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Item 4.8.1 of the provisional agenda

1958 Agreement:

Consideration of draft amendments to existing

UN Regulations submitted by GRVA

Proposal for Supplement 5 to the 03 series of amendments to UN Regulation No. 79 (Steering equipment)

Submitted by the Working Party on Automated/Autonomous and Connected Vehicles *

The text reproduced below was adopted by the Working Party on Automated/Autonomous and Connected Vehicles (GRVA) at its eighth session (ECE/TRANS/WP.29/GRVA/9, para. 49). It is based on ECE/TRANS/WP.29/GRVA/2021/9 as amended in session (GRVA-09-30). It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee (AC.1) for consideration at their June 2021 sessions.

* In accordance with the programme of work of the Inland Transport Committee for 2021 as outlined in proposed programme budget for 2021 (A/75/6 (part V sect. 20) para 20.51), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



Renumber paragraph 2.3.4.18. to paragraph 2.4.18.

Paragraph 5.6.4.1.2, amend to read:

"5.6.4.1.2. When the ACSF of Category C is in standby mode, the ACSF of Category B1 shall aim to centre the vehicle in the lane, unless a different position in lane is deemed reasonable due to the situation or resulting from driver input (e.g. when another vehicle is driving close beside).

This shall be demonstrated by the vehicle manufacturer to the Technical Service during type approval."

Paragraph 5.6.4.2.3., amend to read:

"5.6.4.2.3. The system shall ...

... These conditions shall be ensured by the use of at least two independent means.

In the case of a transition from a road type with a classification permitting an ACSF of Category C, to a type of road where an ACSF of Category C is not permitted, the system shall be deactivated automatically (off mode), unless a missing second lane in driving direction is the only condition not fulfilled from the above (e.g. a connector between two highways)."

Paragraph 5.6.4.3., amend to read:

"5.6.4.3. Overriding

A steering input by the driver shall override the steering action of the system. The steering control effort necessary to override the directional control provided by the system shall not exceed 50 N.

The system may remain active, provided that priority is given to the driver during the overriding period."

Paragraph 5.6.4.7., amend to read:

"5.6.4.7. Critical situation

A situation is deemed to be critical when, at the time a lane change manoeuvre starts, an approaching vehicle in the target lane would have to decelerate at a higher level than 3m/s^2 , 0.4 seconds after the lane change manoeuvre has started, to ensure the distance between the two vehicles is never less than that which the lane change vehicle travels in 1 second.

The resulting critical distance at the start of the lane change manoeuvre shall be calculated using the following formula:

$$S_{critical} = (v_{rear} - v_{ACSF}) * t_B + (v_{rear} - v_{ACSF})^2 / (2 * a) + v_{ACSF} * t_G$$

Where:

v_{rear} is The actual speed of the approaching vehicle or 130 km/h whatever value is lower

v_{ACSF} is The actual speed of the ACSF vehicle

a = 3 m/s^2 (Deceleration of the approaching vehicle)

t_B = 0.4 s (Time after the start of the lane change manoeuvre at which the deceleration of the approaching vehicle starts)

t_G = 1 s (Remaining gap of the vehicles after the deceleration of the approaching vehicle)."

Annex 8

Paragraph 2., amend to read:

"2. Testing conditions

The tests shall be performed on a flat, dry asphalt or concrete surface affording good adhesion. The ambient temperature shall be between 0 °C and 45 °C.

At the request of the manufacturer and with the agreement of the Technical Service tests may be conducted under deviating test conditions (suboptimal conditions, e.g. on a not dry surface; below the specified minimum ambient temperature), whilst the performance requirements are still to be met."

Paragraph 3.5.1.2., amend to read:

"3.5.1.2. The requirements of the test are fulfilled if:

- (a) The lateral movement towards the marking does not start earlier than 1 second after the lane change procedure was initiated,
 - (b) The lateral movement to approach the lane marking and the lateral movement necessary to complete the lane change manoeuvre are completed as one continuous movement,
[...]
 - (j) The direction indicator is deactivated not before the end of the lane change manoeuvre and no later than 0.5 seconds after ACSF of Category B1 has resumed, in case the lateral movement is initiated automatically and the direction indicator control was not fully engaged (latched position) during the lane change manoeuvre."
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