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Sent: Tuesday, September 27, 2016 10:55 AM
To: [redacted] (JRC-ISPRA); [redacted] (GROW)
Subject: RDE - ACEA's robust regulation document

Dear [redacted] & [redacted],

The latest version of the open points on RDE Packages 1 and 2 is attached.

I hope that helps to plan for the "lessons learned" activity to be announced and these corrections could then soon be made to the RDE Regulation.

best regards,

[redacted]

[redacted]

[redacted]

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Comments to RDE-Regulation in Europe (Package 1 and 2)

Basis:

COMMISSION REGULATION (EU) 2016/646 of 20 April 2016

Content:

1. Revised content and reason/argument
2. Uncertainties

	(Number of issue)	Annex or Appendix and Paragraph	Revised content and reason/argument
RDE		<p>COMMISSION REGULATION (EU) .../... of XXX (Package 1), Article 1, 2):</p> <p>New paragraph 10 (d) in Article 3</p>	<p>Original text:</p> <p>Where the requirements set out in Appendices 5 and 6 of Annex IIIA are satisfied for only one of the two data evaluation methods described in those Appendices, the following procedures shall be followed:</p> <p>(i) one additional RDE test shall be performed;</p> <p>(ii) where those requirements are again satisfied for only one method the analysis of the completeness and normality shall be recorded for both methods and the calculation required by point 9.3 of Annex IIIA may be limited to the method for which the completeness and normality requirements are satisfied.</p> <p>The data of both RDE tests and of the analysis of the completeness and normality shall be recorded and made available for examining the difference in the results of the two data evaluation methods.</p> <p>Revised text:</p> <p>Where the requirements set out in Appendices 5 and 6 of Annex IIIA are satisfied for only one of the two data evaluation methods described in those Appendices, the following procedures shall be followed:</p>

			<p>(i) one additional RDE test shall be performed; (ii) where those requirements are again satisfied for only one method The analysis of the completeness and normality shall be recorded for both methods and the calculation required by point 9.3 9.4 of Annex IIIA may be limited to the method for which the completeness and normality requirements are satisfied.</p> <p>The data of both RDE tests and of the analysis of the completeness and normality shall be recorded and made available for examining the difference in the results of the two data evaluation methods.</p> <p>Argument: Experience shows that one of the evaluation methods indicates “trip invalid” quite often but the other one indicates “trip valid” and produces reliable results. In these cases repetition of the RDE test would be an unnecessary burden.</p> <p>Wrong paragraph reference.</p>																																																								
RDE		Annex I Point 2.4.1 Figure I.2.4	<p>Original text:</p> <table><tr><td>Gaseous pollutants, RDE (Type 1A test)</td><td>Yes</td><td>Yes</td><td>Yes</td><td>Yes (*)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes</td><td>—</td><td>—</td></tr><tr><td>Particulate number, RDE (Type 1A test) (%)</td><td>Yes</td><td>—</td><td>—</td><td>—</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>—</td><td>Yes (both fuels)</td><td>Yes</td><td>—</td><td>—</td></tr></table> <p>Revised text:</p> <table><tr><td>Gaseous pollutants, RDE (Type 1A test)</td><td>Yes</td><td>Yes</td><td>Yes</td><td>Yes (*)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>(BS/B7 only)</td><td></td></tr><tr><td>Particulate number, RDE (Type 1A test) (%)</td><td>Yes</td><td>—</td><td>—</td><td>—</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>Yes (both fuels)</td><td>—</td><td>Yes (both fuels)</td><td></td><td>(BS/B7 only)</td><td></td></tr></table> <p>(petrol only) (petrol only) (petrol only) (BS/B7 only)</p> <p>Argument: Regarding PI vehicles, PN requirements of RDE are not applied to mono fuel vehicles whose reference fuel is LPG, NG/Biomethane or Hydrogen. Therefore, they should be applied to bi-fuel vehicles and the vehicles should be tested with</p>	Gaseous pollutants, RDE (Type 1A test)	Yes	Yes	Yes	Yes (*)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes	—	—	Particulate number, RDE (Type 1A test) (%)	Yes	—	—	—	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	—	Yes (both fuels)	Yes	—	—	Gaseous pollutants, RDE (Type 1A test)	Yes	Yes	Yes	Yes (*)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	(BS/B7 only)		Particulate number, RDE (Type 1A test) (%)	Yes	—	—	—	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	—	Yes (both fuels)		(BS/B7 only)	
Gaseous pollutants, RDE (Type 1A test)	Yes	Yes	Yes	Yes (*)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes	—	—																																														
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Gaseous pollutants, RDE (Type 1A test)	Yes	Yes	Yes	Yes (*)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	(BS/B7 only)																																															
Particulate number, RDE (Type 1A test) (%)	Yes	—	—	—	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	—	Yes (both fuels)		(BS/B7 only)																																															

			<p>petrol only.</p> <p>Regarding CI vehicles, Type I test is conducted with B5/B7 only. Therefore, RDE should be conducted with B5/B7 only.</p>
RDE		Annex IIIA Paragraph 1.2.16	<p>Original text:</p> <p><i>“Noise”</i> means two times the root mean square of ten standard deviations, each calculated from the zero responses measured at a constant recording frequency of at least 1.0 Hz during a period of 30 seconds.</p> <p>Revised text:</p> <p><i>“Noise”</i> means two times the root mean square of ten standard deviations, each calculated from the zero responses measured at a constant recording frequency of at least 1.0 Hz during a period of 30 seconds.</p> <p>Argument:</p> <p>ACEA recommends to use a fixed frequency of 1 Hz in order to minimize interference with the provisions of the other Appendices (particularly Appendix 6) and to facilitate post-processing of the data.</p>
RDE		Annex IIIA Paragraph 1.2.18	<p>Original text:</p> <p><i>“Particle number”</i> (PN) means as the total number of solid particles emitted from the vehicle exhaust as defined by the measurement procedure provided for by this Regulation for assessing the respective Euro 6 emission limit defined in Table 2 of Annex I to Regulation 715/2007.</p> <p>Revised text:</p> <p><i>“Particle number”</i> (PN) means as the total number of solid particles emitted from the vehicle exhaust as defined by the measurement procedure provided for by this Regulation for assessing the</p>

			<p>respective Euro 6 emission limit defined in Table 2 of Annex I to Regulation 715/2007. Particle number emissions" (PN) means the total number of solid particles emitted from the vehicle exhaust quantified according to the dilution, sampling and measurement methods as specified in this Annex.</p> <p>Argument: Typo correction: Delete "as". The additional text was adopted by TCMV on 14.06.2016 in Regulation XXX/2016 (WLTP).</p>
RDE		Annex IIIA Paragraph 2.4	<p>Original text: Manufacturers shall ensure that vehicles can be tested with PEMS by an independent party on public roads, e.g. by making available suitable adapters for exhaust pipes, granting access to ECU signals and making the necessary administrative arrangements. If the respective PEMS test is not required by this Regulation the manufacturer may charge a reasonable fee as set out in Article 7(1) of Regulation (EC) No 715/2007.</p> <p>Revised text: Manufacturers shall ensure that vehicles can be tested with PEMS by an independent party on public roads, e.g. by making available suitable adapters for exhaust pipes, granting access to ECU signals and making the necessary administrative arrangements. If the respective PEMS test is not required by this Regulation the manufacturer may charge a reasonable fee as set out comparable to the provision in Article 7(1) of Regulation (EC) No 715/2007.</p> <p>Argument: Article 7(1) is related only to repair and maintenance information.</p>

RDE		Annex IIIA Paragraph 3.1.2	<p>Original text:</p> <p>If the approval authority is not satisfied with the data quality check and validation results of a PEMS test conducted according to Appendices 1 and 4, the approval authority may consider the test to be void. In such case, the test data and the reasons for voiding the test shall be recorded by the approval authority.</p> <p>Revised text:</p> <p>From three years after the dates specified in paragraphs 4 and 5 of Article 10 of Regulation (EC) No 715/2007, if the approval authority is not satisfied with the data quality check and validation results of a PEMS test conducted according to Appendices 1 and 4, the approval authority may consider the test to be void. In such case, the test data and the reasons for voiding the test shall be recorded by the approval authority.</p> <p>Argument:</p> <p>During the transitional period a test may be void because the provisions of Appendices 1 or 4 may reveal unexpected problems. Such problems should not be the reason for denial of approval.</p>
RDE		Annex IIIA Paragraph 3.1.3.2.1	<p>Original text:</p> <p>By entering the vehicle type approval number and the information on type, variant and version as defined in sections 0.10 and 0.2 of the vehicle's EC certificate of conformity provided by Annex IX of Directive (EC) 2007/46, the unique identification number of a PEMS test family to which a given vehicle emission type belongs, as set out in point 5.2 of Appendix 7.</p> <p>Revised Text:</p> <p>By entering the vehicle type approval number and</p>

			<p>the information on type, variant and version as defined in sections 0.10 and 0.2 of the vehicle's EC certificate of conformity provided by Annex IX of Directive (EC) 2007/46, the unique identification number of a PEMS test family to which a given vehicle emission type belongs, as set out in point 5.2 of Appendix 7.</p> <p>Argument: Industry is not able to fulfill the new requirement on VIN based reporting which was not discussed in the RDE Task Force.</p>
RDE		Annex IIIA Paragraph 4.2	<p>Original text: The manufacturer shall demonstrate to the approval authority that the chosen vehicle, driving patterns, conditions and payloads are representative for the vehicle family. ...</p> <p>Revised text: The manufacturer shall demonstrate to the approval authority that the chosen vehicle, driving patterns, conditions and payloads are representative for the vehicle PEMS test family. ...</p> <p>Argument: Clarification</p>
RDE		Annex IIIA Paragraph 5.1.2	<p>Original text: For the purpose of testing some artificial payload may be added as long as the total mass of the basic and artificial payload does not exceed 90% of the sum of the “mass of the passengers” and the “pay-mass” defined in points 19 and 21 of Article 2 of Commission Regulation (EU) No 1230/2012(*).</p> <p>Revised text: For the purpose of testing some artificial payload</p>

		<p>may be added as long as the total mass of the basic and artificial payload does not exceed 90% of the sum of the “mass of the passengers” and the “pay-mass” defined in points 19 and 21 of Article 2 of Commission Regulation (EU) No 1230/2012(*), as outlined by the following equations.</p> $\frac{m_{\text{test}} - m_{\text{unladen vehicle reg}} + 75\text{kg}}{m_{\text{passengers}} + m_{\text{gw}} - (m_{\text{unladen vehicle reg}} + m_{\text{passengers}})}$ $= \frac{m_{\text{test}} - m_{\text{unladen vehicle reg}} + 75\text{kg}}{m_{\text{gw}} - m_{\text{unladen vehicle reg}}} \leq 0.9$ <p>“mass of the passengers” = $m_{\text{passengers}}$</p> <p>“pay-mass” = $m_{\text{gw}} - (m_{\text{ready base}} + m_{\text{passengers}} + m_{\text{addition}})$ = $m_{\text{gw}} - (m_{\text{unladen vehicle reg}} + m_{\text{passengers}})$</p> <p>“basic and artificial payload” = $m_{\text{test}} - m_{\text{unladen vehicle reg}} + 75\text{kg}$</p> <p>Argument: Clarification</p>
RDE	Annex IIIA Paragraph 5.2.1	<p>Original text: The test shall be conducted under ambient conditions laid down in this section. The ambient conditions become “extended” when at least one of the temperature and altitude conditions is extended.</p> <p>Revised text : The test shall be conducted under ambient conditions laid down in this section. The ambient conditions become “extended” when at least one of the temperature and altitude conditions is</p>

			<p>extended. If a part of the test is performed outside of extended conditions, the whole test is invalid.</p> <p>Argument : For example, a test starts at -5 °C, but the temperature falls below -7 °C during uphill driving.</p>
RDE		Annex IIIA Paragraph 5.2.6	<p>Original text: By way of derogation from the provisions of points 5.2.4 and 5.2.5 the lower temperature for moderate conditions shall be greater or equal to 276K (3°C) and the lower temperature for extended conditions shall be greater or equal to 271K (-2°C) between the start of the application of binding NTE emission limits as defined in section 2.1 and until five years after the dates given in paragraphs 4 and 5 of Article 10, of Regulation (EC) No 715/2007.</p> <p>Revised text: By way of derogation from the provisions of points 5.2.4 and 5.2.5 the lower temperature for moderate conditions shall be greater or equal to 276K (3°C) and the lower temperature for extended conditions shall be greater or equal to 271K (-2°C) between the start of the application of binding NTE emission limits as defined in section 2.1 and until five years and four months after the dates given in paragraphs 4 and 5 of Article 10, of Regulation (EC) No 715/2007.</p> <p>Argument: Alignment with the implementation date of the Final Conformity Factors (Annex IIIA, Paragraph 2.1.2). This would eliminate another “mixed” type of vehicles in the field having the final temperature margins but not the final Conformity Factors.</p>

RDE		Annex IIIA Paragraph 5.4.2	<p>Original text:</p> <p>If the trip results as valid following the verifications according to point 5.4.1, the methods for verifying the normality of the test conditions as laid down in Appendices 5 and 6 to this Annex must be applied. Each method includes a reference for test conditions, ranges around the reference and the minimum coverage requirements to achieve a valid test.</p> <p>Revised text:</p> <p>If the trip results as valid following the verifications according to point 5.4.1, the methods for verifying the normality of the test conditions as laid down in Appendices 5 and 6 to this Annex must be applied.</p> <p>Compliance of the software tool with the provisions laid down in Appendix 5 or 6 shall either be certified by the tool provider or testified by the type approval authority. Each method includes a reference for test conditions, ranges around the reference and the minimum coverage requirements to achieve a valid test.</p> <p>Argument:</p> <p>The software provider should prove compliance with the methods laid down in Appendix 5 or 6 by an approval authority certificate. Compliance of non-certified software tools with the provisions of Appendix 5 or 6 should be testified by the type approval authority conducting or supervising the RDE tests.</p>
RDE		Annex IIIA Paragraph 5.5.1	<p>Original text:</p> <p>Auxiliary systems</p> <p>The air conditioning system or other auxiliary devices shall be operated in a way which corresponds to their possible use by a consumer at real driving on the road.</p>

			<p>Revised text:</p> <p>Auxiliary systems</p> <p>The air conditioning system or other auxiliary devices shall be operated in a way which corresponds to their possible typical use by a consumer at real driving on the road. When using the air conditioning system, heating systems (e.g. seat heating or auxiliary heaters) shall be switched off and the vehicle windows shall be closed. When using heating systems (e.g. seat heating or auxiliary heaters), the air conditioning system shall be switched off.</p> <p>Argument:</p> <p>“possible” would include also an intentionally unreasonable use of such a device.</p> <p>To avoid unreasonable use of heaters and coolers at the same time.</p>
RDE		Annex IIIA New Paragraph 5.5.3	<p>New text:</p> <p>The vehicle windows shall be closed.</p> <p>The use of trailers or roof boxes and the transport of bicycles on their carriers is not permitted.</p> <p>Argument:</p> <p>To avoid drag variations caused by such equipment.</p>
RDE		Annex IIIA Paragraph 6.3	<p>Original text:</p> <p>6.3</p> <p>Urban operation is characterised by vehicle speeds lower than or equal to 60 km/h.</p> <p>Revised text:</p> <p>6.3</p> <p>Urban operation is characterised by vehicle speeds lower than or equal to 60 km/h.</p>

			<p>6.3.1 For vehicles of categories M1 and N1 as defined in Annex II to Directive 70/156/EEC the urban operation is characterised by vehicle speeds lower than or equal to 60 km/h.</p> <p>6.3.2 For M2 and N2 vehicles the urban operation is characterised by vehicle speeds between 0 and 50 km/h.</p> <p>Argument: Pursuant to Article 2 of Regulation (EC) No 715/2007, the provisions of Appendix IIIA of Regulation (EC) No 692/2008 apply for vehicles of category M2 and N2 with a reference mass up to 2610 kg. Pursuant to Articles 2 and 3 of Directive 92/6/EEC, the maximum speed of category M2 and N2 vehicles has to be limited to 100 km/h and 90 km/h, respectively, by means of speed limiting devices. Currently is technically impossible to conduct a valid RDE trip for category M2 and N2 vehicles under the RDE regulation.</p> <p>There has to be a differentiation of urban operation between M1, N1 and M2, N2 vehicles to adopt the speed requirements of heavy duty regulation 595/2009 for M2 and N2 vehicles.</p>
RDE	Amended in Package 3	Annex IIIA Paragraph 6.4	<p>Original text: 6.4 Rural operation is characterised by vehicle speeds higher than 60 and lower than or equal to 90 km/h.</p> <p>Revised text: 6.4</p>

			<p>Rural operation is characterised by vehicle speeds higher than 60 and lower than or equal to 90 km/h.</p> <p>6.4.1 For vehicles of categories M1 and N1 as defined in Annex II to Directive 70/156/EEC rural operation is characterised by vehicle speeds higher than 60 and lower than or equal to 90 km/h.</p> <p>6.4.2 For M2 and N2 vehicles the rural operation is characterised by vehicle speeds higher than 50 and lower than or equal to 75 km/h.</p> <p>Argument: Pursuant to Article 2 of Regulation (EC) No 715/2007, the provisions of Appendix IIIA of Regulation (EC) No 692/2008 apply for vehicles of category M2 and N2 with a reference mass up to 2610 kg. Pursuant to Articles 2 and 3 of Directive 92/6/EEC, the maximum speed of category M2 and N2 vehicles has to be limited to 100 km/h and 90 km/h, respectively, by means of speed limiting devices. Currently is technically impossible to conduct a valid RDE trip for category M2 and N2 vehicles under the RDE regulation.</p> <p>There has to be a differentiation of urban operation between M1, N1 and M2, N2 vehicles to adopt the speed requirements of heavy duty regulation 595/2009 for M2 and N2 vehicles.</p>
RDE	Amended in Package 3	Annex IIIA Paragraph 6.5	<p>Original text: 6.5 Motorway operation is characterised by speeds above 90 km/h.</p>

			<p>Revised text:</p> <p>6.5</p> <p>Motorway operation is characterised by vehicle speeds above 90 km/h.</p> <p>6.5.1</p> <p>For vehicles of categories M1 and N1 as defined in Annex II to Directive 70/156/EEC motorway operation is characterised by vehicle speeds above 90 km/h.</p> <p>6.5.2</p> <p>For M2 and N2 vehicles motorway operation is characterised by vehicle speeds above 75 km/h.</p> <p>Argument:</p> <p>Pursuant to Article 2 of Regulation (EC) No 715/2007, the provisions of Appendix IIIA of Regulation (EC) No 692/2008 apply for vehicles of category M2 and N2 with a reference mass up to 2610 kg.</p> <p>Pursuant to Articles 2 and 3 of Directive 92/6/EEC, the maximum speed of category M2 and N2 vehicles has to be limited to 100 km/h and 90 km/h, respectively, by means of speed limiting devices.</p> <p>Currently is technically impossible to conduct a valid RDE trip for category M2 and N2 vehicles under the RDE regulation.</p> <p>There has to be a differentiation of urban operation between M1, N1 and M2, N2 vehicles to adopt the speed requirements of heavy duty regulation 595/2009 for M2 and N2 vehicles.</p>
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RDE		Annex IIIA Paragraph 6.8	<p>Original text:</p> <p>The average speed (including stops) of the urban driving part of the trip should be between 15 and 40 km/h. Stop periods, defined as vehicle speed of less than 1 km/h, shall account for 6 to 30% of the time duration of urban operation. Urban operation shall contain several stop periods of 10s or longer. If a stop period lasts more the 180 s, the emission events during the 180 s following such an excessively long stop period shall be excluded from the emissions evaluation.</p> <p>Revised text:</p> <p>The average speed (including stops) of the urban driving part of the trip should be between 15 and 40 km/h. Stop periods, defined as vehicle speed of less than 1 km/h, shall account for 6 to 30% of the time duration of urban operation. Urban operation shall contain several stop periods of 10s or longer. If a stop period lasts more the 180 s, the pollutant emission events data during the 180 s following such an excessively long stop period shall be excluded from set to zero for the emissions evaluation.</p> <p>Argument: Clarification.</p>
RDE	Amended in Package 3	Annex IIIA Paragraph 6.9	<p>Original text:</p> <p>6.9 The speed range of the motorway driving shall properly cover a range between 90 and at least 110 km/h. The vehicle's velocity shall be above 100 km/h for at least 5 minutes.</p> <p>Revised text:</p> <p>6.9 The sSpeed range of the motorway driving shall</p>

			<p>properly cover a range between 90 and at least 110 km/h. The vehicle's velocity shall be above 100 km/h for at least 5 minutes.</p> <p>6.9.1 For vehicles of categories M1 and N1 as defined in Annex II to Directive 70/156/EEC the speed range of the motorway driving shall properly cover a range between 90 and at least 110 km/h. The vehicle's velocity shall be above 100 km/h for at least 5 minutes.</p> <p>6.9.2 For vehicles of categories M2 and N2 as defined in Annex II to Directive 70/156/EEC the speed range of the motorway driving shall properly cover a range between 75 km/h and the legal speed limit.</p> <p>Argument: Pursuant to Articles 2 and 3 of Directive 92/6/EEC, the maximum speed of category M2 and N2 vehicles has to be limited to 100 km/h or 90 km/h, respectively, by means of speed limiting devices. Additionally legal speed limits may apply. Currently is technically impossible to conduct a valid RDE trip for category M2 and N2 vehicles under the RDE regulation.</p> <p>There has to be a differentiation of urban operation between M1, N1 and M2, N2 vehicles to adopt the speed requirements of heavy duty regulation 595/2009 for M2 and N2 vehicles.</p>
RDE		Annex IIIA Paragraph 8.2	<p>Original text : Samples of fuel, lubricant and reagent (if applicable) shall be taken and kept for at least 1 year.</p>

			<p>Revised text:</p> <p>In the case of a PEMS test performed by an independent organisation, sSamples of fuel, lubricant and reagent (if applicable) shall be taken and kept for at least 1 year at a temperature between 10°C and 20°C and protected from light.</p> <p>Argument:</p> <p>OEMs and TAA can bring the specifications of the fuel, oil and reagent they use – 3rd parties cannot.</p>
RDE		Annex IIIA, Appendix 1 Paragraph 3.2	<p>Original text:</p> <p>Test parameters as specified in Table 1 of this Appendix shall be measured, recorded at a constant frequency of 1.0 Hz or higher and reported according to the requirements of Appendix 8. If ECU parameters are obtained, these should be made available at a substantially higher frequency than the parameters recorded by PEMS. The PEMS analysers, flow-measuring instruments and sensors shall comply with the requirements laid down in Appendices 2 and 3 of this Annex.</p> <p>Revised text:</p> <p>Test parameters as specified in Table 1 of this Appendix shall be measured, recorded at a constant frequency of 1.0 Hz or higher and reported according to the requirements of Appendix 8. If ECU parameters are obtained available, these should be made available requested at a substantially higher the same frequency than as</p> <p>Argument:</p> <p>ACEA recommends to use a fixed frequency of 1 Hz</p>

			<p>in order to minimize interference with the provisions of the other Appendices (particularly Appendix 6) and to facilitate post-processing of the data.</p> <p>Table 1 contains several values, the data source of which is marked as “ECU”. However the transmission of most of these values is not (or only optional) requested by the OBD regulation. Thus it cannot be anticipated that these values are available from the ECU.</p> <p>The available data rate depends on the type and amount of requested data and on the number of answering control units. A data rate “substantially higher” than 1Hz may not be possible.</p>
RDE		Annex IIIA, Appendix 1 Paragraph 4.6	<p>Original text:</p> <p>The zero level of the analyser shall be recorded by sampling HEPA filtered ambient air. The signal shall be recorded at a constant frequency of at least 1.0 Hz over a period of 2 min and averaged; the permissible concentration value shall be determined once suitable measurement equipment becomes available.</p> <p>Revised text:</p> <p>The zero level of the analyser shall be recorded by sampling HEPA filtered ambient air. The signal shall be recorded at a constant frequency of at least 1.0 Hz over a period of 2 min and averaged; the permissible concentration value shall be determined once suitable measurement equipment becomes available.</p> <p>Argument:</p> <p>ACEA recommends to use a fixed frequency of 1 Hz in order to minimize interference with the provisions of the other Appendices (particularly Appendix 6) and to facilitate post-processing of the</p>

			data.
RDE		Annex IIIA, Appendix 1 Paragraph 6.3	<p>Original text:</p> <p>The calibrated range of the analysers shall account at least for 90% of the concentration values obtained from 99% of the measurements of the valid parts of the emissions test. It is permissible that 1% of the total number of measurements used for evaluation exceeds the calibrated range of the analysers by up to a factor of two. If these requirements are not met, the test shall be voided.</p> <p>Revised text:</p> <p>The used span gas concentration of the analysers as calibrated according to Appendix 1, paragraph 4.5 of this Annex shall cover at least 90% of the concentration values obtained from 99% of the measurements of the valid parts of the emissions test. It is permissible that 1% of the total number of measurements used for evaluation exceeds the used span gas by up to a factor of two. If these requirements are not met, the test shall be voided.</p> <p>Argument:</p> <p>Clarification.</p>
RDE		Annex IIIA, Appendix 2 Paragraph 3.4.2	<p>Original text:</p> <p>(f) The values under evaluation and, if needed, the reference values shall be recorded at a constant frequency of at least 1.0 Hz over a period of 30 seconds.</p> <p>Revised text:</p> <p>(f) The values under evaluation and, if needed, the reference values shall be recorded at a constant frequency of at least 1.0 Hz over a period of 30 seconds.</p>

			<p>Argument:</p> <p>ACEA recommends to use a fixed frequency of 1 Hz in order to minimize interference with the provisions of the other Appendices (particularly Appendix 6) and to facilitate post-processing of the data.</p>
RDE		Annex IIIA, Appendix 2 Paragraph 4.2.4	<p>Original text:</p> <p>The noise, defined as two times the root mean square of ten standard deviations, each calculated from the zero responses measured at a constant recording frequency of at least 1.0 Hz during a period of 30 seconds, shall not exceed 2% of full scale. Each of the 10 measurement periods shall be interspersed with an interval of 30 seconds in which the analyser is exposed to an appropriate span gas. Before each sampling period and before each span period, sufficient time shall be given to purge the analyser and the sampling lines.</p> <p>Revised text:</p> <p>The noise, defined as two times the root mean square of ten standard deviations, each calculated from the zero responses measured at a constant recording frequency of at least 1.0 Hz during a period of 30 seconds, shall not exceed 2% of full scale. Each of the 10 measurement periods shall be interspersed with an interval of 30 seconds in which the analyser is exposed to an appropriate span gas. Before each sampling period and before each span period, sufficient time shall be given to purge the analyser and the sampling lines.</p> <p>Argument:</p> <p>ACEA recommends to use a fixed frequency of 1 Hz in order to minimize interference with the provisions of the other Appendices (particularly</p>

			Appendix 6) and to facilitate post-processing of the data.
RDE		Annex IIIA, Appendix 2 Paragraph 7.2.5	<p>Original text:</p> <p>The noise, defined as two times the root mean square of ten standard deviations, each calculated from the zero responses measured at a constant recording frequency of at least 1.0 Hz during a period of 30 seconds, shall not exceed 2 per cent of the maximum calibrated flow value. Each of the 10 measurement periods shall be interspersed with an interval of 30 seconds in which the EFM is exposed to the maximum calibrated flow.</p> <p>Revised text:</p> <p>The noise, defined as two times the root mean square of ten standard deviations, each calculated from the zero responses measured at a constant recording frequency of at least 1.0 Hz during a period of 30 seconds, shall not exceed 2 per cent of the maximum calibrated flow value. Each of the 10 measurement periods shall be interspersed with an interval of 30 seconds in which the EFM is exposed to the maximum calibrated flow.</p> <p>Argument:</p> <p>ACEA recommends to use a fixed frequency of 1 Hz in order to minimize interference with the provisions of the other Appendices (particularly Appendix 6) and to facilitate post-processing of the data.</p>
RDE		Annex IIIA, Appendix 3 Paragraph 4.2	<p>Original text:</p> <p>(c) At a constant frequency of at least 1.0 Hz, the signal under validation and the reference signal shall be correlated using the best-fit equation having the form:</p>

			<p>Revised text:</p> <p>(c) At a constant frequency of at least 1.0 Hz, the signal under validation and the reference signal shall be correlated using the best-fit equation having the form:</p> <p>Argument:</p> <p>ACEA recommends to use a fixed frequency of 1 Hz in order to minimize interference with the provisions of the other Appendices (particularly Appendix 6) and to facilitate post-processing of the data.</p>
RDE		Annex IIIA, Appendix 5 Paragraph 3.1	<p>Original text:</p> <p>Definition of averaging windows</p> <p>The instantaneous emissions calculated according to Appendix 4 shall be integrated using a moving averaging window method, based on the reference CO₂ mass. The principle of the calculation is as follows: The mass emissions are not calculated for the complete data set, but for sub-sets of the complete data set, the length of these sub-sets being determined so as to match the CO₂ mass emitted by the vehicle over the reference laboratory cycle. The moving average calculations are conducted with a time increment Δt corresponding to the data sampling frequency. These sub-sets used to average the emissions data are referred to as “averaging windows”. The calculation described in the present point may be run from the last point (backwards) or from the first point (forward).</p> <p>The following data shall not be considered for the calculation of the CO₂ mass, the emissions and the distance of the averaging windows:</p> <ul style="list-style-type: none"> – The periodic verification of the instruments and/or after the zero drift verifications; – The cold start emissions, defined according to

			<p>Appendix 4, point 4.4;</p> <ul style="list-style-type: none"> – Vehicle ground speed < 1 km/h; – Any section of the test during which the combustion engine is switched off. <p>...</p> <p>Revised text:</p> <p>Definition of averaging windows</p> <p>The instantaneous emissions calculated according to Appendix 4 shall be integrated using a moving averaging window method, based on the reference CO₂ mass. The principle of the calculation is as follows: The mass emissions are not calculated for the complete data set, but for sub-sets of the complete data set, the length of these sub-sets being determined so as to match the CO₂ mass emitted by the vehicle over the reference laboratory cycle. The moving average calculations are conducted with a time increment Δt corresponding to the data sampling frequency. These sub-sets used to average the emissions data are referred to as “averaging windows”. The calculation described in the present point may shall be run from the last point (backwards) or from the first point (forward).</p> <p>The following data shall not be considered for the calculation of the CO₂ mass, the emissions and the distance of the averaging windows:</p> <ul style="list-style-type: none"> – The periodic verification of the instruments and/or after the zero drift verifications; – The cold start emissions, defined according to Appendix 4, point 4.4; – Vehicle ground speed < 1 km/h with engine on or off; – Any section of the test during which the combustion engine is switched off. <p>...</p>
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			<p>Argument:</p> <p>To avoid possibly different results when running the calculation in opposite directions.</p> <p>ACEA recommends to delete the sentence “any section of the test during which the combustion engine is switched off” to allow advanced vehicle operation modes called “sailing” where the combustion engine is switched off during coasting.</p>
RDE		ANNEX IIIa, Appendix 5, Paragraph 4.2	<p>Original text:</p> <p>4.2 CO₂ characteristic curve reference points</p> <p>The reference points P_1, P_2 and P_3 required to define the curve shall be established as follows:</p> <p>4.2.1. <i>Point P_1</i></p> <p>$v_{P1} = 19 \text{ km/h}$ (average speed of the Low Speed phase of the WLTP cycle)</p> <p>$M_{CO2;d;P1}$ = Vehicle CO₂ emissions over the Low Speed phase of the WLTP cycle × 1.2 [g/km].</p> <p>4.2.2. <i>Point P_2</i></p> <p>4.2.3. $v_{P2} = 56.6 \text{ km/h}$ (average speed of the High Speed phase of the WLTP cycle)</p> <p>$M_{CO2;d;P2}$ = Vehicle CO₂ emissions over the High Speed phase of the WLTP cycle × 1.1 [g/km].</p> <p>4.2.4. <i>Point P_3</i></p> <p>4.2.5. $v_{P3} = 92.3 \text{ km/h}$ (average speed of the Extra High Speed phase of the WLTP cycle)</p> <p>$M_{CO2;d;P3}$ = Vehicle CO₂ emissions over the Extra High Speed phase of the WLTP cycle × 1.05 [g/km].</p> <p>Revised text:</p> <p>4.2 CO₂ characteristic curve reference points</p> <p>The reference points P_1, P_2 and P_3 required to define the curve shall be established as follows:</p> <p>4.2.1. <i>Point P_1</i></p>

			<p>Vehicles of categories M1 and N1:</p> <p>$v_{P1} = 19 \text{ km/h}$ (average speed of the Low Speed phase of the WLTP cycle)</p> <p>Vehicles of categories M2 and N2:</p> <p>$v_{P1} = [\text{tbd}]$</p> <p>$M_{CO2;d;P1}$ = Vehicle CO₂ emissions over the Low Speed phase of the WLTP cycle × 1.2 [g/km].</p> <p>4.2.2. Point P_2</p> <p>Vehicles of categories M1 and N1:</p> <p>4.2.3. $v_{P2} = 56.6 \text{ km/h}$ (average speed of the High Speed phase of the WLTP cycle)</p> <p>Vehicles of categories M2 and N2:</p> <p>$v_{P2} = [\text{tbd}]$</p> <p>$M_{CO2;d;P2}$ = Vehicle CO₂ emissions over the High Speed phase of the WLTP cycle × 1.1 [g/km].</p> <p>4.2.43. Point P_3</p> <p>Vehicles of categories M1 and N1:</p> <p>4.2.5. $v_{P3} = 92.3 \text{ km/h}$ (average speed of the Extra High Speed phase of the WLTP cycle)</p> <p>Vehicles of categories M2 and N2:</p> <p>$v_{P3} = [\text{tbd}]$</p> <p>$M_{CO2;d;P3}$ = Vehicle CO₂ emissions over the Extra High Speed phase of the WLTP cycle × 1.05 [g/km].</p> <p>Argument: The calculation needs to consider the splitting of the speed requirements in M1, N1 and M2, N2 vehicles (see ANNEX IIIa, paragraph 6.3-6.5). According to that, the speed values have to be amended. Reasonable values should be evaluated by JRC or TU Graz.</p>
RDE		ANNEX IIIa, Appendix 5,	<p>Original text:</p> <p>4.4. Urban, rural and motorway windows</p> <p>4.4.1. Urban windows are characterised by average</p>

		<p>Paragraph 4.4</p> <p>vehicle ground speeds v_j smaller than 45 km/h, 4.4.2. Rural windows are characterised by average vehicle ground speeds v_j greater than or equal to 45 km/h and smaller than 80 km/h, 4.4.3. Motorway windows are characterised by average vehicle ground speeds v_j greater than or equal to 80 km/h and smaller than 145 km/h</p> <p>Revised text: 4.4. Urban, rural and motorway windows 4.4.1. Urban windows are characterised by average vehicle ground speeds v_j smaller than 45 km/h for vehicles of categories M1 and N1 resp. smaller than [tbd] km/h for vehicles of categories M2 and N2, 4.4.2. Rural windows are characterised by average vehicle ground speeds v_j greater than or equal to 45 km/h and smaller than 80 km/h for vehicles of categories M1 and N1 resp. greater than or equal to [tbd] km/h and smaller than [tbd] km/h for vehicles of categories M2 and N2, 4.4.3. Motorway windows are characterised by average vehicle ground speeds v_j greater than or equal to 80 km/h and smaller than 145 km/h for vehicles of categories M1 and N1 resp. greater than or equal to [tbd] km/h and smaller than [tbd] km/h for vehicles of categories M2 and N2.</p> <p>Argument: The calculation has to consider the splitting of the speed requirements in M1, N1 and M2, N2 vehicles (see ANNEX IIIa, paragraph 6.3-6.5). According to that, the speed values have to be amended. Reasonable values should be evaluated by JRC or TU Graz.</p>
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RDE		Annex IIIA, Appendix 5 Paragraph 5.3	<p>Original text: Verification of test normality ... If the specified minimum requirement of 50% is not met, the upper positive tolerance tol_1 may be increased by steps of 1 percentage points until the 50% of normal windows target is reached. When using this approach, tol_1 shall never exceed 30%.</p> <p>Revised text: Verification of test normality ... If the specified minimum requirement of 50% is not met, the upper positive tolerance tol_1 may be increased by steps of 1 percentage points until the 50% of normal windows target is reached. When using this approach, tol_1 shall never exceed $\pm 30\%$.</p> <p>Argument: Some vehicles may rather require a tolerance at the lower side to meet the minimum requirement of 50%.</p>
RDE		Annex IIIA, Appendix 5 Paragraph 6.1	<p>Original text: Calculation of weighted distance-specific emissions The emissions shall be calculated as a weighted average of the windows distance-specific emissions separately for the urban, rural and motorway categories and the complete trip. ...</p> <p>Revised text: Calculation of weighted distance-specific emissions The emissions shall be calculated as a weighted average of the windows distance-specific emissions separately for the urban, rural and motorway categories and the complete trip. In the following calculations tol_1 shall be 25% and tol_2 shall be</p>

			<p>50%.</p> <p>Argument: When normality requirement is achieved by increasing tol_1, weight factor =1 area ($\pm 25\%$) should be keep to $\pm 25\%$ to normalize PEMS data correctly.</p>
RDE		Annex IIIA, Appendix 5 Paragraph 7.2	<p>Original text: $a_1 = (96 - 154)/(56.6 - 19.0) = \dots = -1.543$... $a_2 = (120 - 96)/(92.3 - 56.6) = \dots = 0.672$</p> <p>Revised text: $a_1 = (96*1.1 - 154*1.2)/(56.6 - 19.0) = -2.106$ $a_2 = (120*1.05 - 96*1.1)/(92.3 - 56.6) = 0.571$</p> <p>Argument: Correction according to Section 4.2 of this Appendix.</p>
RDE		Annex IIIA, Appendix 6 Paragraph 2, Symbols, parameters and units	<p>Original text: i Time step for instantaneous measurements, minimum resolution 1Hz</p> <p>Revised text: i Time step for instantaneous measurements, minimum resolution 1Hz</p> <p>Argument: ACEA recommends to use a fixed frequency of 1 Hz in order to minimize interference with the provisions of the other Appendices (particularly Appendix 6) and to facilitate post-processing of the data.</p>
RDE		ANNEX IIIa, Appendix 6,	<p>Original text: Classification of the moving averages to urban, rural and motorway ...</p>

		<p>Paragraph 3.3</p>	<p>Table 1-1: Speed ranges for the allocation of test data to urban, rural and motorway conditions in the power binning method</p> <table><tr><td></td><td>Urban</td><td>Rural ⁽¹⁾</td><td>Motorway ⁽¹⁾</td></tr><tr><td>v₁ [km/h]</td><td>0 to ≤ 60</td><td>>60 to ≤90</td><td>>90</td></tr></table> <p>Revised text: Classification of the moving averages to urban, rural and motorway ...</p> <p>Table 1-1: Speed ranges for the allocation of test data to urban, rural and motorway conditions in the power binning method</p> <table><tr><td></td><td></td><td>Urban</td><td>Rural ⁽¹⁾</td><td>Motorway ⁽¹⁾</td></tr><tr><td>M1 & N1 vehicles</td><td>v₁ [km/h]</td><td>0 to ≤ 60</td><td>>60 to ≤90</td><td>>90</td></tr><tr><td>M2 & N2 vehicles</td><td>v₁ [km/h]</td><td>0 to ≤ 50</td><td>>50 to ≤75</td><td>>75</td></tr></table> <p>Argument: The amendment of the speed ranges is corresponding to the adaption of the speed requirements in Annex IIIA, Paragraph 6.3 - 6.5. The speed ranges for M1 & N1 remain unchanged.</p>		Urban	Rural ⁽¹⁾	Motorway ⁽¹⁾	v ₁ [km/h]	0 to ≤ 60	>60 to ≤90	>90			Urban	Rural ⁽¹⁾	Motorway ⁽¹⁾	M1 & N1 vehicles	v ₁ [km/h]	0 to ≤ 60	>60 to ≤90	>90	M2 & N2 vehicles	v ₁ [km/h]	0 to ≤ 50	>50 to ≤75	>75
	Urban	Rural ⁽¹⁾	Motorway ⁽¹⁾																							
v ₁ [km/h]	0 to ≤ 60	>60 to ≤90	>90																							
		Urban	Rural ⁽¹⁾	Motorway ⁽¹⁾																						
M1 & N1 vehicles	v ₁ [km/h]	0 to ≤ 60	>60 to ≤90	>90																						
M2 & N2 vehicles	v ₁ [km/h]	0 to ≤ 50	>50 to ≤75	>75																						
RDE		<p>Annex IIIA, Appendix 6 Paragraph 3.6 Table 4</p>	<p>Original text: <i>Table 4 (Excerpt)</i> MINIMUM AND MAXIMUM SHARES PER POWER CLASS FOR A VALID TEST</p> <table><tr><td rowspan="2">Power class No.</td><td></td><td colspan="2">Total trip</td><td colspan="2">Urban trip parts</td></tr><tr><td></td><td>lower bound</td><td>upper bound</td><td>lower bound</td><td>upper</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	Power class No.		Total trip		Urban trip parts			lower bound	upper bound	lower bound	upper												
Power class No.		Total trip			Urban trip parts																					
		lower bound	upper bound	lower bound	upper																					

			<table><tr><td>5</td><td></td><td></td><td>1.0%</td><td>10%</td><td>>5 counts</td><td>5%</td></tr><tr><td>6</td><td></td><td></td><td>>5 counts</td><td>2.5%</td><td>0%</td><td>2%</td></tr></table> <p>Revised text : <i>Table 4 (Excerpt)</i> MINIMUM AND MAXIMUM SHARES PER POWER CLASS FOR A VALID TEST</p> <table><tr><th rowspan="2">Power class No.</th><th rowspan="2"></th><th rowspan="2"></th><th colspan="2">Total trip</th><th colspan="2">Urban trip parts</th></tr><tr><th>lower bound</th><th>upper bound</th><th>lower bound</th><th>upper</th></tr><tr><td>5</td><td></td><td></td><td>1.0%</td><td>10%</td><td>≥5 counts</td><td>5%</td></tr><tr><td>6</td><td></td><td></td><td>≥5 counts</td><td>2.5%</td><td>0%</td><td>2%</td></tr></table> <p>Argument: Contradiction to the wording following Table 4, see text marked yellow in the item below.</p>	5			1.0%	10%	>5 counts	5%	6			>5 counts	2.5%	0%	2%	Power class No.			Total trip		Urban trip parts		lower bound	upper bound	lower bound	upper	5			1.0%	10%	≥5 counts	5%	6			≥5 counts	2.5%	0%	2%	
5			1.0%	10%	>5 counts	5%																																					
6			>5 counts	2.5%	0%	2%																																					
Power class No.			Total trip		Urban trip parts																																						
			lower bound	upper bound	lower bound	upper																																					
5			1.0%	10%	≥5 counts	5%																																					
6			≥5 counts	2.5%	0%	2%																																					
RDE		Annex IIIA, Appendix 6 Paragraph 3.6	<p>Original text:</p> <p>...</p> <p>In addition to the requirements in Table 4, a minimum coverage of 5 counts is demanded for the total trip in each wheel power class up to the class containing 90% of the rated power to provide a sufficient sample size.</p> <p>A minimum coverage of 5 counts is required for the urban part of the trip in each wheel power class up to class No. 5. If the counts in the urban part of the trip in a wheel power class above number 5 are less than 5, the average class emission value shall be set to zero.</p> <p>Revised text:</p> <p>...</p> <p>In addition to the requirements in Table 4, a minimum coverage of 5 counts is demanded for</p>																																								

		<p>the total trip in each wheel power class up to the class containing 90% of the rated power to provide a sufficient sample size.</p> <p>A minimum coverage of 5 counts is required for the urban part of the trip in each wheel power class up to class No. 5. If the counts in the urban part of the trip in a wheel power class above number 5 are less than 5, the average class emission value shall be set to zero.</p> <p>For a valid test a sufficient number of measured emission values have to be allocated to the relevant power classes. This demand is checked by the number of 3 second average values (counts) allocated to each power class:</p> <ul style="list-style-type: none"> • a minimum coverage of 5 counts is demanded for the total trip in each wheel power class up to class No. 6. or up to the class containing 90% of the rated power whatever gives the lower class number. If the counts in a wheel power class above number 6 are less than 5, the average class emission value ($m_{gas,3s,k}$) and the average class velocity ($v_{3s,k}$) shall be set to zero. • a minimum coverage of 5 counts is required for the urban part of the trip in each wheel power class up to class No. 5 or up to the class containing 90% of the rated power whatever gives the lower class number. If the counts in the urban part of the trip in a wheel power class above number 5 are less than 5, the average class emission value ($m_{gas,3s,k}$) and the average class velocity ($v_{3s,k}$) shall be set to zero. <p>Argument: Text of the latest CLEAR description. Leads to more</p>
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			valid trips.
RDE		Annex IIIA, Appendix 7 Paragraph 3	<p>Original text:</p> <p>3. PEMS TEST FAMILY BUILDING</p> <p>A PEMS test family shall comprise vehicles with similar emission characteristics. Upon the choice of the manufacturer vehicle emission types may be included in a PEMS test family only if they are identical with respect to the characteristics in points 3.1 and 3.2.</p> <p>3.1. Administrative criteria</p> <p>3.1.1. The approval authority issuing the emission type approval according to Regulation (EC) 715/2007 ('authority')</p> <p>3.1.2. A single vehicle manufacturer.</p> <p>...</p> <p>Revised text:</p> <p>3. PEMS TEST FAMILY BUILDING</p> <p>A PEMS test family shall comprise vehicles with similar emission characteristics. Upon the choice of the manufacturer (*) vehicle emission types may be included in a PEMS test family only if they are identical with respect to the characteristics in points 3.1 and 3.2.</p> <p>3.1. Administrative criteria</p> <p>3.1.1. The approval authority issuing the emission type approval according to Regulation (EC) 715/2007 ('authority') (**)</p> <p>3.1.2. A single vehicle manufacturer. (**)</p> <p>(*) In case of multi-stage type approvals according to Article 5 (2) of Directive 2007/46/EC upon the choice and consent of all involved manufacturers.</p> <p>(*) This requirement will not be mandatory in case</p>

			<p>of multi-stage type approvals according to Article 5 (2) of Directive 2007/46/EC.</p> <p>...</p> <p>Argument: If not amended, this paragraph would force multi-stage manufacturers to repeat RDE tests for vehicles that meet the technical criteria of the original manufacturer PEMS family. This would be an unjustified and unfeasible burden for multi-stage manufacturers, and as discussed during RDE LDV meeting 16th June, it was not regulator intention to apply this provision for multi-stage manufacturers.</p>
RDE		Annex IIIA, Appendix 7 Paragraph 5.3	<p>Original text: The authority and the vehicle manufacturer shall maintain a list of vehicle emission types being part of a given PEMS test family on the basis of emission type approval numbers. For each emission type all corresponding combinations of vehicle type approval numbers, types, variants and versions as defined in sections 0.10 and 0.2 of the vehicle's EC certificate of conformity shall be provided as well.</p> <p>Revised text: The authority and the vehicle manufacturer shall maintain a list of vehicle emission types being part of a given PEMS test family on the basis of emission type approval numbers. For each emission type all corresponding combinations of vehicle type approval numbers, types, variants and versions as defined in section s-0.10 and 0.2 of the vehicle's EC certificate of conformity shall be provided as well.</p> <p>Argument: Not possible to provide all the VIN.</p>

RDE		Annex IIIA, Appendix 7a Paragraph 8.1.1 [Paragraph 3.1.1]	<p>Original text:</p> <p>Data pre-processing</p> <p>...</p> <p>The correct speed trace builds the basis for further calculations and binning as described in paragraph 8.1.2. [3.1.2]</p> <p>Revised text:</p> <p>Data pre-processing</p> <p>...</p> <p>The correct speed trace builds the basis for further calculations and binning as described in paragraph 8.1.2 [3.1.2] and 8.1.3 [3.1.3].</p> <p>Argument:</p> <p>Calculations are described in paragraph 8.1.2 [3.1.2], binning is described in paragraph 8.1.3 [3.1.3].</p>
RDE		ANNEX IIIa, Appendix 7a Paragraph 8.1.3 [3.1.3]	<p>Original text:</p> <p>Binning of the results</p> <p>After the calculation of a_i and $(v \cdot a)_i$, the values v_i, d_i, a_i and $(v \cdot a)_i$ shall be ranked in ascending order of the vehicle speed.</p> <p>All datasets with $v_i \leq 60 \text{ km/h}$ belong to the 'urban' speed bin, all datasets with $60 \text{ km/h} < v_i \leq 90 \text{ km/h}$ belong to the 'rural' speed bin and all datasets with $v_i > 90 \text{ km/h}$ belong to the 'motorway' speed bin.</p> <p>...</p> <p>Revised text:</p> <p>Binning of the results</p> <p>After the calculation of a_i and $(v \cdot a)_i$, the values v_i, d_i, a_i and $(v \cdot a)_i$ shall be ranked in ascending order of the vehicle speed.</p> <p>For vehicles of categories M1 and N1 as defined in Annex II to Directive 70/156/EEC Aall datasets with $v_i \leq 60 \text{ km/h}$ belong to the 'urban' speed bin, all</p>

			<p>datasets with $60 \text{ km/h} < v_i \leq 90 \text{ km/h}$ belong to the 'rural' speed bin and all datasets with $v_i > 90 \text{ km/h}$ belong to the 'motorway' speed bin.</p> <p>For vehicles of categories M2 and N2 as defined in Annex II to Directive 70/156/EEC all datasets with $v_i \leq [\text{tbd}] \text{ km/h}$ belong to the 'urban' speed bin, all datasets with $[\text{tbd}] \text{ km/h} < v_i \leq [\text{tbd}] \text{ km/h}$ belong to the 'rural' speed bin and all datasets with $v_i > [\text{tbd}] \text{ km/h}$ belong to the 'motorway' speed bin.</p> <p>...</p> <p>Argument: The calculation needs to consider the splitting of the speed requirements in M1, N1 and M2, N2 vehicles (see ANNEX IIIa, paragraph 6.3-6.5). According to that, the speed values have to be amended. Reasonable values should be evaluated by CLEAR tool experts, JRC or TU Graz.</p>
RDE		ANNEX IIIa, Appendix 7a, Paragraph 9 [4]	<p>Original text: VERIFICATION OF TRIP VALIDITY</p> <p>4.1.1. <i>Verification of $v \cdot a_{pos_}[95]$ per speed bin (with v in $[\text{km/h}]$)</i></p> <p>If $v_k \leq 74.6 \text{ km/h}$ and $(v \cdot a_{pos})_k [95] > (0.136 \cdot v_k + 14.44)$ is fulfilled, the trip is invalid.</p> <p>If $v_k > 74.6 \text{ km/h}$ and $(v \cdot a_{pos})_k [95] > (0.0742 \cdot v_k + 18.966)$ is fulfilled, the trip is invalid.</p> <p>4.1.2. <i>Verification of RPA per speed bin</i></p> <p>If $v_k \leq 94.05 \text{ km/h}$ and $RPA_k < (-0.0016 \cdot v_k + 0.1755)$ is fulfilled, the trip is invalid.</p> <p>If $v_k > 94.05 \text{ km/h}$ and $RPA_k < 0.025$ is fulfilled, the trip is invalid.</p> <p>Revised text:</p>

			<p>VERIFICATION OF TRIP VALIDITY</p> <p>4.1.1. Verification of $v \cdot a_{pos_}[95]$ per speed bin (with v in [km/h])</p> <p>If $v_k \leq 74.6$ km/h (M1/N1 vehicles) resp. $v_k \leq [tbd]$ km/h (M2/N2 vehicles)</p> <p>and $(v \cdot a_{pos})_k [95] > (0.136 \cdot v_k + 14.44)$ is fulfilled, the trip is invalid.</p> <p>If $v_k > 74.6$ km/h (M1/N1 vehicles) resp. $v_k \leq [tbd]$ km/h (M2/N2 vehicles)</p> <p>and $(v \cdot a_{pos})_k [95] > (0.0742 \cdot v_k + 18.966)$ is fulfilled, the trip is invalid.</p> <p>4.1.2. Verification of RPA per speed bin</p> <p>If $v_k \leq 94.05$ km/h (M1/N1 vehicles) resp. $v_k \leq [tbd]$ km/h (M2/N2 vehicles)</p> <p>and $RPA_k < (-0.0016 \cdot v_k + 0.1755)$ is fulfilled, the trip is invalid.</p> <p>If $v_k > 94.05$ km/h (M1/N1 vehicles) resp. $v_k \leq [tbd]$ km/h (M2/N2 vehicles)</p> <p>and $RPA_k < 0.025$ is fulfilled, the trip is invalid.</p> <p>Argument: The calculation needs to consider the splitting of the speed requirements in M1, N1 and M2, N2 vehicles (see ANNEX IIIa, paragraph 6.3-6.5). According to that, the speed values have to be amended. Reasonable values should be evaluated by CLEAR tool experts, JRC or TU Graz.</p>
RDE		Annex IIIA, Appendix 8 Paragraph 3.3	<p>Original text:</p> <p>Intermediate and final results</p> <p>Summary parameters of intermediate results shall be recorded and structured as indicated in Table 3.</p> <p>The information in Table 3 shall be obtained prior to the application of the data evaluation methods laid down in Appendices 5 and 6.</p> <p>The vehicle manufacturer shall record the results of</p>

			<p>the two data evaluation methods in separate files. The results of the data evaluation with the method described in Appendix 5 shall be reported according to Tables 4, 5 and 6. The results of the data evaluation with the method described in Appendix 6 shall be reported according to Tables 7, 8 and 9. The header of the data reporting file shall be composed of three parts. The first 95 lines shall be reserved for specific information about the settings of the data evaluation method. Lines 101-195 shall report the results of the data evaluation method. Lines 201-490 shall be reserved for reporting the final emission results. Line 501 and all consecutive data lines comprise the body of the data reporting file and shall contain the detailed results of the data evaluation.</p> <p>Revised text: Intermediate and final results Summary parameters of intermediate results shall be recorded and structured as indicated in Table 3. The information in Table 3 shall be obtained prior to the application of the data evaluation methods laid down in Appendices 5 and 6. The vehicle manufacturer shall record the results of the two data evaluation methods, as far as available, in separate files. The results of the data evaluation with the method described in Appendix 5 shall be reported according to Tables 4, 5 and 6. The results of the data evaluation with the method described in Appendix 6 shall be reported according to Tables 7, 8 and 9. The header of the data reporting file shall be composed of three parts. The first 95 lines shall be reserved for specific information about the settings of the data evaluation method. Lines 101-195 shall report the results of the data evaluation method. Lines</p>
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			<p>201-490 shall be reserved for reporting the final emission results. Line 501 and all consecutive data lines comprise the body of the data reporting file and shall contain the detailed results of the data evaluation.</p> <p>Argument: Article 3, Paragraph 10(d)(ii) requires to record the analysis of completeness and normality even if an evaluation method indicates “trip invalid” (but the other method not). In this case data availability may be restricted.</p>
RDE		Annex IIIA, Appendix 8 Table 1, Footnote 2	<p>Original text: Percentage shall indicate the deviation from the gross vehicle weight.</p> <p>Revised text: Percentage shall indicate the deviation from the gross vehicle weight according to Paragraph 5.1.2 of Annex IIIA.</p> <p>Argument: Clarification.</p>
RDE		Annex IIIA, Appendix 8 Table 2	<p>Original text (3rd column): ECU (appears in several lines of the table)</p> <p>Revised text(3rd column): ECU ⁽⁵⁾</p> <p>Additional footnote under Table 2: ⁽⁵⁾ if available</p> <p>Argument: Table 2 contains several values, the data source of which is marked as “ECU”. However the transmission of most of these values is not (or only optional) requested by the OBD regulation. Thus it cannot be anticipated that these values are</p>

			available from the ECU.
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Uncertainties:

	(Number of issue)	Annex or Appendix and Paragraph	Uncertainties
RDE		<p>Annex IIIA, Appendix 3 Section 3.2.2</p> <p>Appendix 6 Section 3.4.1</p> <p>VS.</p> <p>Appendix 5 Section 4.1</p>	<ul style="list-style-type: none"> • Confused Road Load Model situation, e.g... <ul style="list-style-type: none"> ○ Many places in RDE regs use Reg83 RLM: <ul style="list-style-type: none"> ▪ PEMS validation procedure - Appendix 3 Section 3.2.2 ▪ Power Binning de-normalisation - Appendix 6 Section 3.4.1 ○ But other places use GTR15: <ul style="list-style-type: none"> ▪ Moving Averaging Windowing CO2 characteristic curve generation - Appendix 5 Section 4.1 ▪ Power Binning VeLine definition - Appendix 6 Section 4 ○ However where GTR15 used, there's no definition of what RLM to use - TEL / TEH / value for actual vehicle being RDE tested?

RDE		Annex IIIA Appendix 7a Section 8.1.1 [3.1.1]	<p>Use of smoothed vehicle speed</p> <ul style="list-style-type: none"> • Situation w.r.t. vehicle speed smoothing for V.A+ calculation (if required due to a-res being too high) <ul style="list-style-type: none"> ◦ Appendix 7a Section 3.1.1 says that, if a smoothed vehicle speed signal is calculated, to use it for "further calculations and binning as described in Section 3.2.2) ◦ However the Binning is defined in Section 3.2.3 <p>Correction put into revised content list (see above)</p> <ul style="list-style-type: none"> ◦ And surely the smoothed vehicle speed will be used in the rest of Appendix 7a calculations ◦ AND... many other people seem to be assuming that, if a smoothed vehicle speed signal is calculated in Appendix 7a it will be used for all calculations throughout all of the RDE Regs – Annex IIIa and all Appendices... could do with better definition about whether this the intention or not?
RDE		Currently no reference	<p>Amendment of unexpected regulation issues</p> <p>During the transitional period unexpected problems in applying the RDE regulation may be revealed. Such problems could be the reason for denial of approval. Would in such cases a text update at short notice be possible?</p>