

Proposal for amendments to ECE/TRANS/WP.29/GRVA/2022/7

I. Proposal

Introduction, amend to read:

“The original intention of this Regulation was to establish uniform provisions for advanced emergency braking systems (AEBS) fitted to motor vehicles of the Categories M₂, M₃, N₂ and N₃ primarily used under monotonous highway driving conditions. This revision of Regulation No. 131 extends the scope to new scenarios like city driving.

While, in general, those vehicle categories will benefit from the fitment of an AEBS, there are sub-groups where the benefit is rather uncertain because of their specific usage (e.g. buses with standing passengers i.e. Classes I, II and A, Category G vehicles, construction vehicles, etc.). Regardless from the benefit, there are other sub-groups where the installation of AEBS would be technically difficult or not feasible (e.g. position of the sensor on vehicles of Category G, construction vehicles mainly used in off-road areas and gravel tracks, special purpose vehicles and vehicles with front mounted equipment, etc.). In some cases, there may be a possibility of false emergency braking events because of vehicle design constraints.

The AEBS is designed to deal with specific critical traffic situations with an operational intervention as an assistance system for the driver. This Regulation cannot cover all the traffic conditions and infrastructure features in the type-approval process; this Regulation recognises that the performances required in this Regulation cannot be achieved in all conditions (vehicle condition, road adhesion, weather conditions, noise of external radar sources, deteriorated road infrastructure and traffic scenarios etc. may affect the system performances). While the system should meet the expected performance under the specified conditions, actual conditions and features in the real world may additionally influence performance and should not result in false warnings or false braking to the extent that they encourage the driver to switch the system off. Some other conditions affecting the performance may indeed be encountered in the future (e.g. new infrastructure type). The list may then be upgraded to acknowledge for the gained experience.

The system shall automatically detect a potential forward collision with another vehicle ~~and with a pedestrian crossing the path of the vehicle~~, provide the driver with a warning and activate the vehicle braking system to decelerate the vehicle with the purpose of avoiding or mitigating the severity of a collision.

The system shall only operate in driving situations where braking will avoid or mitigate the severity of an accident and shall avoid intervening in uncritical driving situations.

In the case of a failure in the system, the safe operation of the vehicle shall not be endangered.

The system shall provide as a minimum an acoustic or haptic warning, which may also be a sharp deceleration, so that an inattentive driver is made aware of a critical situation, if time permits. There are, however, situations where a warning cannot be given in time for the driver to appropriately react, such as collisions ~~with pedestrian or~~ with strongly decelerating preceding vehicles. In these cases, the warning may be given at the time that an emergency brake intervention starts.

During any action taken by the system (the warning and emergency braking phases), the driver can, at any time through a conscious action like an accelerator kick-down or a swerving action that results in enough change of direction not to hit the target, take control and override the system.

While from a traffic safety perspective, it would be appreciable to require automated collision avoidance for all heavy vehicles up to their maximum driving speed, the prevention of false positive reactions limits the current maximum performance. This revision of UN Regulation No. 131 is accounting for the fact that active safety systems in general have made a giant leap over the 2010's with respect to their performance in avoiding or mitigating accidents with an ever increasing variety of collision partners.

There should be an ambition to produce Advanced Emergency Braking systems for heavy vehicles that go beyond what is required in this revision of UN Regulation No. 131, namely: to avoid accidents with other vehicles up to the maximum driving speed, ~~to avoid accidents with pedestrians up to speeds comparable to those required from passenger cars (see UN Regulation No. 152)~~ and to avoid collisions with pedestrians and bicycles. To support this level of ambition, the state of technology should be closely monitored and requirements in this regulation regularly adapted as appropriate.”

Paragraph 1, amend to:

...

(b) [reserved]

Paragraph 2.8., amend to read:

2.8. [reserved]

Paragraph 5.1.1.3., amend to read:

5.1.1.3. [reserved]

Paragraph 5.2.2., amend to read and remove all subparagraphs of 5.2.2.:

5.2.2. [reserved]

Paragraph 6.3.2., amend to read:

6.3.2. [reserved]

Paragraph 6.6., amend to read and remove all subparagraphs of 6.6.:

6.6. [reserved]

Paragraph 6.9.1., amend to read:

6.9.1. Any of the above test scenarios, where a scenario describes one test setup at one subject vehicle speed at one load condition **of one category (Vehicle to Vehicle, Vehicle to Pedestrian)**, shall be performed **twice**. If one of the two test runs fails to meet the required performance, the test may be repeated once. A test scenario shall be accounted as passed if the required performance is met in two test runs. The number of failed tests runs within one category shall not exceed:

(a) 10.0 per cent of the performed test runs for the Vehicle to Vehicle tests;

(b) [reserved]

Paragraph 12.2., amend to read:

12.2. Transitional provisions applicable to the 02 series of amendments

12.2.1. As from the official date of entry into force of the 02 series of amendments, no Contracting Party applying this Regulation shall refuse to grant or refuse to accept type approvals under this Regulation as amended by the 02 series of amendments.

Alternative 1:

12.2.2 and following, remove (02 series will always be optional to 01 series, but will be superseded by 03 series)

Alternative 2:

12.2.2. As from **[20XX 1 September 2024]**, Contracting Parties applying this Regulation shall not be obliged to accept type approvals to the preceding series of amendments, first issued after **[20XX 1 September 2024]**.

12.2.3. Until **[20XX+3 1 September 2027]**, Contracting Parties applying this Regulation shall accept type approvals to the preceding series of amendments, first issued before **[20XX 1 September 2024]**.

12.2.4. As from [20XX+3 1 September 2027], Contracting Parties applying this Regulation shall not be obliged to accept type approvals issued to the preceding series of amendments to this Regulation.

Annex 1, paragraph 10.2., amend to read:

10.2. [reserved]

Annex 2, amend to read:

...

The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in Belgium (E 6) with regard to the Advanced Emergency Braking Systems (AEBS) pursuant to UN Regulation No. 131 (marked with C for Vehicle to Vehicle, ~~P for Vehicle to Pedestrian~~). The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of UN Regulation No. 131 in its original form.

Annex 3, Appendix 2, Scenario 3, amend to read:

Scenario 3

...

3.1. In this scenario, the subject vehicle drives a small radius curved road of which the guard pipes are constructed to the outer side, and a stationary vehicle (M₁ category) ~~or a stationary pedestrian target~~ is positioned just outside of the guard pipes and where on the extension of the centre of the lane.

3.2. An example of the detail scenario:

The subject vehicle drives at a speed of 30 (with a tolerance of +0/-2 km/h) km/h toward the curve of which the radius is not more than 25 m at the outer side of the road, and decelerates by braking to a speed of not less than 22 km/h at a point where the subject vehicle enters the curve. The TTC to the stationary object is not more than 1.6 seconds at when the subject vehicle begins to turn in the curve. In the curve, the subject vehicle drives outer lane than the centre of the road. After that, the subject vehicle continue to turn in the curve at a constant speed of not less than 21 km/h. The TTC to the stationary object is not more than 1.1 second at when the overlap ratio between the subject vehicle and the stationary vehicle becomes 0%, ~~or at when the offset ratio between the subject vehicle and the centre of the stationary pedestrian target becomes 100%.~~
