several values, the maximum value should be reported.

3.2.21. Electric energy consumption (Z)

This parameter allows identifying pure electric vehicles and OVC-HEV and provides information on their energy efficiency.

For 2019, Member States should report the electric energy consumption (Wh/km) that is specified in Section 49.2 of the CoC, i.e. the NEDC value.

From 2020 on, the WLTP electric energy consumption (CoC section 49.5.1) will have to be reported as well as the WLTP electric range (CoC section 49.5.1 and 49.5.2).

3.2.22. Code of the eco-innovation(s) (IT)

Where the use of eco-innovation technologies are applied, the code of the eco-innovation or group of eco-innovations is indicated in Section 49.3.1. of the CoC.

The entry should include both the code of the type approval authority involved (e.g. "e1" for the German authority) and the individual code of each eco-innovation (e.g."1").

3.2.23. Total NEDC CO_2 emission savings due to eco-innovation(s) (Ernedc)

The NEDC CO_2 emission reductions to be reported are specified in section 49.3.2.1 of the certificate of conformity.

3.2.24. Total WLTP CO_2 emission savings due to eco-innovation(s) (Erwltp)

The WLTP CO_2 emission reductions to be reported are specified in section 49.3.2.2 of the certificate of conformity.

WLTP CO_2 emission savings will only be available as from 2020 registrations and the entry should therefore be left blank for the 2019 submission.

3.2.25. Deviation factor (De) and verification factor (Vf)

Where relevant, the deviation factor and verification factor are specified in section 49.1 of the certificate of conformity. Where no such factors appear in the CoC, the entries should be left blank. For more information on these factors see section 1.5 of this document.

3.3. Aggregated data

The table below lists the aggregated data to be delivered for both cars and vans by Member States (Section 1 of Part B of the respective Annex II and III to Regulation (EU) 2019/631).

Aggregated data header – (report once)	**Cars and vans**
Year	√
Member State	√
Data source	√
Total number of new registrations of new passenger cars /light commercial vehicles subject to EC type-approval	√
Total number of new registrations of new individually approved passenger cars /light commercial vehicles	√
Total number of new registrations of new passenger cars /light commercial vehicles approved nationally in small series	√
Total number of new registrations of new light commercial vehicles subject to multi-stage type-approval (where available)	Vans only

4. SPECIFIC ISSUES AND LESSONS LEARNED

This section lists different issues and problems that have been identified in past monitoring exercises, where specific attention is required by the competent monitoring authorities.

4.1. Manufacturer names

Please cross-check the manufacturer names (MAN) in the dataset against the official manufacturer list published on CIRCABC: https://circabc.europa.eu/sd/a/00e8fe6c-3ad8-4e9f-9a39-437501f609a4/Manufacturer_list.xls

Examples:

Correct MAN	Wrong MAN
AVTOVAZ JSC	AVTOVAZ
CHEVROLET ITALIA SPA	CHEVROLET ITALIA
DAIMLER AG	DAIMLER AG STUTTGART
FERRARI SPA	FERRARI
JAGUAR LAND ROVER LIMITED	JAGUAR CARS LTD
JAGUAR LAND ROVER LIMITED	LAND ROVER
MAGYAR SUZUKI CORPORATION LTD	MAGYAR SUZUKI
RENAULT SAS	RENAULT

Please pay special attention to those manufacturers that share part of the name (e.g. HONDA AUTOMOBILE CHINA CO LTD, HONDA MOTOR CO LTD, HONDA TURKIYE AS, HONDA OF THE UK MANUFACTURING LTD).

If a manufacturer of a registered vehicle does not appear in the official manufacturer list, please indicate this in the reporting schema.

4.2. Are the combinations of manufacturer name and make correct?

The following table shows examples of **wrong** combinations. All such combinations should be corrected before submission:

Mh - manufacturer harmonised name	Make
VOLKSWAGEN	BMW
PORSCHE	DACIA
AUDI AG	FIAT
AUDI HUNGARIA	FIAT
RENAULT	NISSAN
RENAULT	TOYOTA

4.3. Vehicles considered out of scope

Special purpose vehicles (caravans, hearses, ambulances etc.) should not be included in the submission. E.g. if the make is ADRIA or KNAUS most probably those vehicles are caravans and therefore out of scope of the Regulations.

N1 vehicles with a reference mass exceeding 2 840 kg (i.e. mass in running order exceeding 2 815 kg) should be considered as out of scope.

On the other hand, N1 vehicles that have been type approved as heavy-duty vehicles pursuant to Regulation (EC) No 595/2009 (Euro VI) should be considered falling within the scope of

the CO_2 standards where their reference mass falls between 2 380 kg and 2 610 kg. For those vehicles, NEDC and, from 1 January 2020, WLTP, CO_2 values should be indicated in the CoC.

4.4. Correct vehicle category M1/N1

A vehicle should be reported as part of the M1 or N1 dataset depending on the vehicle category that is indicated in the **registration certificate** (category **registered** – 'Cr') and not the category type-approved.

Therefore, a vehicle that is type approved as an M1 vehicle, but registered as N1, shall be reported in the N1 dataset.

4.5. Has the number of registrations changed significantly compared to the previous year (+/- 10%)?

If this is the case, please double-check whether this change is due to a change in actual registrations or whether this is due to data errors or other reasons.

4.6. Missing records or double counting

Missing records or double counting of records may occur when a vehicle is firstly **registered temporarily** in one Member State and then permanently registered in another.

The VIN-based monitoring in 2018 has demonstrated that the same vehicle can be reported by different Member States, i.e. the same VIN appears more than once in the database. In order to avoid such duplications, Member States should ensure that only those registrations are reported for which the **date of first registration** recorded in the registration certificate falls within the calendar year concerned.

4.7. Individual vehicle approvals (IVA) and national small series (NSS)

Please ensure that IVA and NSS are <u>included</u> in the data submission.

IVA and NSS are not subject to the standard type-approval process. Therefore, their documentation may not include all the necessary data. The number of such vehicles is monitored and reported in the aggregated data file, under the dummy name ('AA-IVA' and 'AA-NSS') set out in Article 7 of Regulation (EU) No 1014/2010 and Article 8 of Regulation (EU) No 293/2012. Should the number of IVAs or NSSs increase considerably over the years, the Commission may ask Member State to investigate and report on why this is happening.

National approval of Small Series (NSS) vehicles can be identified from the "NKS" label in the EC type approval number (e.g. e13*NKS*0001*00), as per Annex VII to Directive 2007/46/EC.

For vehicles type-approved in EC small series according to Chapter IX Article 22 of Directive 2007/46/EC (i.e. when the type approval number includes the letters 'KS', e.g. e13*KS07/46*0001*00), the data should be collected and delivered in the same way as for other vehicles, i.e. manufacturer name should be indicated.

4.8. Does the dataset include outliers (extreme values) or is the variability high?

Extreme values occurring in the dataset should be double-checked, e.g. a vehicle mass of less than 400 kg.

Double-checking is also needed if for vehicles belonging to the same type, variant, version and vehicle interpolation family, there is high variability in CO_2 emission values (e.g. more than 30 g CO_2/km difference between different vehicles) or variation in their mass in running order.

4.9. Are WLTP emissions (Ewltp) higher than NEDC emissions (Enedc)?

Both Ewltp and Enedc shall be reported for all vehicles in 2019 (with the exception of some end-of-series vehicles) and it is essential that the reported values are verified.

Note that in most of the cases the Ewltp value should be higher than the Enedc value.

4.10. Is test mass (Mt) higher than mass in running order (M)?

Both Mt and M should be reported in 2019 for all vehicles having both Ewltp and Enedc values. It is essential that the reported values are verified.

Note that Mt should always be higher than M as Mt is the sum of the following:

- mass in running order (M);
- optional equipment fitted to the vehicle;
- 25 kg;
- the mass representative of the vehicle load (i.e. 15 % of the maximum vehicle load in case of M1 vehicles and 28% in case of N1).

4.11. Vehicles subject to multi-stage type approvals

Vehicles may be built and type approved in multiple stages (MSV). This means that a base vehicle (chassis and cab) is produced by one manufacturer which is then sold to a second-stage manufacturer for finalisation, e.g. the fitting of a crane or a box.

It is the **manufacturer of the base vehicle** that is responsible for meeting a specific CO_2 emission target. More precisely, in the case of cars, the manufacturer of the base vehicle is considered responsible for the CO_2 emissions and mass of the completed vehicle. **Member States should therefore in the case of MSV cars report the base vehicle manufacturer together with data for the completed vehicle.**

With regard to vans, specific procedures apply for determining the CO_2 emissions of multi-stage type approved vehicles. The following table provides a summary of the data parameters that should be provided for 2019 by Member States in the case of multi-stage vans.

Except where indicated, all data should be provided for the base vehicle. Where the data cannot be provided for the base vehicle, the data should be provided for the completed vehicle instead.

	Parameters to be reported by Member States for 2019	**Comment**
(a)	Manufacturer	
(b)	Type approval number	
(c)	Type, variant, version	
(d)	Make	
(e)	Category of vehicle type approved	
(f)	Category of vehicle registered	To be provided for the completed vehicle only
(g)	Specific emissions of CO_2 (NEDC)	
	Specific emissions of CO_2 (WLTP)	
(h)	Mass in running order (M)	To be provided for the completed vehicle
$(h)_1$	Mass in running order of the base vehicle (Mb)	To be provided for the base vehicle
(i)	Technically permissible maximum laden mass	
(j)	Footprint	
(k)	Fuel type and fuel mode	
(l)	Engine capacity	
(m)	Electric energy consumption (NEDC)	
(n)	Code of innovative technology	
$(n)_1$	Innovative technology savings (NEDC based)	
(o)	Vehicle identification number	
(p)	WLTP test mass	To be provided for the completed vehicle only
(q)	Deviation factor	
$(q)_1$	Verification factor	
(r)	Vehicle interpolation family identifier (VFN)	

4.12. Manufacturers with less than 1 000 registrations

A manufacturer which, together with all of its connected undertakings, is responsible for less than 1 000 registrations of new vehicles (either cars or vans) in a calendar year is exempt from meeting its specific emission target unless it has been granted a derogation as small volume manufacturer.

However, **this exemption does not affect the monitoring of data relating to these manufacturers in any way**, which means that the data has to be reported for these manufacturers as for all other manufacturers.

ANNEX 1 – M1 "CARS"

The column *"data need"* indicates if the corresponding parameter is:

'MAN' – mandatory, foreseen by Regulation (EC) No 443/2009;

'OPT' – optional.

The column *"field length"* is the total length of the data field. The column *"content"* contains more information on the maximum and minimum values, and/or details on the content.

An example of a decimal number with field length 6 is a number with maximum 3 integers, a point separator and 3 decimal digits.

The column *"false content"* provides examples of data incorporated in an incorrect format. Typical false entries are:

- The separator is a comma (whereas the correct separator is a point);
- The separator of thousand (which should not be used);
- Rounding should be as reported in the column *sample content* (e.g. the value 142 indicates a value bigger than or equal to 141.5 and smaller than 142.5). A general mistake could be reporting decimals while expecting integer values.

A. Detailed data M1 (cars)

A.1. Header – report once only

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Unit	Remarks
Year	Y	MAN	Integer	4		2019	10	-	-
Member State	MS	MAN	Text	Max 2		IT	Italy	-	ISO 3166 alpha-2

A.2. Data – report for each record

For a more detailed explanation on each of the parameters, please read section 4 of this document.

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Unit
ID	ID	OPT	Text	Max 30				
Vehicle identification number	VIN	MAN	Text	17		WDB9066331S111111	WDB9066331S	
Vehicle family identification number	VFN	MAN	Text	Max 24		IP-TA-WMI-yyyy-nnnn or IP-nnnnnnnnnnnnnnn-WMI-x	RM21BD2	
Manufacturer name EU standard denomination	MH	MAN	Text	Max 120				

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Unit
Manufacturer name OEM declaration	MAN	MAN	Text	Max 120				
Manufacturer name MS registry denomination	MMS	MAN	Text	Max 120				
Type approval number and its extension	TAN	MAN	Text	Max 120		e1*2007/46*0001*00		
Type	T	MAN	Text	Max 120				
Variant	Va	MAN	Text	Max 120				
Version	Ve	MAN	Text	Max 120				
Make	Mk	MAN	Text	Max 120				
Commercial name	Cn	MAN	Text	Max 120				
Category of the vehicle type approved	Ct	MAN	Text	Max 3		M1; N1		
Category of the vehicle registered	Cr	MAN	Text	Max 3		M1		
Registrations	r	MAN	Integer	1		1	5	
Mass in running order	M	MAN	Integer	Max 4	Min: 300 Max: 5000	1589	1589.8 1'589	kg
WLTP test mass	Mt	MAN	Integer	Max 4	Min: 300	1589	1589.8	kg

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Unit
					Max: 5000		1'589	
Specific CO_2 Emissions (NEDC)	Enedc	MAN	Integer	Max 3	Min: 0 Max: 700	142	142.34	g/km
Specific CO_2 Emissions (WLTP)	Ewltp	MAN	Integer	Max 3	Min: 0 Max: 700	142	142.34	g/km
Wheel Base	W	MAN	Integer	Max 4	Min: 500 Max: 6000	3300	3300.1 3'300	mm
Axle width - steering axle	At1	MAN	Integer	Max 4	Min: 500 Max: 3000	1600	1600.1 1'600	mm
Axle width - other axle	At2	MAN	Integer	Max 4	Min: 500 Max: 3000	1600	1600.1 1'600	mm
Fuel type	Ft	MAN	Text	Max 120		Petrol	gasoline	
Fuel mode	Fm	MAN	Text	1		M	A	
Engine capacity	Ec	MAN	Integer	Max 4		1589	1589.8 1'589	cm^3
Engine power	Ep	MAN	Integer	Max 3		158	158.8 158,8	kW
Electric energy consumption	Z	MAN	Integer	Max 3		101	101.8	Wh/km

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Unit
Innovative technology or group of innovative technologies	IT	MAN	Text	Max 25	Min 3	e1 10 15	1 10 15	
Emissions reduction through innovative technologies (NEDC)	Ernedc	MAN	Nearest one decimal point	Max 4 digits	Min 1.0	1.1	0,9	g/km
Emissions reduction through innovative technologies (WLTP)	Erwltp	MAN	Nearest one decimal point	Max 4 digits	Min 0.5	1.1	0,9	g/km
Deviation factor	De	MAN	Three decimal points	Max 5 digits		0.043	1,5	
Verification factor	Vf	MAN	Integer	1				

B. Aggregated data – M1 (cars)

B.1. Header – report once only

Parameter	Short name	Data need	Format	Field length	Content rules	Sample content	False content	Remarks
Year	Y	MAN	Integer number	4		2019	10	
Member State	MS	MAN	Text	Max 2		IT	Italy	
Data sources	DS	MAN	Text	3		COC		
Total number of new registrations of new passenger cars subject to EC type approval	Rt	MAN	Integer			1203	1,203	Number of registrations for vehicles of the same manufacturer, including vehicles with any missing technical data.
Total number of new registrations of new individually approved passenger cars	RIVA	MAN	Integer			1200	1,200	Reported as AA-IVA.
Total number of new registrations of new passenger cars approved nationally in small series	RNSS	MAN	Integer			1192	1,192	Reported as AA-NSS.

ANNEX 2 – N1 "VANS"

The column *"data need"* indicates if the corresponding parameter is:

'MAN' – mandatory, foreseen by Regulation (EU) No 510/2011;

'OPT' – optional.

The column *"field length"* is the total length of the data field. The columns *"content"* contains more information on the maximum and minimum values, and/or details on the content.

An example of a decimal number with field length 6 is a number with maximum 3 integers, a point separator and 3 decimal digits.

The column *"false content"* provides examples of data incorporated in an incorrect format. Typical false entries are:

- The separator is a comma (whereas the correct separator is a point);
- The separator of thousand (which should not be used);
- Rounding should be as reported in the column sample content (e.g. the value 142 indicate a value bigger or equal 141.5 and smaller than 142.5). A general mistake could be reporting decimals while expecting integer values.

A. Detailed data N1 (vans)

A.1. Header – report once only

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Remarks
Year	Y	MAN	Integer	4		2019	10	
Member State	MS	MAN	Text	Max 2		IT	Italy	ISO 3166 alpha-2

A.2. Data – report for each record

For a more detailed explanation on each of the parameters, please read section 4 of this document.

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Unit
ID	ID	OPT	Text	Max 30				
Vehicle identification number	VIN	MAN	Text	17		WDB9066331S111111	WDB9066331S	
Vehicle family identification number	VFN	MAN	Text	Max 24		IP-nnnnnnnnnnnnnnn-WMI-x	RM21BD2	
Manufacturer name EU standard denomination	MH	MAN	Text	Max 120				
Manufacturer name OEM declaration	MAN	MAN	Text	Max 120				
Manufacturer name	MMS	MAN	Text	Max 120				

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Unit
MS registry denomination								
Type approval number and its extension	TAN	MAN	Text	Max 120		e1*2007/46*0001*00		
Type	T	MAN	Text	Max 120				
Variant	Va	MAN	Text	Max 120				
Version	Ve	MAN	Text	Max 120				
Make	Mk	MAN	Text	Max 120				
Commercial name	Cn	OPT	Text	Max 120				
Category of the vehicle type approved	Ct	MAN	Text	Max 3		N1		
Category of the vehicle registered	Cr	MAN	Text	Max 3		N1		
Mass in running order Completed//complete vehicle	M	MAN	Integer	Max 4	Min: 300 Max: 5000	1589	1589.8 1'589	kg
Mass in running order base vehicle	MB	MAN	Integer	Max 4	Min: 300 Max: 5000	1589	1589.8 1'589	kg
WLTP test mass	Mt	MAN	Integer	Max 4	Min: 300 Max: 5000	1589	1589.8 1'589	kg

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Unit
Technically permissible maximum laden mass	TPMLM	MAN	Integer	Max 4	Min: 300 Max: 5000	1589	1589.8 1'589	kg
Default added mass	DAM	OPT	Integer	Max 4	Max: 800	200	200.4	kg
Specific CO_2 Emissions (NEDC)	Enedc	MAN	Integer	Max 3	Min: 0 Max: 700	142	142.34	g/km
Specific CO_2 Emissions (WLTP)	Ewltp	MAN	Integer	Max 3	Min: 0 Max: 700	142	142.34	g/km
Wheel Base	W	MAN	Integer	Max 4	Min: 500 Max: 9999	3300	3300.1 3'300	mm
Axle width steering axle	At1	MAN	Integer	Max 4	Min: 500 Max: 3000	1600	1600.1 1'600	mm
Axle width other axle	At2	MAN	Integer	Max 4	Min: 500 Max: 3000	1600	1600.1 1'600	mm
Fuel type	Ft	MAN	Text	Max 120		petrol	gasoline	
Fuel mode	Fm	MAN	Text	1		M	A	
Engine capacity	Ec	MAN	Integer	Max 5		1589	1589.4 1'589	cm^3
Engine power	Ep	OPT	Integer	Max 3		158	158.4 158,4	kW

Parameter	Short name	Data need	Format	Field length (min/max/rules)	Content (min/max/rules)	Sample content	False content	Unit
Electric energy consumption	Z	MAN	integer	Max 3		101	101.4	Wh/km
Innovative technology or group of innovative technologies	IT	MAN	text	Max 25	Min 3	e1 10 15	1 10 15	
Emissions reduction through innovative technologies (NEDC)	Ernedc	MAN	Nearest one decimal point	Max 4 digits	Min 1.0	1.2	0,9	g/km
Emissions reduction through innovative technologies (WLTP)	Erwltp	MAN	Nearest one decimal point	Max 3 digits	Min 0.5	1.2	0,9	g/km
Deviation factor	De	MAN	Three decimal points	Max 5 digits		0.043	1,5	
Verification factor	Vf	MAN	Integer	Max 1				

B. Aggregated data – N1 (vans)

B.1. Header – report once only

Parameter	Short name	Data need	Format	Field length	Content rules	Sample content	False content	Remarks
Year	Y	MAN	Integer number	4		2019	10	
Member State	MS	MAN	Text	Max 2		IT	Italy	
Data sources	DS	MAN	Text	3		COC		
Total number of new registrations of new light commercial vehicles subject to EC type approval	Rt	MAN	Integer			1203	1'203	Number of registrations for vehicles of the same manufacturer, including vehicles with any missing technical data.
Total number of new registrations of new individually approved light commercial vehicles	RIVA	MAN	Integer			1200	1'200	Reported in the dataset as AA-IVA
Total number of new registrations of new light commercial vehicles approved nationally in small series	RNSS	MAN	Integer			1192	1'192	Reported in the dataset as AA-NSS
Total number of new registrations of new light commercial vehicles subject to multi-stage type-approval (where available)	NMSV	MAN	Integer			1192	1'19é	

ANNEX 3 – CALCULATION OF THE CORRECTION FACTOR

- **Article 7(2) of Commission Implementing Regulation (EU) 2017/1153 (cars)**
- **Article 6(2) of Commission Implementing Regulation (EU) 2017/1152 (vans)**

with reference to point 3.2.8 of Annex I to those Regulations

2. Where for a WLTP interpolation family the deviation factor De, determined in accordance with point 3.2.8 of Annex I, exceeds the value 0,04, or in the presence of a verification factor '1' as determined in that point, the average specific NEDC CO_2 emissions of the manufacturer responsible for that interpolation family shall be multiplied by the following correction factor:

$$correction\ factor = 1 + \frac{\sum_{i=1}^{N} De_i \cdot r_i}{\sum_{i=1}^{N} \delta_{3,i} \cdot r_i}$$

Where:

De_i is the value determined in accordance with point 3.2.8 of Annex I;

r_i is the number of annual registrations of vehicles belonging to the respective WLTP interpolation family i concerned;

$\delta_{3,i}$ is equal to 0 if De_i is missing and equal to 1 otherwise;

N is the number of WLTP interpolation families for which a manufacturer is responsible.

3.2.8. Where a physical test is performed in accordance with point 3.2.6 or point 3.2.7, the type-approval authority shall for each WLTP interpolation family record the relative deviation (De) between the measured value and the manufacturer-declared value determined as follows:

$$De = \frac{RTr - DV}{DV}$$

Where:

RTr is the random test result, amplified by the Ki-factor;

DV is the manufacturer-declared value.

The De factor shall be calculated with three decimals and shall be recorded in the type approval certificate and in the certificate of conformity.

Where the type-approval authority finds that the physical test results do not confirm the input data provided by the manufacturer and, in particular, the data referred to in points 20, 22 and 44 of Table 1 in point 2.4, a verification factor shall be set to 1 and be recorded in the type-approval certificate and in the certificate of conformity. Where the input data is confirmed or where the error in the input data is not to the benefit of the manufacturer the verification factor shall be set to 0.

Article 7(2)/6(2) sets out, **first**, the conditions for when a correction factor is to be applied to the average specific emissions of a manufacturer, i.e. when a deviation factor (De) exceeding 0.04 or a verification factor of 1 has been set for at least one of its WLTP interpolation families, and **second**, how that correction factor is to be calculated using the De data reported.

Point 3.2.8 of Annex I to the Regulations specifies when a deviation factor and a verification factor have to be recorded for a WLTP interpolation family. This is the case where a **physical test has been performed in accordance with point 3.2.6 or 3.2.7 of Annex I**.

This also means that **no** deviation factor or verification factor should be recorded when a physical test is performed in accordance with point 3.2.2 of Annex I for both vehicle H and vehicle L. The manufacturer may request such a test in case the NEDC CO_2 reference value (from CO_2MPAS) exceeds the manufacturer-declared value by more than 4 per cent.

The following **example** illustrates how the correction factor is calculated:

WLTP Interpolation Family	De	Vf	Number of annual registrations	δ_3
1	-	-	8000	0
2	0.020	0	500	1
3	**0.050**	0	200	1
4	-0.005	**1**	700	1
5	0.030	**1**	100	1

For the manufacturer concerned a correction factor applies, both because for at least one WLTP interpolation family De exceeds 0.04, and because for at least one WLTP interpolation family Vf equals one.

correction factor (CF) = $1+\frac{(0*8000)+(0.020*500)+(0.050*200)+(-0.005*700)+(0.030*100)}{(0*8000)+(1*500)+(1*200)+(1*700)+(1*100)}$ = 1.013

In the numerator, all De values (independent of whether they exceed 0.04 or not) are considered, weighted according to the number of vehicles registered for the WLTP interpolation family concerned. For a WLTP Interpolation family for which De is missing (i.e. family 1), De is considered as zero, i.e. the vehicles belonging to that family are not considered in the calculation.

The denominator equals the total number of vehicles belonging to a WLTP interpolation family for which a De has been reported (independent of the De value).