

## **Proposal for Correction to ECE/TRANS/WP.29/GRRF/2013/33**

The text reproduced below was prepared by the expert from Italy to introduce editorial improvements and expansion of justification that have been identified since the submission of the formal document.

### **I. Proposed corrections**

### **IV. Justifications for the proposed amendments**

#### **B. Justification 2**

Paragraph 4.1.1.3. Measurement of PBC

*Insert new Paragraph 5.*

- (b) In some instances just before the wheel-locking condition for all-wheels during the PBC test, the following may happen to the vehicle for type approval:
- "(a) rear wheel lift due to maximum braking may cause difficulties in undertaking the PBC test.
  - (b) vehicle not getting into the wheel lock, because of reduction in brake performance (brake lever stroke reaches full stroke before wheel locking).
  - (c) For 3-wheeled motorcycles (~~E<sub>2</sub>, E<sub>4</sub>, E<sub>5</sub>~~ **3-2, 3-4, 3-5**), the PBC test is not described and it may understood that the PBC test is not possible for these vehicle types for type approvals.

**The K-method in R78-02 was designed around the ABS test. Specifically, for those motorcycles equipped with ABS, the motorcycle had to brake with more than 70% efficiency with the ABS fully cycling, relative to the maximum adhesion obtained with that same motorcycle tested without ABS (i.e. by way of the K-method). This was only applicable to vehicles of categories L1 and L3 equipped with ABS. Finally, for all other brake performance evaluations, the R78-02 specification was for a test surface "affording good adhesion".**

### **V. Proposed amendments**

"4.1.1.3 Measurement of PBC

The PBC is measured as ~~specified in national or regional legislation determined by the approval authority~~ using either:

- (a) ~~the American Society for Testing and Materials~~ **An ASTM International (ASTM) E1136-93 (Re-approved 2003)** standard reference test tyre, in accordance with ASTM

Method E1337-90 (**Re-approved 2008**), at a speed of 40 mph ~~without water delivery~~; or

- (b) the method specified in the ~~appendix to Annex 4 paragraph 5. of UNECE Regulation No. 78, 01 series of amendments~~

**Note 1: A representative vehicle may be acceptable for PBC measurement by method (b) if that vehicle has shown the same nominal PBC on both high  $\mu$  and low  $\mu$  as previously determined by method (a).**

**Note 2: PBC measurement of the surface shall be carried out at least once a year. PBC measurement shall be completed prior to testing if any major maintenance or alterations that may significantly modify the PBC have occurred since the last measurement.**

5.2. Vehicle condition

- (a) The test is applicable to vehicles categories 3-1 and 3-3.
- (b) The anti-lock system, **if fitted**, shall be inoperable between 40 km/h and 20 km/h.
- (d) Brake actuation force:

The control force that achieves the maximum vehicle deceleration rate as defined in paragraph ~~6~~ **5.1. (c)**.

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