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Note on the application of Regulation (EU) 2017/1151 as amended by Regulation (EU) 2018/1832

This note intends to clarify certain issues identified by Member States and stakeholders regarding Regulation (EU) 2017/1151 as amended by Regulation (EU) 2018/1832.

Issue 1: Extensions

Regulation (EU) 2018/1832 modifies some technical aspects of the WLTP test procedure as set out in Regulation (EU) 2017/1151 (for example the Gear Shift calculation procedure, the ATCT procedure, etc.) and adds some new requirements (for example the check of the validity of a driving test, by means of the Driving Trace Indices, and the correction of CO2 due to deviation of the speed profile from the theoretical one). Regulation (EU) 2018/1832 also modifies the evaluation methodology for RDE results.

Concerning extensions of emission type approval of vehicles where the original approval has been granted under the previous version of Regulation (EU) 2017/1151, the new requirements introduced with Regulation (EU) 2018/1832 may apply only at the request of the manufacturer.

Issue 2: ISC rules

For cases where the original approval contained all elements in Regulation (EU) 2017/1151 (either before or after the entry into force of Regulation (EU) 2018/1832) except the new ISC rules, the manufacturer may request a new type approval without repeating the type approval tests. This may be done with the understanding that the vehicles with "ISC" type approval will be subject to the new rules of ISC, i.e. tests done to confirm the ISC compliance shall follow the methodologies as amended by Regulation (EU) 2018/1832, with the exception of evaporative emissions tests, which shall be conducted as performed during the original type approval.

Issue 3: Evap rules

For cases where the original type approval contained all elements in Regulation (EU) 2017/1151 (either before or after the entry into force of Regulation (EU) 2018/1832) except the new 48-hour EVAP test, only the 48-hour EVAP test should be performed for obtaining the new type approval.

Issue 4: OBFCM

For cases where the original type approval contained all elements in Regulation (EU) 2017/1151 **after the entry into force of the WLTP 2 Regulation,** except the OBFCM compliance check, only the OBFCM checks should be performed for obtaining the new type approval. To this purpose the Commission will assess the feasibility of introducing an "OBFCM family" concept, for the next amendment of the Regulation, in order to clarify that the check may be performed once for the family and not necessarily for each type.

The following table summarises the issues 2-4 described above:

From	To	Vehicle category	What is needed[1]
Euro 6d-TEMP → Euro 6d-TEMP-EVAP:			
AG (Euro 6d-TEMP)	BG (Euro 6d-TEMP-EVAP)	M, N1 Class I	No testing, except for what is required to demonstrate EVAP compliance (*)
AH (Euro 6d-TEMP)	BH (Euro 6d-TEMP-EVAP)	N1 Class II	
AI (Euro 6d-TEMP)	BI (Euro 6d-TEMP-EVAP)	N1 Class III, N2	
Euro 6d-TEMP-EVAP → Euro 6d-TEMP-EVAP-ISC:			
BG (Euro 6d-TEMP-EVAP)	DG (Euro 6d-TEMP-EVAP-ISC)	M, N1 Class I	No testing, streamlined paperwork only[2], but ISC testing will follow new rules and testing procedures
BH (Euro 6d-TEMP-EVAP)	CH (Euro 6d-TEMP-EVAP-ISC)	N1 Class II	
BI (Euro 6d-TEMP-EVAP)	CI (Euro 6d-TEMP-EVAP-ISC)	N1 Class III, N2	
Euro 6d → Euro 6d-ISC:			
AJ (Euro 6d)	AM (Euro 6d-ISC)	M, N1 Class I	No testing, streamlined paperwork only but ISC testing will follow new
AK (Euro 6d)	AN (Euro 6d-ISC)	N1 Class II	
AL (Euro 6d)	AO (Euro 6d-ISC)	N1 Class III, N2	

[1] The manufacturer shall also provide a signed declaration that the changes have no effect on the pollutant emissions and CO2 levels.

[2] Streamlined paperwork, will include the request for change of TA character, along with brief explanations on the tests already performed during the initial type approval and appropriate reference to the initial type approval documentation as well as the information required by the transparency lists in order to allow ISC testing of these types.

			rules and testing procedures
Euro 6d-ISC → Euro 6d-ISC-FCM:			
AM (Euro 6d-ISC)	AP (Euro 6d-ISC-FCM)	M, N1 Class I	No testing if WLTP2 compliance, except for what is required to demonstrate OBFCM compliance (**)
AN (Euro 6d-ISC)	AQ (Euro 6d-ISC-FCM)	N1 Class II	
AO (Euro 6d-ISC)	AR (Euro 6d-ISC-FCM)	N1 Class III, N2	
(*) Provided there are no other changes to the vehicle that would make Euro 6d-TEMP invalid.			
(**) Provided there are no other changes to the vehicle that would make Euro 6d-ISC invalid.			

Please note that only one of the above mentioned changes with the simplified procedure may apply to a vehicle type. I.e. a EURO 6d approval may not be turned into a EURO 6d-ISC and then to a EURO 6d-ISC-FCM, etc.

The end-of-series provisions apply for all initial approvals described in the tables above, according to the rules in Article 27 of Regulation 2007/46/EC.

Issue 5: Type approval of electric vehicles

Concerning the obligation of the WLTP test to measure the range of pure electric vehicles, the date of entry into force for new vehicle types was 1 September 2017. For vehicle types approved before that date, approvals will remain valid until 31 August 2019, as set out in Table 1 of Appendix 6 to Annex I of Regulation (EC) No 692/2008.

Issue 6: Emission characters BH and BI

Correct an error introduced with Regulation (EU) 2018/1832, to ensure that consistency with type approval rules is preserved and the last date of registration for these vehicles is set just before the "all vehicles" date for the next character, i.e. 1 September 2020, and not before the "new-types" date, i.e. 1 September 2019.

In Table 1 of Appendix 6 to Annex I, the following emission characters will therefore be amended as follows:

Character	Emission standard	OBD standard	Vehicle category and class	Engine	Implementation date: new types	Implementation date: new vehicles	Last date of registration
BH	Euro 6d-TEMP-EVAP	Euro 6-2	N1 class II	PI, CI			~~31.08.2019~~ 31.08.2020

BI	Euro 6d-TEMP-EVAP	Euro 6-2	N1 class III, N2	PI, CI			~~31.08.2019~~ 31.08.2020

Issue 7: ANNEX IIIA

Clarify the difference between RDE tests performed as part of the emission type approval of the vehicle and RDE tests performed during ISC and allow evaluation of RDE test during type approval by using appropriate WLTP CO2 values.

	Regulation (EU) 2018/1832	Proposed corrections
Appendix 5 Point 3.1 of Annex IIIA	(...) During type approval the CO_2 reference value shall be taken from the WLTP performed during type approval testing of the individual vehicle. For ISC testing purposes, the reference CO_2 mass shall be obtained from point 12 of the Transparency list 1 of Appendix 5 of Annex II with interpolation between vehicle H and vehicle L (if relevant) as defined in Sub-Annex 7 of Annex XXI, using Test mass and Road load coefficients (f0, f1 & f2) obtained from the Certificate of Conformity for the individual vehicle as defined in Annex IX. The value for OVC-HEV vehicles is to be obtained from the WLTP test conducted using the Charge Sustaining mode.	(...) The reference CO_2 mass $M_{CO2,ref}$ shall be obtained according to the provisions in points 2.2. and 2.3. of Appendix 6 to Annex IIIA. The value for OVC-HEV vehicles is to beobtained from the WLTP test conducted using the Charge Sustaining mode.
Appendix 5 Point 4.2 of Annex IIIA	The distance-specific CO_2 emissions to be considered in this paragraph for the definition of the reference curve shall be obtained from point 12 of the Transparency list 1 of Appendix 5 of Annex II with interpolation between vehicle H and vehicle L (if relevant) as defined in Sub-Annex 7 of Annex XXI, using Test mass and Road load coefficients (f0, f1 & f2) obtained from the Certificate of Conformity for the individual vehicle as defined in Annex IX. The value for OVC-HEV vehicles is to be that obtained from the WLTP test conducted using the Charge Sustaining mode. During type approval, the values shall be taken from the WLTP performed during type approval testing of the individual vehicle.	The distance-specific CO_2 emissions to be considered in this paragraph for the definition of the reference curve shall be obtained according to the provisions in points 2.2. and 2.3. of Appendix 6 to Annex IIIA. The reference points P_1 , P_2 and P_3 required to define the vehicle CO_2 characteristic curve shall be established as follows: (…)

	Regulation (EU) 2018/1832	Proposed corrections
Appendix 6 Point 2.2 Of Annex IIIA	The value of the RDE result evaluation factor depends on the ratio r_k between the distance specific CO_2 emissions measured during the RDE test and the distance-specific CO_2 emitted by the vehicle over the WLTP test conducted in accordance with Sub-Annex 6 to Annex XXI of this Regulation, obtained from point 12 of the Transparency list 1 of Appendix 5 of Annex II with interpolation between vehicle H and vehicle L (if relevant) as defined in Sub-Annex 7 of Annex XXI, using Test mass and Road load coefficients (F0, F1 & F2) obtained from the Certificate of Conformity for the individual vehicle as defined in Annex IX. For the urban emissions, the relevant phases of the WLTP driving cycle shall be: (...)	The value of the RDE result evaluation factor depends on the ratio r_k between the distance specific CO_2 emissions measured during the RDE test and the distance-specific CO_2 emitted by the vehicle over the WLTP test conducted in accordance with Sub-Annex 6 to Annex XXI to this Regulation. For ISC testing purposes, the distance-specific CO_2 values and the reference CO2 mass emitted by the vehicle over the WLTP shall be obtained from the Certificate of Conformity for the individual vehicle as defined in Annex IX to Directive 2007/46/EC. The reference CO_2 mass shall be obtained from multiplying the Combined distance-specific CO_2 emissions by the theoretical WLTP distance (23.266 km). During type approval, if declared CO_2 emissions of a vehicle over WLTP are not available at the time of the RDE test, the distance-specific CO_2 emissions and the reference CO_2 mass shall be established by driving a separate WLTC test with the RDE type approval vehicle, using dynamometer settings corresponding to the individual vehicle road load coefficients (F0, F1 & F2) and test mass. The CO_2 values used for RDE evaluation shall be those of step 5 (measured values) of Table A7/1 of Sub-Annex 7 of Annex XXI for pure ICE vehicles or Table A8/5 of Sub-Annex 8 of Annex XXI for NOVC-HEV. In case that step 5 CO_2 values are not available, step 3 CO_2 values can be used. In all other cases during type approval, the CO_2 values shall be those of vehicle high (VH) in case that only vehicle high is type approved or shall be established by interpolating between the CO_2 values of vehicle high (VH) and vehicle low (VL). For the urban emissions, the relevant

		phases of the WLTP driving cycle shall be: (...)
Appendix 6 Point 2.3 of Annex IIIA	The value of the RDE result evaluation factor depends on the ratio r_k between the distance-specific CO_2 emissions measured during the RDE test and the distance-specific CO_2 emitted by the vehicle over the WLTP test conducted using the Charge Sustaining mode in accordance with Sub-Annex 6 to Annex XXI of this Regulation, obtained from point 12 of the Transparency list 1 of Appendix 5 of Annex II with interpolation between vehicle H and vehicle L (if relevant) as defined in Sub-Annex 7 of Annex XXI, using Test mass and Road load coefficients (F0, F1 & F2) obtained from the Certificate of Conformity for the individual vehicle as defined in Annex IX. The ratio r_k is corrected by a ratio reflecting the respective usage of the internal combustion engine during the RDE trip and on the WLTP test, to be conducted using the charge sustaining mode. The formula below shall be subject to review by the Commission and shall be revised as a result of technical progress. (...)	The value of the RDE result evaluation factor depends on the ratio r_k between the distance-specific CO_2 emissions measured during the RDE test and the distance-specific CO_2 emitted by the vehicle over the WLTP test conducted using the Charge Sustaining mode in accordance with Sub-Annex 6 to Annex XXI to this Regulation. For ISC testing purposes, the distance-specific CO_2 values and the reference CO2 mass emitted by the vehicle over the WLTP shall be obtained from the Certificate of Conformity for the individual vehicle as defined in Annex IX to Directive 2007/46/EC. The reference CO_2 mass shall be obtained from multiplying the Combined distance-specific CO_2 emissions by the theoretical WLTP distance (23.266 km). During type approval, if declared CO_2 emissions of a vehicle over WLTP are not available at the time of the RDE test, the distance-specific CO_2 emissions and the reference CO_2 mass shall be established by driving a separate WLTC Charge Sustaining test with the RDE type approval vehicle, using dynamometer settings corresponding to the individual vehicle road load coefficients (F0, F1 & F2) and test mass. The CO_2 values used for RDE evaluation shall be those of step 5 (measured values) of Table A8/5 of Sub-Annex 8 of Annex XXI. In case that step 5 CO_2 values are not available, step 3 CO_2 values can be used. In all other cases during type approval, the CO_2 values shall be those of vehicle high (VH) or shall be established by interpolating between the CO_2 values of vehicle high (VH) and vehicle low (VL). The ratio r_k is corrected by a ratio reflecting the respective usage of the internal combustion engine during the

		RDE trip and on the WLTP test, to be conducted using the charge sustaining mode. The formula below shall be subject to review by the Commission and shall be revised as a result of technical progress. (...)

Issue 8: Sub-Annex 6 to ANNEX XXI

Clarify that for the correct execution of the ISC procedure the Interpolation Family identifier is necessary, even in case of emission type approval without interpolation method.

	Regulation (EU) 2018/1832	Proposed corrections
Sub-Annex 6 Point 5.0.	5.0. Each of the vehicle families defined in paragraphs 5.6. to 5.9. shall be attributed a unique identifier of the following format: FT-nnnnnnnnnnnnnnn-WMI-x Where: FT is an identifier of the family type: ○ IP = Interpolation family as defined in paragraph 5.6. ○ RL = Road load family as defined in paragraph 5.7. ○ RM = Road load matrix family as defined in paragraph 5.8. ○ PR = Periodically regenerating systems (K_i) family as defined in paragraph 5.9. ○ AT = ATCT family as defined in paragraph 2. of Sub-Annex 6a.	5.0. Each of the vehicle families defined in paragraphs 5.6. to 5.9. shall be attributed a unique identifier of the following format: FT-nnnnnnnnnnnnnnn-WMI-x Where: FT is an identifier of the family type: ○ IP = Interpolation family as defined in paragraph 5.6. with or without using the interpolation method ○ RL = Road load family as defined in paragraph 5.7. ○ RM = Road load matrix family as defined in paragraph 5.8. ○ PR = Periodically regenerating systems (K_i) family as defined in paragraph 5.9. ○ AT = ATCT family as defined in paragraph 2. of Sub-Annex 6a.

Issue 9: Appendix 8a to ANNEX I

Clarify how to obtain the maximum values of each pollutant to be indicated in the table.

The table in point 2.1.4. is amended as follows:

2.1.4. FINAL CRITERIA EMISSIONS VALUES (IF APPLICABLE)

Pollutants	CO (mg/km)	THC (a) (mg/km)	NMHC (a) (mg/km)	NO_x (mg/km)	THC+NOx (b) (mg/km)	PM (mg/km)	PN (#.10^{11}/km)
Highest values(3)							

(3) Indicate for each pollutant the highest among the average test results of VH, VL (if applicable) and VM (if applicable).

Issue 10:

In order to allow registration of vehicles produced after 1 January 2019 and before 1st September 2019 under Regulation 2018/1832, for which the new requirements for

Certificate of Conformity according to Regulation 2018/1832 did not apply, the end of series provisions may be interpreted to include also such vehicles.