

Comment of The Netherlands on document TRANS/WP.29/GRRF/2005/18 from 3 August 2005

Reply on behalf of the informal group:

Par. 4.1.2.

The reason to restrict the ambient temperature is unclear. The road surface should afford good adhesion. That is possible even with temperatures below 0 °C.

Par. 4.1.1.1 states that the surface shall have a nominal peak friction coefficient of [0,9 **or less**]. That text is no obstacle to do a test below 0 °C.

Proposal: use the following text: "the ambient conditions shall not affect the friction coefficient"

A compromise could be the text: "The ambient temperature shall not exceed 38 °C"

We realise that by specifying a minimum ambient temperature, this could restrict the testing period for countries that have cold winters. However, we believe that it is important to reduce the possibility of frost or ice forming on the surface when the temperature is around zero degrees. This is to improve test repeatability and protect the test rider from losing control – a situation that is even more important during ABS low friction tests. You will note that the upper limit has now been increased to 45 degrees C. This is in answer to a request from India.

Par. 4.2.3.

The text describes the exact spot where the force must be applied. That is not practical because the force is applied by a hand and therefore is not applied at an exact point.

Proposal: use the following text: "The centre of the applied input force shall be located 50 mm from the outermost point of the lever, ...".

Strictly speaking you are correct. However, we believe that the text in the gtr, which is taken from the current ISO Motorcycle braking standards and ECE R78, is clear and therefore should not be modified.

Par. 4.2.5.

The prescribed vehicle deceleration for the categories 3-1, 3-2 and 3-5, 3.0 to 3,5 m/s², front wheel braking only, are higher than the performance requirements for those categories (par 4.3.3).

Firstly, please note that the burnishing test is with a lightly laden vehicle whereas the normal braking tests in 4.3.3 are fully laden and so the braking performance will be easier to achieve. However, the latest version of the gtr does deal with your comment by specifying a lower deceleration for lightweight 3-1 and 3-2 category vehicles. 3-5 vehicles have not been changed because they are larger vehicles and their requirements in 4.3.3 are actually higher than the burnishing deceleration requirement.

Par. 4.6.1.

- "The test comprises two parts that shall be carried out consecutively for each brake system"

The reason why a vehicle with three symmetrically wheels should do the wet performance test is unclear. It is not required in R78 and those three wheeled vehicles can be compared to vehicles with four wheels. Wet performance is not a point in R13.

We believe that the test should be carried out by all vehicle types. Unlike passenger cars, 3 wheelers sometimes have motorcycle type wheels with exposed disc brakes which should be tested. Also, FMVSS requires that 3 wheeled motorcycles be subjected to a wet brake test.

- "Drum brakes are exempt from this test unless ventilation or open inspection ports are present".

The text is unclear; vehicles with drum brakes, or disc brakes, protected against incoming waterspray don't need to carry out the wet performance test.

We agree and the latest gtr states "drum brakes or **fully enclosed disc brakes** are exempt from this test unless ventilation or inspection holes are present"

Par. 4.6.5.

The prescribed procedure for the wet brake stop is very difficult, if not impossible. To adjust the required control force within half a second is nearly impossible.

The wet brake test is taken directly from ECE R78/JSS 12-61 which is currently in use. Some minor procedural changes to improve test repeatability and a general revision of the text have been incorporated into the latest version of the gtr. Although the procedure may be difficult to execute, as with any test procedure, the actual degree of difficulty will vary with the experience and knowledge of the test facility.

During the baseline test the control force to generate the required deceleration is determined between 80% and 10% of the initial speed. That is generally more than 1 second after brake control application.

The baseline test, carried out with dry brakes, is only to determine the **amount** of force to be applied to the control lever once the brakes have been wetted for the Wet brake stop.

The purpose of the wet performance test is to assure that the characteristic of the brake does not change too much shortly after applying the brakes when they are wet.

We consider that a minimum vehicle deceleration should be specified immediately after the brakes have been applied – this was the original concept of the ECE Wet brake test. Also, brake over recovery is checked for the majority of the stop. Members of the informal group were in favour of the rationale behind the ECE test and therefore, we believe that the gtr should not be modified.

Proposal;

- the baseline test; determination of the control force necessary to generate a deceleration of 2,5 - 3 m/s² between [85%] and [70%] of the initial speed,

- the wet performance test; assessment of the deceleration between [85%] and [70%] of the initial speed using the same control force as in the baseline test.

Par. 4.9.3.2.

- The requirement for the ABS-test, on high-mu surface, mentioned in par 4.9.3.2 is too low.

R78 requires 70% of the maximum theoretical achievable deceleration, i.e. the k-value (R78 Annex 4 par 4.1.1).

Par. 4.9.3.2 requires only 70% of the **minimum** requirement for the dry stop test. That is not acceptable.

Proposal: "with the ABS cycling the minimum requirement for the dry stop test must be fulfilled."

Justification; similar to the PVGTR requirement for ABS on a high-mu surface.

- In addition to the above mentioned requirement a low-mu performance should also be part of the requirements. An ABS that reduces the brake force in such a way that there is hardly any brake force at all can be dangerous.

An alternative for the current procedure as meant in R78 could be to require a minimum deceleration or stopping distance on a low-mu surface. The required stopping distance can be related to the pfc-value. The pfc value can be assessed according to ASTM.

A minimum stopping distance on a low mu surface has to be one of the requirements.

The problems with a required stopping distance on low- μ surface are basically the same as on a high- μ surface. If the difference between the requirement and the achievable deceleration is large enough problems are not to be expected.

In general we are in agreement with your comments regarding ABS stopping performance requirements. We believe that your concerns have been addressed with the latest version of the gtr (Informal doc. 59-24) where the stopping performance requirements are linked to the test surface frictions.