

**Proposal for amendments on the method to obtain k value for
test surface condition for the draft of ESC Regulation
(ECE/TRANS/WP.29/GRRF/2014/12)**

I. Proposal

Paragraph 8.2.2.2, amend to read:

8.2.2.2. The k-test method specified in ~~Annex 7 of this Regulation~~
Appendix 2 to Annex 6 of Regulation No.13-H.

Annex 7, shall be deleted.

II. Justification

1. UN GTR No.8 ESC specifies that the road test surface should be a nominal peak braking coefficient of 0.9 when it is measured by either the relevant ASTM method or the k-test method prescribed in Annex 6, Appendix 2 of UN Regulation No. 13-H.

2. On the other hand, the draft of ESC Regulation (ECE/TRANS/WP.29/GRRF/2014/12) prescribes the road test surface condition similar to that in GTR 8. However, its k-test method prescribed in Annex 7 has a simpler calculation process than the R13-H method specified by GTR 8, as shown in the following page.

3. There is indeed no need that the ESC regulation deviates from the existing reference regulations (13H and GTR8).

Comparison of ESC road test surface requirement among the relevant regulations

	GTR8 “ESC”	R13-H - Annex 9 - part A “ESC”	ESC regulation proposal (ECE/TRANS/WP.29/GRRF/2014/12)
Methods to measure PBC	<p>6.2.2. The road test surface has a <u>nominal peak braking coefficient (PBC) of 0.9</u>, unless otherwise specified, when measured using either:</p> <p>(a) The American Society for Testing and Materials (ASTM) E1136 standard reference test tyre, in accordance with ASTM Method E1337-90 without water delivery, at a speed of 40 mph; or</p> <p>(b) The method specified in <u>the Annex 6, Appendix 2 of UNECE Regulation No. 13-H</u>.</p>	<p>4.2.2. The road test surface has a <u>nominal³ peak braking coefficient (PBC) of 0.9</u>, unless otherwise specified, when measured using either:</p> <p>4.2.2.1. The American Society for Testing and Materials (ASTM) E1136 standard reference test tyre, in accordance with ASTM Method E1337-90, at a speed of 40 mph; or</p> <p>4.2.2.2. The k-test method specified in <u>Appendix 2 to Annex 6 of this Regulation</u></p> <p>3 The "nominal" value is understood as being the theoretical target value.</p>	<p>8.2.2. The road test surface has a <u>nominal⁶ peak braking coefficient (PBC) of 0.9</u>, unless otherwise specified, when measured using either:</p> <p>8.2.2.1. The American Society for Testing and Materials (ASTM) E1136 standard reference test tyre, in accordance with ASTM Method E1337-90, at a speed of 40 mph; or</p> <p>8.2.2.2. The k-test method specified in <u>Annex 7 of this Regulation</u>.</p> <p>6 The "nominal" value is understood as being the theoretical target value.</p>
Method to obtain k value	<p><u>R13-H - Annex 6 “ABS” - Appendix 2</u> Utilization of adhesion</p> <p>1.1. Determination of the coefficient of adhesion (k)</p> <p>1.2. Determination of the adhesion utilized (epsilon)</p> <p>1.2.3. The coefficient of adhesion k_M shall be determined by weighting with the dynamic axle loads.</p> $k_M = (k_f \cdot F_{fdyn} + k_r \cdot F_{rdyn}) / (P \cdot g)$ <p>where:</p> $F_{fdyn} = F_f + h/E \cdot Z_{AL} \cdot P \cdot g$ $F_{rdyn} = F_r - h/E \cdot Z_{AL} \cdot P \cdot g$		<p><u>Annex 7</u> Determination of the coefficient of adhesion (k)</p> <p>10. The coefficient k shall be the arithmetic average of k_f and k_r:</p> $k = (k_f + k_r) / 2$

This simple average method is not the same as the weighted average one prescribed in UN R13H and GTR8, which is common to ABS tests. OICA favours perfect alignment to UN R13H and GTR8.