

Additional proposal for a supplement to UN Regulation No. 140 (Electronic Stability Control: ESC)

I. Proposal (to amend the steering wheel angle condition of the responsiveness requirement)

Paragraph 7., amend to read:

“7. Performance requirements

During each test performed under the test conditions of paragraph 8. and the test procedure of paragraph 9.9., the vehicle with the ESC system engaged shall satisfy the directional stability criteria of paragraphs 7.1. and 7.2., and it shall satisfy the responsiveness criterion of paragraph 7.3. during each of those tests conducted with a commanded steering wheel⁵ angle of 5A or greater but limited as per paragraph 9.9.4., where A is the steering wheel angle computed in paragraph 9.6.1.

Notwithstanding the above, the responsiveness criterion is deemed to be satisfied also for systems where the maximum operable steering wheel angle defined in paragraph 9.9.4. and the lateral displacement prescribed in paragraph 7.3. are achieved at a commanded steering wheel angle less than 5A.

Where a vehicle has been physically tested in accordance with paragraph 8., the compliance of versions or variants of that same vehicle type may be demonstrated by a computer simulation, which respects the test conditions of paragraph 8. and the test procedure of paragraph 9.9. The use of the simulator is defined in Annex 1 to this Regulation.”

II. Justification

The major reason of this proposal is the same as that of ECE/TRANS/WP.29/GRVA/2020/12.

Future vehicles equipped with an improved steering system e.g. steering-by-wire system may also be unable to reach the steering wheel angle amplitude of 5A specified in the ESC responsiveness requirement, because of its significantly quick steering characteristics.

It is also necessary to amend the steering wheel angle condition of the responsiveness requirement in addition to the maximum steering wheel angle value for the tests, so that future beneficial steering systems may not be jeopardized.