

## Proposal for a new Supplement to the Original Version and the xx series of Amendments to UN Regulation No. 154

This document aims to clarify the requirements of UN Regulation No. 154 with regards to the charge-depleting test or parts of the charge-depleting test to be performed during conformity of production. The modifications to the current text of the Regulation are marked in bold for new or strikethrough for deleted characters.

### I. Proposal

*In Main body*, amend Paragraph 8.2.4.4. to read:

"8.2.4.4. The run-in factor shall be applied to the CoP test result that is calculated according to Step 4c of Table A7/1 in Annex B7 or Step 4c in Table A8/5 of Annex B8.

**At the request of the manufacturer, the run-in factor can be applied to the CoP test result that is calculated according to Step 6, Step 9 or Step 12 of Table A8/8, Step 4 of Table A8/10, or Step 3 of Table A8/11 in Annex B8."**

*In Annex A1, Appendix 1*, amend Paragraph 2.1.1.5.1.5. to read:

"2.1.1.5.1.5. Information for COP

	<i>Combined</i>
Electric energy consumption (Wh/km) EC <sub>DC,CD,COP</sub> or EC <sub>AC,CD,COP</sub> (as applicable)	
AF <sub>EC,AC,CD</sub> (as applicable)	

"

*In Annex B8*, amend step 6 of Table A8/8 to read:

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For Level 1A 6	Output step 5	M <sub>i,CD,c</sub> , g/km; PM <sub>CD,c</sub> , mg/km; PN <sub>CD,c</sub> , particles per kilometer.	Emission averaging of tests for each applicable WLTP test cycle within the charge-depleting Type 1 test and checking compliance with the limits according to Table A6/2 of Annex B6.  <b>In the case the criteria emission values are used and required for the purpose of conformity of production, they shall be multiplied with the run-in factor determined according to paragraph 8.2.4. of this Regulation:</b> <b>M<sub>i,CD,c,COP</sub> = R<sub>ic(j)</sub> × M<sub>i,CD,c,ave</sub></b>	M <sub>i,CD,c,ave</sub> , g/km; <b>M<sub>i,CD,c,COP</sub>, g/km;</b> PM <sub>CD,c,ave</sub> , mg/km; PN <sub>CD,c,ave</sub> , particles per kilometer.
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In Annex B8, amend step 9 of Table A8/8 to read:

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<p>For Level 1A 9</p>	<p>Output step 1</p>	<p><math>\Delta E_{REESS,j}</math>, Wh;  <math>d_j</math>, km;  <math>E_{AC}</math>, Wh;</p>	<p>Calculation of the electric energy consumption based on the recharged energy according. to paragraphs 4.3.1. of this annex.</p> <p><b>In the case the value of electric energy consumption according to paragraph 5.3.1.1. of Appendix 1 to this UN regulation is used for the purpose of conformity of production, it shall be multiplied with the run-in factor determined according to paragraph 8.2.4. of this Regulation:</b>  <math>EC_{AC,CD,COP} = RI_{EC}(j) \times EC_{AC,CD}</math></p> <p><b>In the case the application of the run-in factor is not requested by the manufacturer, the value used for the purpose of conformity of production shall be set as follows:</b>  <math>EC_{AC,CD,COP} = EC_{AC,CD}</math></p> <p>In the case of interpolation, <math>n_{veh,L}</math> cycles shall be used. Therefore, due to the required correction of the CO<sub>2</sub> emission, the electric energy consumption of the confirmation cycle and its phases shall be set to zero.</p> <p>Output is available for each test.</p>	<p><math>EC_{AC,CD}</math>, Wh/km;  <math>EC_{AC,CD,COP}</math>, Wh/km;</p>
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In Annex B8, amend step 12 of Table A8/8 to read:

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12	Output step 1	$\Delta E_{REESS,j}$ , Wh; $d_j$ , km;	<p>If applicable, calculation of the electric energy consumption from the first applicable WLTP test cycle as described in paragraph 2.2. of Appendix 8 to this annex.</p> <p><b>In the case the value of electric energy consumption according to paragraph 5.3.1.2. of Appendix 1 to this UN regulation from the first applicable WLTP test cycle (j = 1) is used for the purpose of conformity of production, it shall be multiplied with the run-in factor determined according to paragraph 8.2.4. of this Regulation:</b></p> $EC_{DC,CD,first} = RI_{EC}(j) \times \frac{\Delta E_{REESS,j}}{d_j}$ <p><b>In the case the application of the run-in factor is not requested by the manufacturer, the value used for the purpose of conformity of production shall be set as follows:</b></p> $EC_{DC,CD,first} = \frac{\Delta E_{REESS,j}}{d_j}$ <p>Output is available for each test.</p>	$EC_{DC,CD,first}$ , Wh/km
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In Annex B8, amend steps 16 and 17 of Table A8/8 to read:

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16  If the interpolation method is not applied, step No. 17 is not required and the output of this step is the final result.	Output step 15	If applicable: EC <sub>DC,CD,COP</sub> , Wh/km;	In the case that the interpolation method is applied, intermediate rounding shall be performed according to paragraph 6.1.8. of this Regulation:  M <sub>CO<sub>2</sub>,CD</sub> shall be rounded to the second place of decimal.	If applicable: EC <sub>DC,CD,COP,final</sub> , Wh/km;  <b>If applicable:</b> EC <sub>AC,CD,COP,final</sub> , Wh/km;  For Level 1A, EC <sub>AC,CD,final</sub> , Wh/km; M <sub>CO<sub>2</sub>,CD,final</sub> , g/km; EC <sub>AC,weighted,final</sub> , Wh/km; FC <sub>CD,final</sub> , l/100 km;  For Level 1B, FE <sub>CD,final</sub> , km/l;
	Output step 14	EC <sub>AC,CD,declared</sub> , Wh/km; EC <sub>AC,weighted</sub> , Wh/km; FE <sub>CD,declared</sub> , km/l; M <sub>CO<sub>2</sub>,CD,declared</sub> , g/km.		
	Output step 13	FC <sub>CD,ave</sub> , l/100 km;	EC <sub>AC,CD,final</sub> and EC <sub>AC,weighted,final</sub> shall be rounded to the first place of decimal.  If applicable: EC <sub>DC,CD,COP</sub> shall be rounded to the first place of decimal.  <b>If applicable:</b> EC <sub>AC,CD,COP</sub> shall be rounded to the first place of decimal.  FC <sub>CD</sub> and FE <sub>CD</sub> shall be rounded to the third place of decimal.	
	Output step 9	<b>If applicable :</b> EC <sub>AC,CD,COP</sub> , Wh/km;	Output is available for vehicle H and for vehicle L and, if applicable, for vehicle M.  In case that the interpolation method is not applied, final rounding shall be applied according to paragraph 6.1.8. of this Regulation:  EC <sub>AC,CD</sub> , EC <sub>AC,weighted</sub> and M <sub>CO<sub>2</sub>,CD</sub> shall be rounded to the nearest whole number.  If applicable: EC <sub>DC,CD,COP</sub> shall be rounded to the nearest whole number.  <b>If applicable:</b> EC <sub>AC,CD,COP</sub> shall be rounded to the nearest whole number.  FC <sub>CD</sub> and FE <sub>CD</sub> shall be rounded to the first place of decimal.	

<p>17</p> <p>Result of an individual vehicle.</p> <p>Final test result.</p>	<p>Output step 16</p>	<p>If applicable:  <math>EC_{DC,CD,COP,final}</math>, Wh/km;</p> <p><b>If applicable:</b>  <math>EC_{AC,CD,COP,final}</math>, Wh/km;</p> <p><math>EC_{AC,CD,final}</math>, Wh/km;  <math>M_{CO2,CD,final}</math>, g/km;  <math>EC_{AC,weighted,final}</math>, Wh/km;  <math>FC_{CD,final}</math>, l/100 km;  <math>FE_{CD,final}</math>, km/l;</p>	<p>Interpolation of individual values based on input from vehicles H and L and, if applicable, vehicle M.</p> <p>Final rounding of individual vehicle values shall be performed according to paragraph 6.1.8. of this Regulation.</p> <p><math>EC_{AC,CD}</math>, <math>EC_{AC,weighted}</math> and <math>M_{CO2,CD}</math> shall be rounded to the nearest whole number.</p> <p>If applicable:  <math>EC_{DC,CD,COP}</math> shall be rounded to the nearest whole number.</p> <p><b>If applicable:</b>  <math>EC_{AC,CD,COP}</math> shall be rounded to the nearest whole number.</p> <p><math>FC_{CD}</math> shall be rounded to the first place of decimal.</p> <p>Output is available for each individual vehicle.</p>	<p>If applicable:  <math>EC_{DC,CD,COP,ind}</math>, Wh/km;</p> <p><b>If applicable:</b>  <math>EC_{AC,CD,COP,ind}</math>, Wh/km;</p> <p>For Level 1A,  <math>EC_{AC,CD,ind}</math>, Wh/km;  <math>M_{CO2,CD,ind}</math>, g/km;  <math>EC_{AC,weighted,ind}</math>, Wh/km;  <math>FC_{CD,ind}</math>, l/100 km;</p> <p>For Level 1B,  <math>FE_{CD,ind}</math>, km/l;</p>
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In Annex B8, amend step 4 of Table A8/10 to read:

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4	Output step 1	$\Delta E_{REESS,j}$ , Wh; $d_j$ , km; $UBE_{CCP}$ , Wh.	<p>Calculation of electric energy consumption at the REESSs according to paragraph 4.4.2.2. of this annex.</p> <p>Calculation of the electric energy consumption from the first applicable WLTP test cycle <math>EC_{DC,first}</math> as described in paragraph 1.2. of Appendix 8 to this annex.</p> <p><b>In the case the value of the electric energy consumption from the first applicable WLTP test cycle (<math>j = 1</math>) is used for the purpose of conformity of production, it shall be multiplied with the run-in factor determined according to paragraph 8.2.4. of this Regulation:</b></p> $EC_{DC,first} = RI_{Ec}(j) \times \frac{\Delta E_{REESS,j}}{d_j}$ <p><b>In the case the application of the run-in factor is not requested by the manufacturer, the value used for the purpose of conformity of production shall be set as follows:</b></p> $EC_{DC,first} = \frac{\Delta E_{REESS,j}}{d_j}$ <p>Output is available for each test.</p>	$EC_{DC,WLTC}$ , Wh/km; $EC_{DC,city}$ , Wh/km; $EC_{DC,low}$ , Wh/km; $EC_{DC,med}$ , Wh/km; $EC_{DC,high}$ , Wh/km; $EC_{DC,exHigh}$ , Wh/km; $EC_{DC,first}$ , Wh/km.
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## II. Justification

1. Regulation defines determination of run-in-factors for electric consumption (Main body, Appendix 3, paragraph 1.13.)

1.13. For Level 1A only:

The run-in factor  $RI_{EC}(j)$  for electric energy consumption shall be determined according to the procedure specified in paragraphs 1.9., 1.9.1. and 1.10. of this appendix, where  $CO_2$  in the formulae is replaced by EC.

For Level 1B only:

The run-in factor  $RI_{FE}(j)$  for fuel efficiency and  $RI_{EC}(j)$  for electric energy consumption shall be determined according to the procedure specified in paragraphs 1.9. (excluding paragraph 1.9.1.) and 1.10. of this appendix, where  $CO_2$  in the formulae is replaced by FE and EC respectively.

2. Regulation does not define how and where to apply the run-in-factor for electric energy consumption – but important to define the appropriate place for application.

3. As no fixed run-in-factor available for EC, application should be optional for manufacturer, so determination procedure needs only to be performed if seen necessary.

4. OICA proposal introduces the right places and the manufacturer option.

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