

Japan's comments on Motorcycle gtr Transmitted by Japan

A. Proposal

1. Scope, amend to read;

CATEGORY	DESCRIPTION
3-1	2 wheels, engine < 50cc and max speed < 50 km/h
3-2	3 wheels, engine < 50cc and max speed < 50 km/h
3-3	2 wheels, engine > 50 cc or max speed > 50 km/h
3-4	3 wheels – symmetrical, engine > 50 cc or max speed > 50 km/h .
3-5	3 wheels – asymmetric, engine > 50 cc or max speed > 50 km/h (motorcycle + sidecar)

2. Definitions (page 2 Para.6), deleted

Initial Brake Temperature means the temperature of the hottest brake ~~0.32 km~~ before any brake application.

Insert new paragraph:

Servo means ...

3. GENERAL REQUIREMENTS

Paragraph 3.1.4., deleted

~~3.1.4 Where 2 separate service brake systems are installed, there may be a common brake provided failure in 1 system does not affect the performance in the other.~~

4. TEST CONDITIONS, PROCEDURES AND PERFORMANCE REQUIREMENTS.

Paragraph 4.1.1.1., amend to read,

4.1.1.1 Dynamic brake tests (excluding low friction ABS tests):

The test area shall have a clean, dry and level surface, with a gradient $\leq 1\%$

The surface shall have a nominal peak friction coefficient (PFC) of 0.9 ~~or less~~, unless otherwise specified.

Paragraph 4.1.4., deleted

~~4.1.4 Tolerances:~~

~~Unless otherwise specified, a general tolerance of $\pm 10\%$ shall be applied to all test parameters.~~

Paragraph 4.4.3., amend to read,

4.4.3 Performance requirements

When the brakes have been tested in accordance with the test procedure in 4.4.2, the stopping distance (S) shall be: ~~$\leq 0.1 V + 0.0051V^2$~~

~~[where V is the specified test speed in km/h and S is the corrected stopping distance in metres]~~

Insert "Table I--Stopping Distances for Effectiveness, Fade and Partial System Tests" from FMVSS 122 with necessary modification including deleting unnecessary values and converting units.

Paragraph 4.7.5., in third line, the formula should be

If based on stopping distance, ~~$S_{hs} \leq 0.1 V_{hs} + 0.0386 V_{hs}^2$~~

$$\frac{0.6 \times 0.386 V_{hs}^2}{S_e = 0.1}$$

~~V_e~~

The formula seems correct, however, it needs to be written more precisely.

Paragraph 4.9.4., commented, see **B. Justification**,

4.9.4 Stops on a low friction surface:

Repeat section 4.9.3 but using the low friction surface instead of the high friction one and without measuring stopping distance or MFDD. *Needs performance requirements.*

Paragraph 4.11., commented, see **B. Justification**.

Paragraph 4.11.3., amend to read,

4.11.3 Performance requirements

- When the brakes have been tested in accordance with test procedure 4.11.2: Stopping distance (S) shall be $\leq 0.1 V + V^2 / 65$
[where V is the specified test speed in km/h and S is the corrected stopping distance in metres]
or the MFDD shall be **$[\geq 2.5 \text{m/s}^2]$**

B. Justification

1. Scope

The order of items should interface with SR1, which is agreed in the last session of the WP.29.

2. Definitions (page 2 Para.6)

Meaning of the sentence is not understandable with “0.32km.”.

New paragraph:

The term “servo” needs its definition.

3. GENERAL REQUIREMENTS

Paragraph 3.1.4.

It is not clear for which type of brake systems this provision would be applied for.

4. TEST CONDITIONS, PROCEDURES AND PERFORMANCE REQUIREMENTS.

Paragraph 4.1.1.1.

The word “or less” may lead to misunderstanding. Please delete.

Paragraph 4.1.4

The sentence is confusing. Please delete.

Paragraph 4.4.3.

The formula is an approximate expression of its original requirement in FMVSS only at the test speed of 100km/h. A correlation table of FMVSS 122(Table1) and the formula is indicated below. As the correlation table shows, discrepancy between them get bigger as the speed get lower. This might cause a problem when a vehicle is tested with speed of 0.9Vmax. So, Table 1 in FMVSS122 with proper modification (such as extracting necessary value and converting units) is considered reasonable and proper.

V(km/h)	S(m)	
	Value from FMVSS Table (converted to metric)	Value Calculated from Draft GTR Formula
48.3	13.1	16.7
56.4	17.7	21.8
64.4	22.9	27.6
72.5	29.0	34.0
80.5	39.0	41.1
88.6	47.3	48.8
96.6	56.4	57.3
100.0	60.5	61.0

Paragraph 4.7.5

The formula is confusing. Please refine as follows;

$$S_{hs} \leq 0.1 V_{hs} + \frac{0.0386 V_{hs}^2}{0.6 \cdot \frac{0.0386 V_c^2}{S_c - 0.1 V_c}}$$

Paragraph 4.9.4.

It needs to include performance requirement.

Paragraph 4.11.3.

The value needs further discussion.