

DRAFT AGENDA

8th meeting of the Informal Working Group (IWG) on Advanced Emergency Braking Systems (AEBS) for light vehicles

15-16 May 2019,
in Tokyo, Japan

Time: Start at 10:00 am on 15 May
Finish at 5:00 pm on 16 May

Venue: Tokyo, Japan

Chairman: Mr. Antony Lagrange (EC) and Mr. Toshiya Hirose (Japan)

Secretariat: Mr. Yukihiro Shiomi (Japan) and Mr. Olivier Fontaine (OICA)

1. **Welcome and Introduction**

The experts introduced themselves

2. **Approval of the agenda**

Document: AEBS-08-01-Rev.3 (Chair)

The agenda was adopted with no change

3. **Adoption of the notes of the 7th meeting of the Informal Working Group**

Document: AEBS-07-12

To be reviewed until 16 May.

The group temporarily adopted the notes of the 7th meeting.

4. **Debrief 2nd session of GRVA in January**

The Chair summarized the outcomes of GRVA-02 per GRVA-02-28. GRVA adopted document GRVA-02-39-Rev.1 amending the official document GRVA-2019-05.

D raised that the reference to ISO19206-3 is missing in the list of ISO Standards.

The Chair recalled that the draft regulations on the table of WP29.

The EC informed that there is a political agreement on to make AEBS mandatory on cars and vans, internal European text is frozen, yet the Application dates in the EU depend the publication of this text in EU, i.e. 30 months after publication. Application could be as follows:

C2C: mid 2022 for NT, mid 2024 for AT. C2P and C2B: will be 2 years later (2024NT-2026AT). He clarified that there will be no application “if fitted” before those dates.

J informed about their application process: J is currently awaiting the adoption of the text at WP29-178, then, after its UN EIF, will start the process of introduction (mandatory or if fitted, not decided) of the regulation. Ongoing national Congress implies some political pressure for introduction of AEBS regulation.

ROK informed that they plan to apply (mandatory) the UN regulation. C2C: 2021 NT, C2P: 2023 NT.

5. **Discussion for proposal of AEBS based on the result of 2nd session of GRVA**

Document: GRVA-2019-05 (IWG on AEBS)
GRVA-02-39-c1 (GRVA Secretariat)
GRVA-02-22 (OICA)
WP29/2019/61

The Chair clarified the aim of the meeting:

- Amendments to 2019/05 as a Supplement for improving the text of the regulation. Will become an official document for GRVA-04 of September 2019.
- Amendments to 2019/05 as a new series of amendments mainly for C2P. will become an official document to GRVA-04.

5.1. Pending issues for Step 1

OICA presented their items per document GRVA-02-22 and AEBS-08-04-Rev.1

- Definitions (paragraph 2.19): since each type can have different masses according to their equipment, the proposal is to refer to the “vehicle under test”.
 - J questioned this approach since the Regulation 13 for example does not have such provision. J found the OICA proposal unnecessary.
 - The EC supported J: such proposal would create confusion with the other definitions, e.g. the “mass in running order”. The expert suggested to remain with the “mass in running order” and remove the definition of “unladen vehicle”. EC suggested “nominal mass”.
 - D informed that EuroNCAP that tests the vehicles with 90% tank fuel.
 - F informed that the Technical Services usually manage the mass of the vehicle under test to cover the different variants of the vehicle.
 - NL: in R13 these details are not specified either, hence suggested not to make it too complicate.
 - OICA clarified that there can be a great variety of mass among one vehicle type. Usually the manufacturer and the Technical Service select the worst case, where it could happen that the lightest vehicle is selected because e.g. the rear axle does not brake, then it should not be laden at 90% because it would not be the worst case anymore.
 - The EC said that the this does not justify the OICA change sine the discussion between the manufacturer and the Technical Service will take place anyway.
 - D: Tip over: ok in full cab vehicles, not for any others because of the E° corrections, where the heaviest should be chosen.
 - F: the vehicle under test will not be the vehicle type approved, hence the reference for the measurement.
 - OICA clarified that this is also linked to the market surveillance where the exact same vehicle cannot be found. Also, the “maximum 125kg” are somehow the tolerance.
 - D proposed to introduce a tolerance in the test section. The expert recalled the introduction of paragraph 2.19: making the test as mirroring as possible the real world conditions.
 - Industry subsequently proposed an improved wording introducing the idea of “lightly laden” and “fully laden” vehicle per an email of 15 May 2019.
 - The Chair suggested a simpler concept such tht the performance requirements must be achieved in a range between MIO and max mass.
 - Debate:
 - Definitions of mass in the test section
 - J keen to align the definitions on those of UN R13H/R13
 - See Annex 3, paragraph 1.4.1.2.2.
 - Note that the value of 125 kg come from the EuroNCAP protocol
 - 50% of fuel tank: J challenged this tolerance. However the value makes about 20 kg. this addresses the obligation to re-fill the tank when necessary.
 - Maximum mass: the Technical Service can accept a mass slightly below the max mass.
 - Conclusion:
 - align as much as possible on UN R13H,

- 50% fuel level in [],
- idea of “maximum mass” remains.
- Wording to be improved at the next meeting
- Paragraph 1. (Scope)
 - OICA at the end of the meeting flagged that the “or” disappeared from the paragraph 1 (b) / (c).
 - However the three different kinds of approval should be separate items and not linked together.
 - Conclusion: the group agreed to re-instate the “or” between (a) and (b) so as to separate the two kinds of approval.
 - The Chair proposed to solve this via paragraph 5.1.1.
 - This raised a concern
 - by J about mutual recognition:

	C2C	C2P	C2B
CP1	Mandatory	Mandatory	Mandatory
CP2	Mandatory	Optional	Optional
CP3	Optional	Mandatory	Optional

- Yet the Certificate document the systems are identified and can solve the problem of mutual recognition.
- Conclusion: action item to introduce a section into the Communication form.
- Paragraph 2.20: the Technical Services have problem in reaching the exact maximum mass, hence there is a need for some tolerance.
- Paragraph 6.2.1.:
 - The OICA proposal was adopted
 - NL challenged the “manufacturer ‘recommendation. OICA explained that there is anyway no flexibility on the worst case, yet the manufacturer is competent to recommend what is this worst case, in particular for the mass distribution. NL raised the current concerns in R13, since the text was designed at a time there was no big differences between the lightest and the heaviest vehicles. Nowadays the Technical Services face problem because the range is wider today. J supported alignment of the text on R13H.
- Paragraph 5.1.6.:
 - Adopted
- Paragraph 2.17:
 - Adopted
 - Paragraph 5.1.4.1.2.: adopted as well
- Paragraph 4.3.1.
 - EC to verify whether “may” is aligned with eht GSR. However the group agreed in principle. GSR reads “shall provide means to interrupt the warning”. However informal discussion in the coffee break with Industry may lead to an additional paragraph.
 - Conclusion: make the difference between the easy suppression of the warning during intervention, and the not easy suppression via the menu. Wording to be constructed at editorial meeting.
- Paragraph 5.2.1.2.
 - F presented their concern. Should the measure performed on the CAN bus directly, then with additional equipment, or via external additional sensors (easy solution). D informed that this is a general requirement, however on low adhesion the 5 m/s² can sometimes never be reached. The EC suggested to specify this in the test section. Yet D acknowledged that the regulatory approach may be different to that of the EuroNCAP since the IND/Technical Service collaboration and the CEL annex permit to ensure the development of the vehicle is correct and the CAN bus value is reached on the track.
 - F and ROK to address the 5.0 value in coffee break.

- OICA raised that at low relative speed, even in high adhesion we may not reach the 5 m/s².
- Paragraph 5.2.1.4.: XXX to be reviewed later
 - The group subsequently reviewed the paragraph according to the OICA input (Slide 2 of AEBS-08-04-Rev.1)
 - OICA proposed an approach as in Slide 4: “the requirements may not be achieved if the conditions deviate from those described in the test section”.
 - The group tried to select the relevant parameters affecting and influencing the performances of AEBS, per Slide 3. OICA plead to not limit the list to the 5 criteria currently in the text as some conditions cannot be identified. D and the EC were of the opinion that it is indeed feasible to construct an exhaustive list of the relevant parameters.
 - Flat and horizontal road (no pothole, no slope)
 - Target directly visible (no abstraction)
 - Temperature range inspired from EuroNCAP
 - In absence of driver’s override
 - “drastically” vs. “unreasonably”:
 - If situation “drastically” change, then the system strategy may itself “drastically” change.
 - “control strategy” vs. “strategy”: seems “unreasonably” makes sense in the context of “control strategy”.
 - D feared that it can be reasonable to deactivate the system in certain conditions.
 - F: “drastically” means “as close as possible as in the nominal conditions”, hence would prefer “drastically”. Yet OICA focuses on the cases out of the nominal conditions.
 - D proposed a separate sentence capturing that the system regulation should not show a step.
 - Misunderstanding on the meaning of “drastically”: step function vs. radical change
 - **Conclusion:** However, the system shall not deactivate or **unreasonably change drastically switch** the control strategy in these other conditions.
 - Conclusion:
 - Adopted
 - To be copy/pasted for C2P
- Paragraph 6.2.2.1.:
 - OICA explained that the “pre-conditioned” vehicle is somehow defined in R13H via the temperature of the brakes, and IND proposes some alignment.
 - ROK questioned the way to reach the range in winter since the temperature may drop fast.
 - OICA and EC pointed out that the paragraph applies “at the request of the manufacturer”.
 - D questioned the origin of the 65° (UN R13H, Annex 3, paragraph 1.4.1.1.)
 - Conclusion: adopted, 65° to be checked over lunch.
- Paragraph 5.2.2.1.
 - F presented their concern about the relative speed between the target and the vehicle.
 - The EC wondered whether introducing this into the test section. D found this is the task of the Technical Service to make the calculation.
 - Conclusion: F and D to propose a text in the test section XXXXX
 - F subsequently proposed the following wording:

§ 6.6.3. Geometry

Calculation of the impact speed shall be based on the contact point between the target and the vehicle

Calculation of the impact speed determination shall take into account the vehicle geometry.

- Conclusion: item to be further reviewed at next meeting.
- Paragraph 5.2.1.4.
 - D proposed to shift the left part of the table to the right since the target may move slower than 20 km/h
 - OICA accepted this proposal temporarily for M1
 - The group agreed in principle that this applies to the N1 vehicles as well
 - OICA raised the concern of high speed with the sale relative speeds, because the philosophy of the regulation is based on the urban scenario. However the text of the regulation does not clearly discriminate speeds > 60 vs. speed < 60 km/h
 - Conclusion: proposal adopted in principle, Industry to raise their concern of high speed if considered necessary
- Paragraph 5.2.2.4.
 - Not for step 1, XXXXX
- Paragraph 6.4.1.:
 - OICA explained the concern of 100% compliance. As the approach is currently different among the Technical Services, during the discussions between the Technical Service and the manufacturer, OICA keen to harmonize the situation. CLEPA explained the slides 6 and following of the document AEBS-08-04-Rev.1.
 - D supported that there is existence of uncertainty on the success of a test, and supported harmonization, yet was keen to discuss the numbers. The expert proposed e.g. that at least 90% of the tests should be successful.
 - J supported the theoretical statistic calculation, yet wanted to get the reason for the failure, and adapt the conditions such that such failure do not occur. How can a good vehicle fail in ideal test conditions? D pointed out that there would anyway be discrepancy in the Technical Service judgments, hence at least repetitions should be introduced. The group was informed that the EuroNCAP permits that the test be repeated twice if one result deviates from series of test.
 - There was a general support for the approach.
 - J questioned about any existing problem with UN R131 approvals. The J Technical Service clarified that the test conditions in R131 are simpler, and there is hence less discrepancy in the results (high speed, special target, etc.) D added that the proposed regulation requests a high number of tests, this is a new situation. While R131 only requests 2 tests; there is a high probability of success. However the proposed regulation is affected by numerous parameters, sometimes the investigation does not clarify the reason why the vehicle fail. Hence need to have a proportion of success to be able to communicate to the “external world”. OICA in addition:
 - Clarified that it is the business as usual since there are always discussions.
 - The requirements are actually quite high, while a failed test could finally end with an impact speed of say 2 km/h or so.
 - IND clarified that the proposal nowadays diverges from the informal document 02-22.
 - CLEPA/OICA subsequently proposed the following wording: “*Any of the above test scenarios shall be performed three times. A test shall be accounted as passed if the expected performance is met for at least two of the three test repetitions*”
 - D repeated their position that they need domestic confirmation of the approach.
 - J had concern that some concern with the approach and suggested that
 - NL wondered the necessity of the approach and suggested to introduce the concept at COP level, since there must be some reason for the failure.
 - OICA clarified that that sometime a failure occur with no clear reason, this is due to the complexity of the system and the environmental nature of the sensing system.
 - CLEPA explained that 2 out of the 3 seem sufficient for confidence in the result, however was ready to review this proportion.

- F feared extensive discussions with the manufacturer with such approach since the test set-up and the results may vary in a certain range. However the EC had sympathy for the approach since the expert expects a general trend of the type approval tests in the direction in the forthcoming years.
- D stressed that such new approach with about 16 tests to be performed, makes sense, in particular with such technology: this would lead to less discussions rather than more discussions. This statement was support by CLEPA. The EC suggested some additional documentation from Industry.
- Conclusion:
 - Industry to give a definitive figure
 - Proposed paragraph in []
 - Item to be re-discussed at next meeting.
- Paragraph 6.3.2.
 - Manufacturer to declare which target to use. The systems tend to be smart, and if the target does not well reflect the real world then it might not be detected.
 - The EC proposed to mandate the sophisticated target. D supported the articulated dummy.
 - CLEPA proposed a flexible approach and amend the regulation at a later stage.
 - Conclusion: articulated dummy mandatory. Reference to found in the ISO standard
- Paragraph 6.3.1.: ISO references are already up to date in the working document.
- Paragraph 6.8.2.:
 - OICA explained that the value was missing from the document GRVA-02-39-Rev.1, yet added in the in the WP29 document. OICA can live with the value “15 km/h”.
 - J also supported “10 km/h”.
- Paragraph 1.1. and 2.1. and 3.1 of Annex 3, Appendix 2.
 - The paragraphs were never re-visited. OICA proposes a tolerance, or alternatively delete the whole section.
 - J proposed to delete the whole Appendix 2 to Annex 3. J understand that list is non exhaustive. D reminded that this Appendix was added at the request of UK and AUS. The Chair was indeed reluctant to remove the appendix
 - Debate to avoid too many scenarios as well, while remaining above a minimum number of scenarios. The target of the appendix is to avoid really bed systems. OICA clarified that the market will anyway regulate this through the false warnings and activations. If the appendix is deleted, then the same problem of inflation of scenarios.
 - J subsequently presented a proposed change: “demonstrated in the assessment carried out under Annex 3 of this Regulation. **Appendix 2 of Annex 3 of this regulation gives a minimum example, and Technical Service may require other scenarios** for the scenarios listed in its Appendix 2.”
 - OICA challenged the proposal
 - Debate as to whether false positives vs. false negatives must be tested. F informed that the Technical Services test this provision via the Annex 3 audit. The concern is to avoid that the system switches off to avoid false positives. There is no good way to assess the avoidance of false positives: the track test does not reproduce the real-world situation, the CEL annex is not sufficient, a real worlds test drive does not help clarifying whether the activations are relevant. Seems only general requirement as in current text is the best approach. Some trade-off between false positives and the performance requirements must be respected, yet if possible assessed.
 - OICA would support deleting App. 2 since the manufacturers all perform extensive tests during the development of the system. The Technical Services can anyway request any confirmation test they believe necessary.
 - Some experts reviewed the wording to cover a non limitative list yet including the two examples listed in the Appendix

- Conclusion:
 - Adopt the proposal from CLEPA-OICA on the tolerances
 - **Wording as follows:** “The system shall be designed to minimise the generation of collision warning signals and to avoid autonomous braking in situations where the driver would not recognise an impending collision.
This shall be demonstrated in the assessment carried out under Annex 3 of this Regulation, **and this assessment shall include in particular scenarios** listed in **Appendix 2 of Annex 3**”
- Date of EIF
 - Very important for the manufacturers:
 - At each points of the negotiations the answer to the Industry when raising the difficulty was “you will get there”.
 - The current proposed text now allows a CONTRACTING PARTY to mandate AEBS as from January 2020
 - E.g. HMI: current systems will need time to be adjusted. The systems developed for the market for 2021 are already developed.
 - Even for “if fitted” AEBS, so severe requirements may prevent some manufacturers to propose the AEBS
 - At AEBS-07 there was the decision to still discuss open items, and the EIF was part of them.
 - Should the date remain, then the systems on the market might not be robust enough.
 - The Chair:
 - The date is decided by the NY
 - If the date is added, this means that the contracting parties cannot accept a TYPE APPROVAL according to the regulation. In this case they can use national rules.
 - OICA stressed that the text is definitely not mature, the amendments discussed today are very much necessary.
 - The EC clarified that EU will not apply the regulation as “if-fitted” before the date of the GSR. The expert clarified that it is in the interest of Industry to have an early application of the regulation, despite they claim it is not.
- Paragraph 5.3.1.:
 - Linked to the following paragraph
 - OICA proposed during the meeting to separate the paragraph in 2 different provisions (shall / may), and in addition amend add a new paragraph 5.4.1.5.
 - Conclusion:
 - Paragraph 5.3.1. amendment adopted
 - Paragraph 5.4.1.5.: see below
- Paragraph 5.4.
 - Manual vs. automatic deactivation.
 - D proposed to delete “manual”
 - Conclusion: “manual” deleted
- Paragraph 5.4.1.5.
 - Proposal from OICA to align on the GSR, however optionally.
 - Concern two different aspects:
 - Deactivation of the AEBS: should be difficult
 - Deactivation of the warning phase: should be easy
 - J was keen that there is always a warning, could not accept deactivation of the warning.
 - Conclusion: proposed paragraph 5.4.1.5. in []
- Paragraph 5.2.1.1.
 - Detecting, computing, then generating the warning demands time.
 - J had reservation on the last part of the proposal
 - Conclusion: OICA proposal adopted per Slide 7, text in the [] inclusive]

- Paragraph 6.1.1.:
 - o F presented their concern with the use of a robot that could provoke AEBS overriding.
- Paragraph 5.1.1.
 - o F wondered whether the AEBS should be added as a reference into UN R10, paragraph 2.12., since “brake” might not fit “AEBS”. The UN R10 is principally focusing on immunity.
 - o OICA found the current text clear enough.
 - o Conclusion: this item is more an item for GRE (EMC task-force) than for the AEBS informal group.

5.2. Performance requirements for C2P Step 2

- OICA presented the slide 14 of document AEBS-08-04-Rev.1.
- D stressed that the requirements should be based on real figures rather than expected concern.
 - EC supported this point of view, and suggested that the text remains unchanged until the group is convinced of the concern.
 - Conclusion:
 - o text remains unchanged
 - o EC to provide relevant data to the Secretariat for distribution to the group. (became document AEBS-08-05)

5.3. Transitional provisions for the changes related to Step 2

- Dates of Step 2
 - o The EC was keen with the dates proposed in the document GRVS-02-39-Corr.1
 - o OICA was keen to align on the GSR dates, in particular for the vehicles still under development.
 - o The EC could agree with this approach, yet NL found necessary that the text is available before its application in the EU
 - o Conclusion: transitional provisions to be aligned on the EU GSR: 2024NT/2026AT

5.4. Transitional provisions for N1 full cab

J stressed that the concern exists for both C2C and C2P. the group agreed to remove the N1 full cab for C2C until step 2, and the C2P is more difficult, hence there is a need for further transitional provisions. J has currently no timing, yet committed to propose a text for the next meeting.

NL challenged the J position since the exemptions are a wrong approach. Should a contracting party adopt a regulation, it should adopt it in a whole.

D questioned whether the EU do not have any vehicle with $\text{Alpha} > 1.3$.

Conclusion:

- J to provide proper justifications for such postponement
- J to provide draft transitional provisions

6. Other business

6.1. Scenario and performance suggestions for C2B : share of information about respective experience (EuroNCAP)

The EC informed that more and more vehicles are currently being tested at NCAP level. The Chair called for data.

J wondered whether the C2B scenarios are similar in J and EU. J found the crossing scenario are important. The group was informed that no data could be available before November 2019: about 29 vehicles were tested to date.

Conclusion: EuroNCAP experts to report back to AEBS informal group on a regular basis. AEBS to report back as above at GRVA of September.

6.2. Performance requirements under real driving conditions (EC)

OICA presented Slide 2 of AEBS-08-04-Rev.1

Not all “different” conditions are listed in the paragraph 5.2.1.4., while these conditions might prevent the system to work properly

D proposed that the test report contains the outcomes of the tests and discussions between Technical Services and manufacturers, then amend the regulation accordingly at a later stage

The EC suggested that solutions like “fulfilling with at least 1 of the conditions above”.

7. List of action items

OICA repeated their concern about the quick adoption of the regulation: the expert wondered the benefits of such fast adoption in particular in view that the amendments discussed this week will be adopted not sooner than the GRVA session of September.

The Chair understood the call, yet found the amendments not of major importance and suggested Industry to raise their concern at WP29. The amendments could well be applied

Next step:

- One document as Supplement to the existing text
- One document for C2P step 2 with transitional provisions
- C2B: all to bring data if existing
- Item of driving condition
- Full cab vehicles performance requirements, possible phase-out.

Plan for next meetings:

- **AEBS-09: 3-4 July 2019 in Brussels (EC offices)**

BREYDEL BUILDING - Room 5B

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Will be devoted to the finalization of of the 2 documents to be prepared for GRVA-04

- **AEBS-10: to be discussed at 8th meeting**

Possibly the week after GRVA-04 (24-27 Sept) i.e. the 1st week of October, or during the week of WP.29-179 (12-15 November in Geneva).