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## Proposal to amend Regulation No. 179, original series

This document proposes to amend the original series UN Regulation No. 179. A Working Document will be submitted for adoption during the 95<sup>th</sup> GRPE session in October 2026.

The modifications to the current text of the Regulation are marked in bold for new or strikethrough for deleted characters.

### I. Proposal

Paragraphs 7.2.2. and 7.2.3., amend to read:

"7.2.2. Brake Corner Emissions Family Parent

For all vehicles with an identical brake assembly as described in paragraph 7.2.1., the vehicle with the highest product of friction braking share coefficient (*c-factor* fixed as of Table 4 or vehicle specific as of Annex 5) and test wheel load as defined in paragraph 3.1.14. ( $WL_t * c$ ) shall be selected as the parent of the brake corner emissions family.

The product of the friction braking share coefficient and test wheel load shall be used only to identify the brake corner emissions family parent and not as input parameter when testing the brake assembly for its emissions.

The friction braking share coefficient for each vehicle electrification type in the scope of this Regulation is given in Table 4. If the product of the test wheel load and the friction braking share coefficient is the same for two or more vehicles of the same brake corner emissions family, the manufacturer shall select the vehicle with the smallest tyre dynamic rolling radius as the brake corner emissions family parent.

**At the request of the manufacturer and in agreement with the Type Approval Authority, the highest test wheel load among vehicles with an identical brake assembly as described in paragraph 7.2.1. may be selected as input parameter when testing the brake assembly for its emissions. In this case, the emission factor  $EF_{FA,ref}$  or  $EF_{RA,ref}$  and wheel load  $WL_{FA,ref}$  or  $WL_{RA,ref}$  from this test, shall be considered as the reference parameters to be used in Eq. 7.2 and Eq. 7.3.**

At the request of the manufacturer the wheel load of the dedicated brake corner emission family parent may be increased to cover wheel load increases or wheel load uncertainties of future vehicles of the same type or friction braking share coefficient variances. The brake corner shall then be tested on the brake component test stand with this increased wheel load. The test wheel load multiplied by the friction braking share coefficient of any member of the brake corner emissions family shall not be more than 10 % of the original parent product value. This increased value will become the new determining parent product value.

Table 4

#### Friction braking share coefficients for all vehicle electrification types

Brake type	Vehicle Electrification Type	Friction Braking
		Share Coefficient ( $c_{fix}$ )
Full-friction braking	ICE and other vehicle electrification types not covered in the non-friction braking categories in this Table	1.0

<i>Brake type</i>	<i>Vehicle Electrification Type</i>	<i>Friction Braking Share Coefficient (<math>c_{fix}</math>)</i>
Non-friction braking*	NOVC-HEV Cat. 0 **	0.90
	NOVC-HEV Cat. 1	0.72
	NOVC-HEV Cat. 2	0.52
	OVC-HEV	0.34
	PEV	0.17

\*Note: Testing facilities may use vehicle-specific friction braking share coefficients measured and calculated according to Annex 5 of this Regulation, except for NOVC-HEV Cat. 0.

\*\*Note: NOVC-FCHV and OVC-FCHV vehicle electrification types shall be considered as NOVC-HEV Cat. 0 for the purpose of this table."

### "7.2.3. Brake Corner Emissions Family Testing

The brake assembly of original and original replacement brake systems shall be tested on the test stand using the test wheel load, as described in paragraph 8.1. of Annex 4, corresponding to the brake corner emissions family parent.

Original and original replacement brake parts (discs, pads, drums, shoes) shall be tested on the test stand coupled with the corresponding original brake part (e.g. an original brake pad shall be used to test an original replacement brake disc). The test wheel load, as described in paragraph 8.1. of Annex 4, that corresponds to the brake corner emissions family parent shall be applied. **In case in an existing brake corner emissions family a new parent shall be defined due to higher product of  $WL_i * c$ , if the test wheel load of the new family parent is lower than the test wheel load of the existing family parent, brake corner emissions testing with the test wheel load of the new family parent may be omitted.**

The final brake PM and PN emission factors for the brake corner emissions family parent are calculated after multiplying the reference PM and PN emissions of the tested brake with the friction braking share coefficient of the brake corner emissions family parent vehicle as described in paragraphs 12.1.5. and 12.2.4. of Annex 4, respectively."