United Nations ECE/TRANS/WP.29/GRVA/2025/31

Economic and Social Council

Distr.: General
8 April 2025

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on Automated/Autonomous and Connected Vehicles

Twenty-second session
Geneva, 24 June 2025
Item 6(a) of the provisional agenda
Advanced Driver Assistance Systems:
Driver Control Assistance Systems

Proposal for a supplement to the original version of UN Regulation No. 171 on uniform provisions concerning the approval of vehicles with regard to Driver Control Assistance Systems (DCAS)

Submitted by the expert from United Kingdom of Great Britain and Northern Ireland, and Germany *

It was prepared by the experts from the United Kingdom of Great Britain and Northern Ireland, and Germany to remove superfluous references to system-initiated manoeuvres in UN Regulation No. 171. It is based on informal document GRVA-21-53 that was presented at the twenty-first session of the Working Party on Automated/Autonomous and Connected Vehicles (GRVA). The modifications to the existing text of the Regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2025 as outlined in proposed programme budget for 2025 (A/79/6 (Sect. 20), table 20.6), 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.

I. Proposal

Paragraphs 8. and 9. of the Introduction, amend to read:

"8. Depending on the use case, some DCAS may be able to ~~initiate~~ **propose** driving manoeuvres. ~~When manoeuvres are initiated by the system, the~~ **The** system shall ~~be designed to follow the~~ **aim not to propose manoeuvres that would violate** national traffic rules. ~~However, when~~ **When** manoeuvres are initiated by the driver, DCAS only assists the driver in operating the vehicle without ensuring compliance with national traffic rules. In either case, the responsibility remains with the driver.

9. It is recognized that operation in compliance with traffic rules related to driver-confirmed ~~or system-initiated~~ manoeuvres might not be fully achievable due to the complexity and variety of rules across the different countries of operation. The driver's continued involvement in the driving task is deemed to compensate for this."

Paragraph 5.3.7.2.1.1., amend to read:

"5.3.7.2.1.1. A manoeuvre shall only be initiated if the driver is not detected to be disengaged, and

(a) has commanded the system to perform the manoeuvre for a driver-initiated manoeuvre; or

(b) has acknowledged the system's intention as needed for a driver-confirmed manoeuvre~~; or~~

~~(c) is given sufficient notice to react for a system-initiated manoeuvre~~."

Paragraph 5.3.7.2.4., amend to read:

"5.3.7.2.4. General requirements for system-initiated manoeuvres

Systems that include any feature that performs system-initiated manoeuvres are not permitted to be approved to this Regulation ~~The requirements of this paragraph and its subparagraphs apply to the feature(s) capable of performing system-initiated manoeuvres~~.

~~5.3.7.2.4.1. (Reserved)~~"

Paragraph 5.3.7.3.2., amend to read:

"5.3.7.3.2. Where the system is equipped with a driver-confirmed ~~or system-initiated~~ lane change feature, the RMF shall be capable of performing lane changes, in compliance with the technical requirements for systems with the purpose of bringing the vehicle to a safe stop outside its own lane of travel of the 04 or later series of amendments to UN Regulation No. 79, during an intervention on a highway to bring the vehicle towards a target stop area in a slower or emergency lane."

Paragraph 5.5.4.1.1., amend to read:

"5.5.4.1.1. The system shall inform or warn the driver about:

(a) The status of the system or feature: 'stand-by' mode (if applicable), 'active' mode;

(b) An ongoing manoeuvre;

(c) The need for the driver to perform a specific action (e.g. apply control, check indirect vision devices);

(d) If while in 'active' mode the system has detected to have reached a currently relevant system boundary, unless already indicated by (a);

(e) A detected upcoming system boundary;

(f) Detected failures affecting the system or its features, unless the system is in 'off' mode;

(g) Intended driver-confirmed ~~or system-initiated~~ manoeuvres."

Paragraph 5.5.4.1.9., amend to read:

"5.5.4.1.9. **(Reserved)** ~~System Messages and Signals for System-Initiated Manoeuvres~~

~~5.5.4.1.9.1. The provisions 5.5.4.1.8. shall equally apply. Where possible, information shall be provided at least 3 seconds ahead of a relevant intended manoeuvre.~~

~~5.5.4.1.9.2. (Reserved)~~"

Paragraph 6.2.9.2., amend to read:

"6.2.9.2. **(Reserved)** ~~Additional requirements for system-initiated lane changes~~

~~6.2.9.2.1. (Reserved)~~"

Tables in Paragraphs 9.1.1. and 9.1.2., remove row with "System-initiated lane change" in first column:

"9.1.1. Specific features according to the classification of paragraph 6 that the system possesses.

The manufacturer is to confirm with an “x” or “Not Applicable” what domain the feature can operate in, and complete the table as necessary:

Feature	*System Minimum Speed*	*System Maximum Speed*	*Other relevant preconditions for activation (e.g., lane width, type of road, time of day, weather conditions)*
Positioning in the lane of travel			
Driver-initiated lane change (*Please specify variants if any*)			
Driver-confirmed lane change (*Please specify variants if any*)			
Other manoeuvres (*Please specify variants if any*)			
~~System-initiated lane change~~			
(*To be completed by the manufacturer*)			

9.1.2. Domains (highway or non-highway), in which the system provides certain types of assistance as classified under paragraph 9.1.1.

The manufacturer is to confirm with an “x” or “Not Applicable” what domain the feature can operate in, and complete the table as necessary:

Feature	*Non-Highway*	*Highway*
Positioning in the lane of travel		
Driver-initiated lane change (*Please specify variants if any*)		
Driver-confirmed lane change (*Please specify variants if any)*		
Other manoeuvres (*Please specify variants if any*)		
~~System-initiated lane change~~		
(*To be completed by the manufacturer*)		

"

Paragraph 2.1.8. of Appendix 2 to Annex 3, delete:

"~~2.1.8. Timings and strategy to inform the driver about a (series of) system initiated manoeuvre(s) (5.5.4.1.9.1.)~~"

Paragraphs 3. and 4. of Appendix 4 to Annex 3, amend to read:

"3. System's ability to ensure safe operation when assisting lane changes (applicable to ~~both~~ driver-**initiated** ~~and system-initiated~~ lane changes)

The manufacturer shall declare the range at which the system is able to respond to other unobstructed targets if equipped with lane change feature. The manufacturer shall declare the conditions under which the maximum range is reduced:

	Rear (m)	*Front (m)*	*Side (m)*	*Conditions*
Range at which the system is able to respond to a motorcycle				
Range at which the system is able to respond to a blocked target lane	Not applicable		Not applicable	
Types of obstacles the vehicle is able to respond to (*To be completed by the manufacturer*)	Not applicable		Not applicable	

4. The system's ability to safely perform other driver-initiated ~~or system-initiated~~ manoeuvres in non-highway environments without driver intervention, alternatively indicated as "Not Applicable":

	Will the system be able to avoid a collision in this scenario?	*Preconditions under which the system will be able to avoid a collision*
Pedestrian target crossing into the path of the VUT in an intersection (Annex 4, par. 4.2.5.2.11.1.)		
Bicycle target crossing into the path of the VUT in an intersection (Annex 4, par. 4.2.5.2.12.1.)		
VUT turns across a path of an oncoming vehicle (Annex 4, par. 4.2.5.2.13.1.)		
VUT crosses the straight path of a vehicle target in an intersection (Annex 4, par. 4.2.5.2.14.1.)		

"

Table A4/1 of Annex 4, amend to read:

"Table A4/1
Requirements and system aspects to be tested

Requirements or system aspect to be assessed	*Physical test scenario or audit*	*Reference in main text*
Driver Information, Driver Disengagement and Warnings to the Driver	Annex 3 4.1.1.	Paras. 5.1.1. and 5.5.4.
System Assurance of Absence of Driver Disengagement	Annex 3 4.1.1.	Paras. 5.1.2. and 5.5.4.2.

Requirements or system aspect to be assessed	*Physical test scenario or audit*	*Reference in main text*
Reasonably foreseeable misuse	Annex 3 4.1.1.	Para. 5.1.3.
System override	Annex 3 4.1.1.	Paras. 5.1.4. and 5.5.3.4.
Equivalent performance of other safety systems (UN Regulations No. 131, No. 152, No. 79 and No. 130)	4.2.5.2.1.1 4.2.5.2.2.1. 4.2.5.2.3.1. 4.2.5.2.4. 4.2.5.2.8.1. 4.2.5.2.9.1. 4.2.5.2.10.1. 4.2.5.2.11.1.	Para. 5.1.5.
Functional requirements	*	Para. 5.3.
Assessment and response to surroundings as required for the functionality	4.2.5.2.5.1. 4.2.5.2.6.1.	Para. 5.3.2., 5.3.7.1.2.
Vehicle behaviour in traffic (Avoid disruption of traffic flow, maintain appropriate distance from other road users, reduce risk of collision, deceleration/acceleration, traffic rules, headway distance)	4.3.1. 4.3.2.	Paras. 5.3.4., 5.3.7.2., 5.3.7.5., 5.4.2.,
Activating relevant vehicle systems	Annex 3 4.1.1.	Para. 5.3.3.
Detecting and Reaching DCAS boundaries	Annex 3 4.1.1.	Paras. 5.3.5., 5.3.7.1.4.
Controllability	Annex 3 4.1.1.	Para. 5.3.6.
Positioning in the lane of travel	4.2.4. 4.2.5.1.1.	Paras. 5.3.7.1., 6.1.
Driver-initiated manoeuvres	4.2.5.1.2.	Para. 5.3.7.2.2.
Driver-confirmed manoeuvres	4.2.5.1.2.	Para. 5.3.7.2.3., 5.5.4.1.8.
~~System-initiated manoeuvres~~	~~4.2.4.~~ ~~4.2.5.1.1.~~	~~Para. 5.3.7.2.4.,~~ ~~5.5.4.1.9.~~
Driver unavailability response	*	Para. 5.3.7.3.
Speed limit assistance	4.3.	Para. 5.3.7.4.
Failure response	*	Para. 5.4.
DCAS operation, driver interaction and driver information	*	Para. 5.5.
Lane change	*	Para. 6.2.
Driver-confirmed lane changes	*	Para. 6.2.9.1.
~~System-initiated Lane Change~~	~~4.2.4.~~	~~Para. 6.2.9.2.~~

Requirements or system aspect to be assessed	*Physical test scenario or audit*	*Reference in main text*
	~~4.2.5.1.1.~~	
Other manoeuvres	4.3.3.	Para. 6.3.

* Scenarios and test procedures for these items shall be agreed between the manufacturer and the Type Approval Authority."

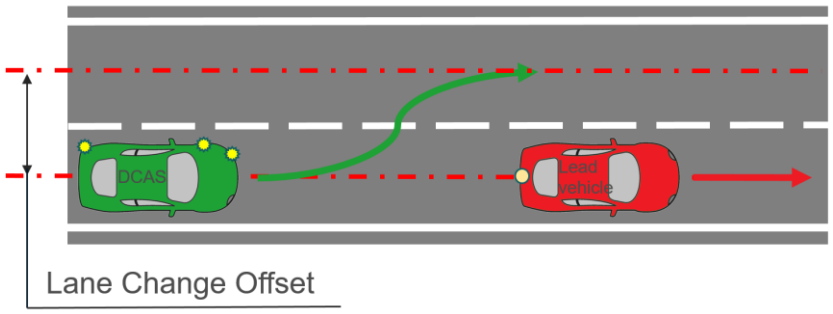
Paragraph 4.2.5.1.3. of Annex 4, amend to read:

"4.2.5.1.3. ~~System-initiated lane changes~~ **(Reserved)**

~~4.2.5.1.3.1. Base Test: The test shall confirm system-initiated lane-changing capabilities declared by the manufacturer.~~

~~4.2.5.1.3.1.1. The VUT shall perform a full lane change (e.g., 3.5 m lateral displacement) into the adjacent lane after the system has initiated the LCP.~~

~~4.2.5.1.3.1.2. The VUT and the lead vehicle shall travel in a straight line, in the same direction, for at least two seconds prior to the functional part of the test with a VUT to lead vehicle centreline offset of not more than 1 m.~~



~~4.2.5.1.3.2. Extended Testing: The test shall demonstrate that the system is able to assist the driver in changing lanes safely:~~

~~(a) With other speed differences between the lead vehicle and VUT;~~

~~(b) On roads without physical separation; and/or~~

~~(c) On roads where pedestrians and cyclists are not prohibited.~~

~~4.2.5.1.3.2.1. The test shall be executed at least:~~

~~(a) On a road with oncoming or overtaking traffic in the target lane;~~

~~(b) With different road users approaching from the rear;~~

~~(c) With a vehicle driving beside in the adjacent lane preventing a lane change;~~

~~(d) In a scenario where the system reacts to another vehicle that starts changing into the same space within the target lane, to avoid a potential risk of collision.~~"

Paragraph 4.3.3. of Annex 4, amend read:

"4.3.3. Test scenarios to assess the behaviour of the system in other ~~driver- or system-~~ **driver-**initiated manoeuvres

4.3.3.1. Public road verification shall include the test scenarios in the table below to assess the behaviour of the system under normal real-world operating conditions.

The routing shall be planned such that it incorporates the test scenarios, which are relevant according to the declaration of the manufacturer in Annex 3 of this UN regulation.

The test plan created by the Type Approval Authority shall cover the scenarios to assess the specific capability in a variety of circumstances.

4.3.3.2. Evidence of the system's behaviour in any type of scenario which are relevant according to the declaration of the manufacturer in Annex 3 of this UN Regulation shall be additionally provided by the manufacturer (e.g., based on virtual testing).

Category	*Type of scenario*	*Specific reference requirements (non-exhaustive list)*
Other manoeuvres	Lead the vehicle to select a lane	Paras. 6.3.1. – 6.3.9.4.
	Enter into a roundabout or take an exit when navigating through a roundabout	
	Lead the vehicle to leave its lane of travel when this manoeuvre is not a lane change	
	Lead the vehicle to take a turn	
	Lead the vehicle to depart or arrive at a parked position	
~~Other system-initiated manoeuvres~~	~~Lead the vehicle to select a lane~~	~~(Reserved)~~
	~~Enter into a roundabout or take a specific exit when navigating through a roundabout~~	
	~~Lead the vehicle to leave its lane of travel when this manoeuvre is not a lane change~~	
	~~Lead the vehicle to take a turn~~	
	~~Lead the vehicle to depart or arrive at a parked position~~	

"

II. Justification

1. In the development of the original series of amendments to UN Regulation No. 171 the inclusion of system-initiated manoeuvres was being considered as part of the proposal until the penultimate session of GRVA (17th session). When it was agreed to delay system-initiated manoeuvres till another phase some placeholders for provisions were already in place and it was expected that the detailed requirements would be introduced through a supplement. However, the system-initiated manoeuvres were introduced in a new series of amendments which has meant that some of the text concerning system-initiated manoeuvres still remains in the original series.

2. To avoid any confusion over whether system-initiated manoeuvres are considered part of the original series, given that a lack of requirements may not be interpreted as a prohibition, this proposal is looking to remove any reference to system-initiated manoeuvres. It also explicitly states that any system which has a feature that includes such behaviour is not able to be type approved under the original series of amendments. This does not affect those approved to the 01 series of amendments since the provision introduced here does not reside in that version.