

Proposal for amendments to ECE/TRANS/WP.29/GRVA/2019/21

I. Proposal

Amend paragraph 2.3.4.4., to read:

"2.3.4.4. "Remote Control Manoeuvring (RCM)" means a function actuated by the driver that provides direct control on steering angle, acceleration, and deceleration for low speed manoeuvring. The actuation is made by a remote-control **device** in close proximity to the vehicle."

Insert a new paragraph 5.7.1.1., to read:

5.7.1.1. The RCM function shall consist of software and hardware on a vehicle that enables the vehicle to be manoeuvred remotely, and an actuator that operates the function located on a separate remote-control device.

Renumber paragraph 5.7.1.1. (old) to 5.7.1.2. and amend, to read:

5.7.1.2. The **RCM function system** shall be active only after a deliberate action of the driver and if the conditions for operation of the system are fulfilled (all associated functions – e.g. brakes, accelerator, steering, camera/radar/lidar are working properly).

Renumber paragraph 5.7.1.2. (old) to 5.7.1.3. and amend, to read:

5.7.1.3. **The RCM function shall only operate if there is a** ~~A~~ continuous actuation of a dedicated button/switch on the remote-control device by the driver ~~is required during the manoeuvre~~. Another button/switch on the remote-control device may be used to control the manoeuvring of the vehicle.

Renumber paragraph 5.7.1.3. (old) to 5.7.1.4. and amend, to read:

5.7.1.4. Whenever the ~~system~~ **RCM function is becomes-operated**, this shall be indicated to the driver by an optical signal at least at the remote-control device.

Renumber paragraph 5.7.1.4. (old) to 5.7.1.5. and amend, to read:

5.7.1.5. The ~~system~~ **RCM function** shall only operate until 5 km/h (+1 km/h tolerance).

Renumber paragraph 5.7.1.5. (old) to 5.7.1.6.

Renumber paragraph 5.7.1.6. (old) to 5.7.1.7. and amend, to read:

5.7.1.7. If the continuous actuation is interrupted or the distance between **the** vehicle and **the** remote-control device exceeds the specified maximum RCM operating range (S_{RCMmax}) or the ~~signal~~ **secure connection** between **the** remote-control **device** and **the** vehicle is lost, the vehicle shall stop immediately.

Renumber paragraph 5.7.1.7. (old) to 5.7.1.8.

Renumber paragraph 5.7.1.8. (old) to 5.7.1.9. and amend, to read:

5.7.1.8. ~~The system shall be possible for the driver able to be deactivated the RCM function by the driver at any time.~~

Renumber paragraph 5.7.1.9. (old) to 5.7.1.10.

Insert new paragraph 5.7.1.11, to read:

5.7.1.11. Security

Renumber paragraph 5.7.1.10. (old) to 5.7.1.11.1. and amend, to read:

5.7.1.10**1.1.** ~~The system-RCM function shall be protected against unauthorized activation or operation of the RCM system-function and interventions into the system function.~~

Insert new paragraph 5.7.1.11.2, to read:

5.7.1.11.2. The connection between the remote-control device and the vehicle shall be secured and encrypted. It shall be ensured by technical means that the RCM function can only be operated by an authorised remote-control device.

Renumber paragraph 5.7.1.11. (old) to 5.7.1.12.

Renumber paragraph 5.7.1.11.1. (old) to 5.7.1.12.1.

Renumber paragraph 5.7.1.11.2. (old) to 5.7.1.12.2. and amend, to read:

5.7.1.11**2.2.** ~~The conditions under which the system-RCM function can be activated, i.e. when the conditions for operation of the system are fulfilled;~~

Renumber paragraph 5.7.1.11.3. (old) to 5.7.1.12.3. and amend, to read:

5.7.1.11**2.3.** ~~For RCM systems, The Manufacturer shall provide the technical authorities with an explanation of how the system-function is protected against unauthorized activation or operation.~~

Renumber paragraph 5.7.1.12. (old) to 5.7.1.13. and amend, to read:

5.7.1.12**3.** ~~The RCM system-function shall be so designed that its activation can only be achieved provided the vehicle is not in any of the following locations:~~

- (a) A public road/highway;
- (b) A public car park;
- (c) An area designated exclusively for use by pedestrians and/or pedal cyclists.

~~The system-vehicle shall be capable of confirming that the vehicle it is not located in any of the above locations whilst the RCM function is active and this shall be achieved by at least two independent technical means². If navigation maps are used for this purpose, the RCM function shall be disabled if the map data has not been updated in the previous 12 months.~~

Renumber paragraph 5.7.1.13. (old) to 5.7.1.14.

Renumber paragraph 5.7.1.14. (old) to 5.7.1.15. and amend, to read:

5.7.1.14**5.** ~~If the vehicle stops having detected an obstacle in the manoeuvring area, subsequent operation shall only be possible following confirmation from the~~

² Two different types of map (e.g. navigation and topographical) supplied by two different suppliers are satisfactory for this requirement.

driver. The vehicle shall respond to any subsequent objects detected in the manoeuvring area as prescribed in paragraph 5.7.1.134.

Renumber paragraph 5.7.1.15. (old) to 5.7.1.16. and amend, to read:

5.7.1.156. It shall only be possible to operate the ~~system~~**RCM function** when drive is provided to at least one front axle and one rear axle simultaneously.

Renumber paragraph 5.7.1.16. (old) to 5.7.1.17. and amend, to read:

5.7.1.167. The vehicle shall detect if, while the RCM function is active, the vehicle enters any of the locations listed under paragraph 5.7.1.123. In such a case, the vehicle shall stop immediately and the RCM function shall be deactivated.

Renumber paragraph 5.7.1.17. (old) to 5.7.1.18. and amend, to read:

5.7.1.178. The ~~system~~**RCM function** shall only operate for a maximum total distance travelled of 100m. This distance may be reset if there is no input on the remote-control device for at least 1 minute or if the system has been deactivated and a time period of at least 1 minute has elapsed. The distance shall be subsequently measured from the next point at which the RCM function is operated.

Renumber paragraph 5.7.1.18. (old) to 5.7.1.19.

Renumber paragraph 5.7.1.19. (old) to 5.7.1.20. and amend, to read:

5.7.1.1920. If the vehicle reaches or exceeds the maximum total distance travelled defined in paragraph 5.7.1.178., the vehicle shall stop immediately and the RCM function shall be deactivated. It shall not be possible to subsequently activate the RCM **function** until a time period of at least 1 minute has elapsed. This shall be indicated to the driver at least at the remote-control device.

Renumber paragraph 5.7.1.20. (old) to 5.7.1.21. and amend, to read:

5.7.1.201. The manufacturer shall provide the Technical Service with documentation and supporting evidence to demonstrate compliance with the provisions of paragraphs 5.7.1.123., 5.7.1.134., 5.7.1.145., and 5.7.1.167. This information shall be subject to discussion and agreement between the Technical Service and vehicle manufacturer.”

II. Justification

1. Improvements to the language to ensure consistent use of terminology throughout.
 2. It is clarified that the actuator of the function is to be included as part of the assessment along with the hardware and software on the vehicle.
 3. Following discussions with interested parties, it has been agreed to add requirements on the security of the connection between the remote-control device and the vehicle.
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