



Submitted by the IWG on AEBS-HDV

Informal document **GRVA-11-27/Rev.1**  
11<sup>th</sup> GRVA, 27 Sept. – 1 Oct. 2021  
Agenda item 7

# **IWG AEBS-HDV**

# **Status and Outlook**

Toshiya Hirose (JP) & Patrick Seiniger (BAST, DE)  
Chairs of the IWG on AEBS for HDV



## Introduction

- ➔ Informal Working Group on AEBS-HDV was initiated by GRVA in September 2021
- ➔ ToR requests an updated regulation per GRVA in February 2022
- ➔ ToR asks for a dedicated report to GRVA in September 2021 with special emphasis on whether this timing can be met



- ➔ IWG had 6 meetings (last meeting: September 21/22)
- ➔ Main task: develop a draft regulatory proposal to revise UN Regulation No. 131
  - a) Assess the accident situation for heavy duty vehicles
  - b) Investigate the feasibility of a generic marker triggering AEBS
  - c) Define state of the art performance requirements
  - d) Review the values for the target speed reduction for M<sub>2</sub> and N<sub>2</sub>
  - e) Review AEBS on V2Car, V2Ped, V2Bicycle, others
  - f) Incorporate as relevant new concepts from UN Regulation No. 152
- ➔ Current activity and status: Writing draft regulation, basically finished (open issues left, see following slides) up to and including section 5 (specs)



# Outlook

- ➔ Next meeting: October 26-28 (in total 9 hrs)
- ➔ Core activities of AEBS-HDV-07
  - Clarify open issues after feedback from GRVA-11
  - Finish remaining sections 6 (testing), 12 (transitional provisions) and Annex 3, Appendix 2 (false reaction scenarios)
  - Prepare working document for GRVA in February
- ➔ Buffer:
  - Meetings in Nov, Dec, Jan to prepare an informal document amending the working document
- ➔ **Timing goal will be achieved**

# Agreement on Performance



Vehicle category			AEB Vehicle-Vehicle	AEB Vehicle-Pedestrian	AEB Vehicle-Bicycle
<b>M2 M3, N2 ≤ 8t</b>	derived from M1N1	Hydraulic braking	<b>50 km/h</b> (R152 as alternative)	<b>26 km/h</b> (R152 as alternative)	<b>- (no systems)</b>
	others	Hydraulic braking	<b>35 km/h</b> (R152 as alternative)	<b>20 km/h</b> (R152 as alternative)	<b>- (no systems)</b>
		Pneumatic braking	<b>70 km/h 40 km/h (urban)</b>	<b>20 km/h</b>	<b>- (no systems)</b>
<b>N2 &gt; 8t N3</b>			<b>70 km/h 40 km/h (urban)*</b>	<b>20 km/h</b>	<b>- (no systems)</b>

This is relative speed  $v_{0,Ego} - v_{0,Target}$ , up to which avoidance would be required. Mitigation speeds also required, comparable to R152

No differentiation Moving/Stationary

Ambition for higher values and *AEB Vehicle-Bicycle* will be expressed in a preamble.



## Deactivation of AEBS

- ➔ An agreement on the deactivation procedure is not yet reached
- ➔ Specifically:
  - Deactivation possible only below 10 km/h → from R152
  - Request for guidance from GRVA-11

## Definition of performance requirements

- ➔ As in R152, performance requirements are given together with boundary requirements
- ➔ Different interpretations of the text (copied from R152) possible
- ➔ See next two slides for an introduction
- ➔ *After clarifying, the text in R152 might need to be aligned as well.*



## 5.2.1.4. Speed reduction by braking demand

In absence of driver's input which would lead to interruption according to paragraph 5.3.2., the AEBS shall be able to achieve a relative impact speed that is less or equal to the maximum relative impact speed as shown in the following table:

- (a) For collisions with unobstructed and constantly travelling or stationary targets;
- (b) On flat, horizontal and dry roads affording good adhesion;
- (c) No trailer is coupled to the motor vehicle and the mass of the motor vehicle is between maximum mass and mass in running order conditions;
- (d) ... [Condition list in which the requirements have to be fulfilled](#)

[It is recognised that the performances required in this table may not be fully achieved in other conditions than those listed above.](#) However, the system shall not deactivate or unreasonably switch the control strategy in these other conditions. This shall be demonstrated in accordance with Annex 3 of this Regulation. [How to treat situations when conditions above are not met](#)

[\[... Performance requirements table ...\]](#) [Performance requirements in conditions above](#)



## ⇒ Clear:

- Not all conditions (a) – (...) are fulfilled
- Performance targets not required, but changing strategy not allowed

## ⇒ Unclear

- All conditions (a) – (...) are fulfilled
- An additional parameter (e.g. lane markings, lamp posts, fog, anything else) is introduced

⇒ *How to deal with parameters not explicitly listed in the requirements, but obviously influencing the performance?*

⇒ Request for Guidance from GRVA: **What is GRVA's interpretation?**





# Summary

- ➔ Performance requirements agreed within the group
- ➔ Timing target will very likely be met; progress is good and buffer for unforeseeable difficulties is considered
- ➔ Request for guidance from GRVA:
  1. Deactivation of AEBS possible at speeds  $> 10$  km/h or not?
  2. Interpretation of condition list w.r.t. performance requirements and conditions