

## DRAFT NOTES

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

6-7 February 2020,  
in Paris, France

**Time:** Start at 10:00 am on 6 February  
Finish at 4:00 pm on 7 February

**Venue:** OICA offices  
4 rue de Berri  
75008 Paris  
France

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

The Chair organized a Tour de Table for permitting all participants to introduce themselves.

### 2. Approval of the agenda

Document: AEBS-11-01 (Chair)  
The agenda was adopted with no change.

### 3. Discussion on AEBS for Car to Bicycle scenario

Documents:

- ECE/TRANS/WP.29/GRVA/2019/5 (AEBS)
- AEBS-10-05 and 06 (BASt)
- AEBS-10-04 (EC)
- AEBS-04-07 (NL)
- AEBS-05-08 (CLEPA-OICA)
- AEBS-11-02 (D) Bicycle braking performance
- AEBS-11-03 (CLEPA-OICA) Industry Proposal Car2Bicycle
- AEBS-11-04 (CLEPA-OICA) Industry Input
- AEBS-11-05 (J) C2B target performance proposal Jasic final
- AEBS-11-06 (ROK) Car to Cyclist Crash test result

The Chair presented the document AEBS-11-07 as a state of play of the discussions on C2B in the group. The Secretary confirmed that this well reflects the outcomes of the last meeting as collected in the report (AEBS-10-09-Rev.1). this report was adopted simultaneously.

J supported the crossing scenario but had problem with the deceleration of the bicycle.

D presented the document AEBS-11-02, based on the scenario anticipating the best braking performance from the cyclist. The Chair recalled that the assumption agreed at the last meeting was a bicycle speed of 15km/h as in the EuroNCAP protocol.

J presented their document.

- Seems the cyclist does not stop before the intersection in Japan (97%).
- Cases similar to emergency, but no collision.
- Scenario leads to values similar to those of C2P in the 01 Series of amendments.

OICA stressed that the balance between false reaction and high performance must be respected. A similar discussion took place with the C2P. In view of the C2B scenario the speeds lead to distances such that the cyclist could well decide to turn while the vehicle started the AEB phase. Then for the driver this will be a false activation (unnecessary activation).

D on Slide 4: the 30 cm in the C2P scenario correspond also somehow to the braking distance of the pedestrian. Yet this is not true anymore for the C2B.

J replied that this cannot justify to give-up an assistance to the driver.

CLEPA questioned the sensor opening angle used in the Japanese approach. J informed that a vehicle speed of 20km/h corresponds to the J situation.

OICA presented their document AEBS-11-04, balance between reasonable performance in 2026 and feasible AEBS. 1<sup>st</sup> step as reasonable provisions for current systems, then 2<sup>nd</sup> step with increased performances where Industry can commit to deliver. OICA explained the strategy of a 2-step. OICA explained the concern is not much related to the technical limitations, rather to experience Industry must gain with the systems and the balance between high performance and limitation of false activation. CLEPA showed document AEBS-10-05. The 5m/s<sup>2</sup> proposed by Industry are a reasonable means between the highest performance bicycles and the lowest ones. The 1m/s<sup>2</sup> proposed in the J presentation may be relevant for Japan, but may not represent the worldwide situation. D questioned the timeline of the 2-step approach from Industry. Industry stressed that the key date is that of the All-Types (2026) in the GSR because it concerns current vehicle. The Chair requested data for justifying to postpone the GSR dates. The requested performances make a challenge regarding the necessary re-design of the vehicle. The Chair acknowledged the number of re-designs necessary for the whole systems due to the GSR, e.g. multiplication of sensors, re-design of the bus. OICA stressed that the figures from the EuroNCAP are misleading since showing 70% compliance of the “tested vehicles” (vs. the market). D questioned the case of the N1 vehicles.

ROK presented a presentation on share cyclist accident data base AEBS-11-06. The expert was hoping to provide additional information once the test campaign is finalized. Some exchange took place on the figures and the test conditions.

OICA presented the two different general topics at stake about the performance requirements on the C2B item: sensor opening angle (vehicle re-design) and risk of false activation (system strategy). D pointed out that a lateral acceleration of 5m/s<sup>2</sup> would lead to a radius of ca 3m at the bicycle speed. However there are different configuration since both vehicles may turn after bicycle detection (typology of infrastructure). The group struggled in finding the relevant values (deceleration, distance, lateral acceleration). D was questioning the value of 5m/s<sup>2</sup>. OICA was challenging a re-design of the vehicle in the middle of its lifetime. The speed would be at around 25km/h. accidentology shows a dramatic decrease of severity at that speed (see ROK presentation). D presented a slide showing the severity of accidents (not fatality) studied at EuroNCAP.

OICA then presented the document AEBSMIN1-11-03 where the assumed bicycle deceleration is 5m/s<sup>2</sup>. the expert explained that the year 2026 is somehow unfortunate since lots of vehicles will arrive the end of their life. OICA stressed that the 2-step approach would make Industry much more flexible for the 2<sup>nd</sup> step. The EC clarified that the dates of the GSR are very much frozen; the expert well acknowledged that the technology is still at the beginning and subject to improvement. Industry clarified that the GSR dates are ok with the state of the art, however some more time is needed should the group decide to mandate more advanced technology. Hence the group was seeking to confirm the state of the art to well identify reasonable performance requirements. The margin for discussion seemed to be about the relative speed in the range between 20 and 35km/h.

The group compared the Japanese and Industry assumptions. The experts reached comparable values and were then ready to assess a reasonable safety margin.

D presented their accident data (GIDAS). This shows a plateau, hence there is no speed where the value is more relevant than the other (between 20km/h and 55km/h). OICA pointed out that the relevant criterion is the impact speed rather than the driving speed.

Industry then showed the French figures.

Industry then presented the document AEBSMIN1-11-03. D was keen to focus the discussions on the Phase2 since the group acknowledged there is a problem with the “old types”. NL supported this point of view. NL also stressed the discrepancies between the Industry proposal and the EuroNCAP results. Industry pointed out that the systems currently in the market are not bound by the requirements of the AEBS regulation (i.e. paragraph 5.2.3.4. introductory sentence). These systems have no limiting circumstances.

J had a concern with regard to the 2<sup>nd</sup> step proposed figures. D committed to provide to the group an analysis of the proposal on the base of common assumptions.

Conclusion: D to provide comparable proposals.

AEBSM1N1 introduction dates:

EU: no change, the GSR2 application dates.

J: data only applicable to the 00 Series: C2C and C2P, domestic: Nov 2021NT/Dec 2025 AT, and Imported cars: July 2024 NT / July 2026 AT. No dates available on C2B since they depend on the outcomes of the informal group discussion. “Domestic” means “produced in Japan”.

Table: Implementation of AEBS 00 series in Japan

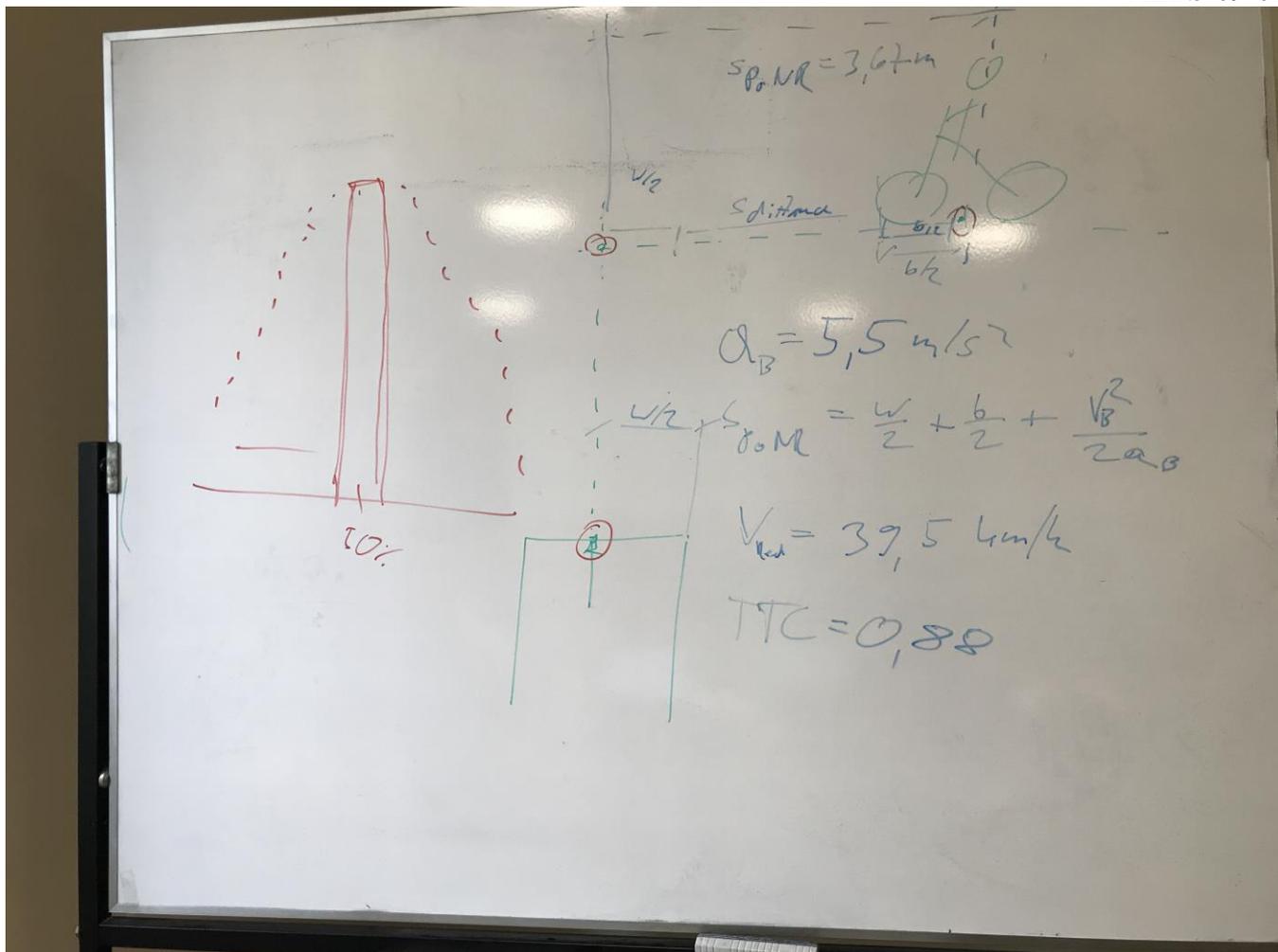
C2C and C2P	Domestic “Produced in Japan”	Import
New Type	Nov./2021	July/2024
All Type	Dec./2025	July/2026

Agreements on the way forward:

- State of the art technology
- EuroNCAP test method
- Bicycle speed: 15km/h
- Lowest speed of ego vehicle :  $20 < v < 35$  km/h (TBC)
- Reference points (Same approach as for the C2P): Centre of ego vehicle front 2 bicycle crankshaft (see J proposal)
- Time to start deceleration = time of bicycle no return (BASt: 3,89m / J: 3,65m): to be reviewed by Industry
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Conclusion:

- Above se the basis for the draft text
- Next meeting will be dedicated to drafting of text for C2B
- Target: draft text from AEBS for GRVA-07 (Sept 2020)



#### 4. Discussions on amendments to the existing regulation

##### 4.1. False Reaction scenarios

Document:

- AEBS-10-03 (J)
- AEBS-11-04 (CLEPA-OICA) Industry Input

OICA presented the document AEBSM1N1-11-04, slides 6 and onwards.

#### 5. Other business

The informal group agreed to transmit the document AEBS-11-12 to the UN Secretariat as an AEBSM1N1 informal document to GRVA-05 (became GRVA-05-35)

The Chair wondered whether we could have a more complete picture of the capabilities of the system by assessing the good functioning and also the false positives (the fails). The expert wondered whether this would be a good way forward. He added that it could be beneficial to show the slide 6 of presentation AEBS-11-13 at GRVA at the plenary session.

J presented document AEBSM1N1-11-08

There was an exchange of comments (ROK, NL) on the proper expected point of impact

AEBSM1N1-11-04, slide 9 (ESC)

D accepted the approach

J was supportive of the proposal, but challenged the technical justification.

NL challenged the combination of deactivation scenari (AEBS + ESC). OICA explained that the proposal tries to address the cases when keeping the AEBS would decrease safety, with the counter-effect to that is initially expected from AEBS. The ESC is of course a pre-condition to the AEBS, hence the ESC deactivation

must provoke AEBS deactivation. Such deactivation should then be indicated to the driver. The debate was about referring to the ESC while it is not pre-required in the AEBS regulation. The proposal originates some discussions with some Approval Authorities so as to make the reference to ESC deactivation in the regulation. Conclusion: Industry to decide whether tabling a proposal at GRVA

F presented their concerns about the false reaction test : to be reviewed at next meeting

F presented their proposal to upgrade the SRTT reference. J had concern that this could influence the GTR as well. NL preferred to keep a peak adhesion of 0.9, and suggested a correction coefficient to adapt to the new SRTT. The group agreed with the principle and requested F to table the relevant proposals at the next meeting.

CLEPA proposed to update the reference to the test targets according to the last updates of ISO (see AEBS-02-05). The group agreed to the principle and requested Industry to raise the item when ISO upgrades will be ready.

## 6. List of action items

### *Plan for next meetings:*

- *AEBS-12: 14-15 May 2020*
- *AEBS-13: 25-26 June 2020 TBC in Europe (deadline for documents to GRVA-07: 29 June 2020)*