

## DRAFT AGENDA

### **15<sup>th</sup> meeting of the Informal Working Group on Advanced Emergency Braking Systems (AEBS) for light vehicles**

14 December 2020,  
On Web

**Time:** Start at 09:00 am CEST (5:00 pm JST – 8:00 am BST)  
Finish at 12:00 am CEST (8:00 pm JST – 11:00 BST)

**Venue:** Web (Microsoft Teams provided by Mr. Fontaine)

**Chairman:** Mr. Antony Lagrange (EC) and Mr. Toshiya Hirose (Japan)  
**Secretariat:** Mr. Yukihiro Shiomi (Japan) and Mr. Olivier Fontaine (OICA)

#### **1. Welcome and Introduction**

#### **2. Approval of the agenda**

Document:

- AEBS-15-01-R1 (Chair)

The agenda was approved with the addition of the document [AEBS-15-15](#) under item 4.

#### **3. Review of the comments received and discussion on virtual testing**

Documents:

- AEBS-12-06 (F) Virtual testing draft proposal
- AEBS-12-07-Rev.1 (UTAC) Virtual testing AEBS
- AEBS-15-02 (D) Comment to AEBS-12-06
- AEBS-15-05 (F) Virtual testing draft proposal - Revision 1 - Tracked Changes
- AEBS-15-06 (F) Virtual testing draft proposal - Revision 1 - Cleaned
- AEBS-15-07 (F) Virtual testing - explanatory comments
- AEBS-15-08 (CLEPA-OICA) Virtual testing draft proposal - Industry comments
- AEBS-15-09 (CLEPA-OICA) Industry General Feedback Virtual Testing AEBS v3
- AEBS-15-14 (J) Comments to Virtual testing - explanatory comments

The group decided to take the document [AEBS-15-14](#) as a reference since it contains all the latest comments to the proposal.

As a reminder: the proposal is to propose for the R152 a 1<sup>st</sup> attempt to virtual testing with some details, as an alternative to the physical tests. There will be still physical tests, at least to confirm the results achieved with the simulation. This is originally a request from OEMs, and a subject addressed at GRVA-VMAD. UTAC is currently performing experiments in this item.

D:

- Supports virtual testing in general, yet sees few benefits in the AEBSM1N1 regulation since few to save among the 40 tests.
- lots of figures are “random” (90%)
- sensor model is important and must be defined correctly. This is feasible in some well defined scenarios.

JRC:

- good that the work is started here. VMAD is also working on this, at higher level
- no specific comment. Validation at sub-system level is important. Some good results can be achieved based on wrong sub-system assessments.

OICA:

- support D on the benefits of the proposed process: validating the process could ask greater efforts than performing the tests
- 10% repeatability: acceptance that 10 % of the simulation deviate from the test results?
- Does the track test make a good reference, instead of the real world behaviour?

J:

- See comments in the document.
- Is the scheme just an example of a possible process? R: no, this is the way we propose to replace physical testing by simulation.
- Keen to understand the simulation of R140 with regard to the EU WVTA, before going in the details of this simulation method in R152. R: the situation in R140, the virtual testing is not a replacement, rather an extension of the physical test. Yet F is OK to double check.

F: target is to perform 10 repetitions foreseen in the text to validate the pertinence of the simulation.

F:

- Random approach: the target is to prove that the simulation functions exactly as the physical test.
- Sensor model: yes key input. We propose here to validate the FINAL step of the methodology. The validation of the sensor models should be done prior to that. Supports JRC
- To OICA: yes there is an investment to perform all these tests, but finally, in the long term, there will be a decrease of the tests to be performed.
- About the 10%: the median value is used for correlation
- About real world: the point is to replace a track test by a simulation. If real world data is necessary, F is OK to add them.

UTAC:

- Key is to validate the simulation tool.
- 2 steps:
  - o Validate that the simulation is repeatable
  - o Then check the median value against the track test results.

Debate on the necessity to assess the reproducibility of the simulation.

Seems some of the behaviours are not covered by the model.

D: questions the necessity of the approach since the process seems very heavy compared to the potential benefits.

F: is keen that the simulation method is harmonized since there are millions of ways to correlate the track tests.

Propose to identify which factors are the most relevant.

OICA had general statement per document AEBS-15-09:

- What is the role of the Technical Service in the process? Does it perform the simulation?
- What document is expected from the manufacturer? Concern with intellectual property.
- Lot is still currently evolving with regard to the simulations. There exist different approaches in this regard (look at the CEL annex). Concern that the proposal is perhaps not the correct simulation approach. OICA suggest to address that at VMAD, on a more general level.

F:

- The proposal does not contain specific details in the simulation approach. There are items that are not negotiable in the simulations like the vehicle speed, the impact speed etc. only when the simulation is applied there can be divergence. There is a need to harmonize at least the minimum like the key steps and factors (a minimum of tests, comparison, etc.). the proposal is not detailed at all.
- Believes F and the others are in the same line.

OICA: questions nevertheless the approach.

D: believes VMAD could be the proper group to discuss simulation.

F: indeed VMAD-SG2 can be the right place, but the proposal from France is addressing AEBS. Believes AEBS is a good starting point for addressing simulation.

Conclusion:

- Informal group will report back to GRVA (February session) on the discussion on virtual testing, hoping to receive guidance (relevant discussion platform) from GRVA on the way to proceed with virtual testing.
- F to improve their proposal as relevant in the meantime.

#### 4. Technical review of AEBS for large animals

- AEBS-15-03 (S) ESV-2017 Fatal car to moose collisions
- AEBS-15-04 (S) Large Animals
- AEBS-15-15 (CLEPA-OICA) Industry position

S: recalled the terms of reference that ask a technical review of the case. Lots of things have evolved in this subject. Ready to contribute per document AEBS-15-03. S requests to schedule some discussion on this item.

OICA presented the document AEBS-15-15.

- Difference of nature in the requirements of the terms of reference: deliver requirements vs. “technical review”
- AEBS with regard to motorcycles and big animals are less mature than C2C, C2P, and C2B.

S: supports that the subject is not mature enough to discuss the requirements. But technically, there are products offering today the performances. Hence expect that the technology will evolve and will make the subject mature.

Chair: recalled that there is a need for experience to start working on this.

S: as there are products in the market, there is data available.

OICA: in the past, we derived the capabilities from the NCAP experience. This source does not exist. And Industry is unable to provide them for competition rules reasons.

S: do not see this action item as completed

conclusion:

- Informal group will report to GRVA about the state of play
- No existing guideline and no experience to date.

#### 5. Proposal for PBC (Peak Braking Coefficient)

- AEBS-15-12 (CLEPA-OICA) Amendment of PBC reference
- AEBS-15-13 (CLEPA-OICA) Justification for PBC Amendment

Was discussed at a previous meeting

2 problems:

- Standard tyre is being replaced
- The PBC at 0.9 would not permit to reach the deceleration values requested by the R152

D: 2 questions to OICA:

- Is there any problems with the test tracks?
- 90% seems low

OICA:

- About test tracks: for ASTM there is no change to the test track. Look also at presentation from France (AEBS-11-11)
- 2<sup>nd</sup> question: need to internally consult.

J: J had proposed amendments to the PBC provisions. OICA proposal should be discussed at GRVA because the PBC reference are in different regulations.

OICA: OK but the review is of different relevance for different regulations. The purpose of the presentation is to give background explanation, but the debate can take place at GRVA.

J: the bullet b) of the proposal on paragraph 6.1.1.1. should be in the 1<sup>st</sup> bullet in of the paragraph.

conclusion:

- Informal group will report at GRVA-09 (Feb)
- OICA to propose the proposal to GRVA-09.

**6. Confirmation of the corrections to the 00 series**

- AEBS-15-10 (CLEPA-OICA) Correction of GRVA-07-09
- AEBS-15-11 (CLEPA-OICA) Overview Correction to GRVA-07-09

Presentation of documents 10 and 11: some tables were amended while they were even not present in the original document.

There was no comment to the proposal.

Conclusion:

- changes are accepted.
- Process: OF to send the corrections as an informal document to GRVA-08.

**7. List of action items**

- Chair to report on virtual testing, big animals and PBC to GRVA-09 of Feb
- Secretary to provide the informal document (correction to the tables) to GRVA-08 (Dec 2020)
- OICA to table PBC at GRVA-09 (Feb 2021)

*Plan for next meetings:*