**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**

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|  | **GTR8 “ESC”** | **R13-H - Annex 9 - part A “ESC”** | **ESC regulation proposal** (ECE/TRANS/WP.29/GRRF/2014/12) |
| Methods to measure PBC | 6.2.2. The road test surface has a nominal peak braking coefficient (PBC) of 0.9, unless otherwise specified, when measured using either:(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(b) The method specified in the Annex 6, Appendix 2 of UNECE Regulation No. 13-H. | 4.2.2. The road test surface has a nominal3 peak braking coefficient (PBC) of 0.9, unless otherwise specified, when measured using either: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; or4.2.2.2. The k-test method specified in Appendix 2 to Annex 6 of this Regulation3 The "nominal" value is understood as being the theoretical target value. | 8.2.2. The road test surface has a nominal6 peak braking coefficient (PBC) of 0.9, unless otherwise specified, when measured using either: 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 8.2.2.2. The k-test method specified in Annex 7 of this Regulation.6 The "nominal" value is understood as being the theoretical target value. |
| Method to obtain k value  | R13-H - Annex 6 “ABS” - Appendix 2 Utilization of adhesion1.1. Determination of the coefficient of adhesion (k)1.2. Determination of the adhesion utilized (epsilon)1.2.3. The coefficient of adhesion kM shall be **determined by weighting with the dynamic axle loads**.**kM = (kf･Ffdyn + kr･Frdyn)/(P･g)**where: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.Ffdyn=Ff + h/E･ZAL･P･gFrdyn=Fr - h/E･ZAL･P･g | Annex 7 Determination of the coefficient of adhesion (k)10. The coefficient k shall be **the arithmetic average of kf and kr**:  **k = (kf + kr)/2** |