

## **Proposal for amendments to ECE/TRANS/WP.29/2011/92 and ECE/TRANS/WP.29/2011/93 (Advanced Emergency Braking Systems)**

### **I. Proposal to WP.29/2011/92 (00 Series of amendments)**

*Introduction*, amend to read:

#### **"0. Introduction (for information)**

The intention ...conditions.

While in general.....special purpose vehicles, etc).

**In addition, systems intended for vehicles not equipped with a pneumatic rear-axle suspension require the integration of advanced sensor technology to take into account the variation of the pitch angle of the vehicle. Contracting Parties wishing to apply this regulation to these vehicles should provide adequate time for this.**

The system shall...."

*Renumber* paragraphs 2.4. to 2.13 as 2.3. to 2.12.

*Paragraph 6.4.1.*, amend to read:

"6.4.1. The subject vehicle ...

... at least 120 m from the target.

From the start of the functional part until the point of collision there shall be no adjustment to any **control of** the subject vehicle ~~control~~ by the driver other than slight ~~steering~~ adjustments **to the steering control** to counteract any drifting."

Annex III, amend the table to read (merging rows 1 and 2, endorsing the value of 1,4 s in cell E1, deleting footnote 1 and the reference to footnote 1, deleting footnote 4 and the reference to footnote 4 and re-numbering reference to row 3 as a reference to row 2) :

“

A	Stationary target			Moving target				H
	Timing of warning modes		Speed reduction (ref. paragraph 6.4.4.)	Timing of warning modes		Speed reduction (ref. paragraph 6.5.3.)	Target speed (ref. paragraph 6.5.1.)	
	At least 1 haptic or acoustic (ref. paragraph 6.4.2.1.)	At least 2 (ref. paragraph 6.4.2.2.)		At least 1 haptic or acoustic (ref. paragraph 6.5.2.1.)	At least 2 (ref. paragraph 6.5.2.2.)			
$M_3, N_2 > 8t$ and $N_3$ <del>[1], [2], [3], [4]</del>	Not later than 1.4 s. before the start of emergency braking phase	Not later than 0.8 s. before the start of emergency braking phase	Not less than 10 km/h	Not later than 1.4 s. before the start of emergency braking phase	Not later than 0.8 s. before the start of emergency braking phase	No impact	$32 \pm 2$ km/h	1
$N_2 > 8t$ <del>[3], [4]</del>	Not later than 1.4 s. before the start of emergency braking phase	Not later than 0.8 s. before the start of emergency braking phase	Not less than 10 km/h	Not later than [1.4 s.] before the start of emergency braking phase	Not later than 0.8 s. before the start of emergency braking phase	No impact	$32 \pm 2$ km/h	2
$N_2 \leq 8t$ and $M_2$ <del>[3], [5]</del>	[No restriction regarding timing and warning modes <sup>a]</sup> or [Blank]	[No restriction regarding timing and warning modes <sup>a]</sup> or [Blank]	[0 km/h <sup>b]</sup> or [Blank]	[No time restriction] or [Blank]	[Not later than 1.4 s. before the start of emergency braking phase <sup>c]</sup> or [Blank]	[0 km/h <sup>d]</sup> or [Blank]	$[32 \pm 2$ km/h] or [Blank]	3 2

<sup>1</sup> Vehicles with pneumatic hydraulic braking system (AoH) are subject to the requirements of row 2

<sup>2</sup> Vehicles of category  $M_3$  with hydraulic braking system are subject to the requirements of row 3 2.

<sup>3</sup> Vehicles with pneumatic braking system are subject to the requirements of row 1.

<sup>4</sup> Applicable only to vehicles with pneumatic rear axle suspension.]

<sup>5</sup> Reservation from J for light  $M_2/N_2$  vehicles.

<sup>a</sup> For zero speed reduction, the start of the emergency braking phase is time to collision. In this case, paragraph 6.4.3. does not apply.

<sup>b</sup> Speed reduction optional.

<sup>c</sup> For zero speed reduction, the start of the emergency braking phase is time to collision.

<sup>d</sup> In this case, paragraph 6.5.3. does not apply. Speed reduction optional.”

## II. Proposal to WP.29/2011/93 (01 Series of amendments)

Annex III, amend the table to read (merging rows 1 and 2, deleting footnote 1 and the reference to footnote 1, deleting footnote 4 and the reference to footnote 4 and re-numbering the reference to row 3 as a reference to footnote 2) :

A	B	C	D	E	F	G	H	
	Stationary target			Moving target				
	Timing of warning modes		Speed reduction (ref. paragraph 6.4.4.)	Timing of warning modes		Speed reduction (ref. paragraph 6.5.3.)	Target speed (ref. paragraph 6.5.1.)	
	At least 1 haptic or acoustic (ref. paragraph 6.4.2.1.)	At least 2 (ref. paragraph 6.4.2.2.)		At least 1 haptic or acoustic (ref. paragraph 6.5.2.1.)	At least 2 (ref. paragraph 6.5.2.2.)			
M <sub>3</sub> , N <sub>2</sub> >8t and N <sub>3</sub> <sup>[1], [3]</sup>	Not later than 1.4 s. before the start of emergency braking phase	Not later than 0.8 s. before the start of emergency braking phase	Not less than 20 km/h	Not later than [1.4] s. before the start of emergency braking phase	Not later than 0.8 s. before the start of emergency braking phase	No impact	12 ± 2 km/h	1
N <sub>2</sub> >8 t <sup>[3]</sup>	Not later than 1.4 s. before the start of emergency braking phase	Not later than 0.8 s. before the start of emergency braking phase	Not less than 20 km/h	Not later than [1.4] s. before the start of emergency braking phase	Not later than 0.8 s. before the start of emergency braking phase	No impact	12 ± 2 km/h	2
N <sub>2</sub> ≤ 8 t and M <sub>2</sub> <sup>[2], [4]</sup>	[No restriction regarding timing and warning modes <sup>a]</sup>  or [Blank] <sup>[4]</sup>	[No restriction regarding timing and warning modes <sup>a]</sup>  or [Blank] <sup>[4]</sup>	[0 km/h <sup>b]</sup>  or [Blank] <sup>[4]</sup>	[No time restriction]  or [Blank] <sup>[4]</sup>	[Not later than 1.4 s. before the start of emergency braking phase <sup>c]</sup>  or [Blank] <sup>[4]</sup>	[0 km/h <sup>d]</sup>  or [Blank] <sup>[4]</sup>	[12 ± 2 km/h]  or [Blank] <sup>[4]</sup>	3 2

<sup>1</sup> Vehicles of category M<sub>3</sub> with hydraulic braking system are subject to the requirements of row 3 2

<sup>2</sup> Vehicles with pneumatic braking system are subject to the requirements of row 1

<sup>3</sup> applicable only to vehicles with pneumatic rear axle suspension]

<sup>4</sup> Reservation from J for light M<sub>2</sub>/N<sub>2</sub> vehicles

<sup>a</sup> For zero speed reduction, the start of the emergency braking phase is time to collision. In this case, paragraph 6.4.3. does not apply.

<sup>b</sup> Speed reduction optional.

<sup>c</sup> For zero speed reduction, the start of the emergency braking phase is time to collision.

<sup>d</sup> In this case, paragraph 6.5.3. does not apply. Speed reduction optional.”

## III. Justification

1. The proposal for amendments to the Introduction highlights the technical challenges associated with fitting AEBS to steel suspension vehicles but does not restrict Contracting Parties from requiring it or manufacturers from approving vehicles.

2. Item 2.3. in the definition section was missing from document WP29/2011/92. The numbering of the definitions should be amended as appropriate.
3. The informal group found appropriate to clarify the wording addressing permitted adjustments during the functional part of the test course.
4. Rows 1 and 2 of the table of Annex III were separate for “historical” reasons, i.e. the informal group previously intended to require different provisions for vehicles of categories M3/N3 than for vehicles of category N2 > 8 tons. It appeared with the follow-up of the discussions that the provisions for all these types of vehicles are identical. It then makes sense to merge rows 1 and 2 in both the 00 Series and the 01 Series of amendments.
5. D kindly withdrew their reservation concerning the value of 1.4 s in cell E1 of the table of the 00 Series of amendments. They however preferred to keep their reservation for the 01 Series of amendments.
6. J kindly withdrew their reservation concerning the light vehicles (respectively footnotes 5 and 4 in the 00 and the 01 Series of amendments).