

## **Proposal for supplement 01 to the 00 series of amendments to UN Regulation No. 131**

**Submitted by the experts from the International Organization of Motor  
Vehicle Manufacturers**

### **I. Proposal**

*Scope*, amend to read:

(The modifications to the current text of the Regulation are marked in **bold** characters)

#### **1. Scope and purpose**

"1.1 This Regulation applies to the approval of vehicles of category<sup>1</sup>:

- (a) N<sub>2</sub> above 8 tons,
- (b) M<sub>3</sub> and
- (c) N<sub>3</sub>.

equipped with a pneumatic or air over hydraulic braking system with regard to an on-board system to avoid or mitigate the severity of a rear-end in lane collision, **not belonging to the following list:**

- (1) vehicles not equipped with a pneumatic rear-axle suspension;**
- (2) categories and M<sub>3</sub> vehicles of Class A, Class I and Class II;**
- (3) category M<sub>3</sub> articulated buses of Class A, Class I and Class II;**
- (4) off-road vehicles of categories M<sub>2</sub>, M<sub>3</sub>, N<sub>2</sub> and N<sub>3</sub>;**
- (5) special purpose vehicles of categories M<sub>2</sub>, M<sub>3</sub>, N<sub>2</sub> and;**
- (6) vehicles of categories M<sub>2</sub>, M<sub>3</sub>, N<sub>2</sub> and N<sub>3</sub> with more than three axles [and a maximum mass exceeding 25t or a maximum wheel diameter code exceeding 19.5];**

1.2. **At the request of the manufacturer, this Regulation may also apply to vehicles listed in (1) to (6) in the list of paragraph 1.1.**

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<sup>1</sup> As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.2, para. 2."

### **II. Justification**

**General approach:**

1. Vehicle manufacturers are currently implementing AEBS on a large variety of models, e.g. to fulfil mandatory requirements in some Contracting Parties. This implementation work confirms the concerns which have been brought up for discussion

during the AEBS/LDWS informal group activities and sheds light on a number of technical issues that pop up when installing obstacle detection devices on some specific vehicles, in particular in case of huge technical diversity and where the vehicle environment can have negative impact on system reliability and on its ability to operate.

For example:

- Due to the technical environment specific to off-road vehicles (steel bumpers, electric truck winches, windshield thickness, split windshields, asymmetrical cabs, front hood vehicles etc.) robust and reliable sensor integration is not always possible.
- Robust sensor installation on special purpose vehicles is often not possible (snow plows, external devices, front mounted equipment etc.).
- The environment conditions for construction vehicles may also negatively affect the sensors, in a similar way as for off road vehicles (dust, mud, humidity in off-road areas or on gravelled tracks...).
- (See more technical background further down in this justification.)

2. The proposal here is to exclude from the scope of the regulation all vehicle categories where the technical and external environment generates conditions affecting correct operation of the system, and technical issues to properly install the system.

3. However, a paragraph 1.2 has been added for the case where a vehicle manufacturer may want to approve an AEBS on a vehicle excluded from scope, if the system can be installed in such a way that the AEBS requirements can all be fulfilled. It may also give the opportunity to a vehicle manufacturer to respond to a Contracting Party who may mandate the installation of AEBS on vehicles excluded from the scope, due to some traffic / market specificities in this particular country.

#### **Detailed technical background for the different vehicle categories excluded from scope:**

- **Vehicles not equipped with a pneumatic rear-axle suspension**  
Vehicles not equipped with a pneumatic rear-axle suspension have high pitch angle variations which are limiting and affecting the field of view of the sensors.
- **Category M<sub>3</sub> vehicles of Class A, Class I and Class II;  
Category M<sub>3</sub> articulated buses of Class A, Class I and Class II**  
AEBS is most efficient for “long distance trucks and coaches” travelling on highways. AEBS has been primarily designed to support the driver during monotone driving conditions on highways.

Class A, Class I and Class II buses are mostly used in urban or sub-urban areas and rather seldom on highways. Thus AEBS is likely not to be as efficient as on a long distance truck or coach. This is even more the case for articulated buses.

Moreover, such City buses are also designed for conveying standing passengers and are usually not equipped with seatbelts. In cases of unintended interventions of AEBS the standing passengers are more endangered than the belted and seated ones. Despite such unintended interventions will be very seldom, the consequences of such a situation are more critical than for long distance trucks and coaches.

- **Off-road vehicles of categories M<sub>3</sub> , N<sub>2</sub> and N<sub>3</sub>**  
Off road-vehicles are very seldom used on highways but mainly used in off-road areas and/or on gravelled tracks. They are normally driven at lower speeds than on highway, in such conditions that monotone driving is not expected. In addition, environment conditions for these vehicles (dust, mud, humidity etc.) can negatively affect the sensor. Bad driving surfaces (gravel etc.) are expected to quickly damage the sensor and may affect the whole system robustness. Off-road vehicles are designed for off-road conditions, and therefore have a high chassis height which might cause problems to install the sensor in accordance with the supplier’s recommendations.

- **Special purpose vehicles of categories M<sub>3</sub>, N<sub>2</sub> and N<sub>3</sub>**  
On special purpose vehicles, installation of the sensor is often not possible (snow plows, front pumps, external devices at or on the bumper etc.) and cannot fulfill the supplier's specifications for the installation of the sensor. Typically, these vehicles have a low mileage for a high number of operating hours.
  
  - **Vehicles of categories M<sub>3</sub>, N<sub>2</sub> and N<sub>3</sub> with more than three axles and a maximum wheel diameter code exceeding 19.5 or with a maximum mass exceeding 25 t**  
Vehicles with more than 3 axles in the EU are often construction vehicles, which are seldom used on highways and rarely in conditions where AEBS would be the most efficient. Moreover, the environment conditions for these construction vehicles can negatively affect the sensor, in a similar way as for off road vehicles. 4 axle vehicles in Japan are mostly used for long haulage transport, thus are not excluded from the scope.
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