

SECRETARY NOTES

7th meeting of the Informal Working Group (IWG) on Advanced Emergency Braking Systems (AEBS) for light vehicles

12-13 November 2018,
in Geneva, Switzerland,
Palais des Nations

Venue: Room IX, Geneva, Switzerland, Palais des Nations

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

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

1. Welcome and Introduction
tour de table for presentation

2. Approval of the agenda

Document: AEBS-07-01 (Chair)

The agenda was approved with no change.

3. Adoption of the report of the 6th meeting of the Informal Working Group

Document: AEBS-06-07

The chair and Secretary informed that the document 06-07 is actually the notes of the last meeting.
Conclusion: up to tomorrow morning for checking the content.

4. Discussion for draft proposal of AEBS (car to car, car to pedestrians, car to bicycle)

Document: AEBS-03-02-Rev4 (Chairs - Secretary) – soon available

C2C

Paragraph 5.1.1.

Deletion of some paragraphs: OK

Addition by OICA/CLEPA: place to be defined

AUS: concern about wording of “fitted with an AEBS” as raised at GRVA: the wording could make a problem for a contracting party to mandate nationally. The European Commission explained that the UN regulation are “if fitted” regulations, and up to the contracting parties to mandate them nationally. UK supported AUS that the wording might be improved as it does not make sense as it is.

Conclusion: align the wordings among the regulations in this respect, according to the outcomes of GRVA.

Paragraph 5.1.4.1.2.: UK understood the concern of OICA yet found the text unclear.

CND questiond “appreciable” in the context of certification and conformity of compliance.

OICA was happy to discuss the wording yet it is difficult to define a value for detection time since it depends on the nature of the failure. Keen to have a guideline on the way to test or verify. CND also challenged the “delay in illuminating the warning signal”

J and the chair challenged the word “if applicable”.

“Not operational” indicates when the system is self-calibrating; this is no failure per se.

Debate on the different cases of calibration and failure (sensor misalignment):

- Different paragraphs?
- Different timing?

- Different warning? What information will the driver receive from the HMI?

At each ignition ON, there is a calibration phase, which can result on a misalignment that can be or not be self-corrected by the system. In case in can't, then this is a failure.

Test for sensor blindness is easy to elaborate, not for sensor misalignment.

Hence this can be done via the CEL annex, or via another way. Need for a "safety net". Yet the algorithms

Conclusion: wording to be improved for this pm with the UK at break. Principle agreed.

Proposal from Industry (no contribution from contracting parties): qualitative criteria rather than proposed values since values cannot be defined in this case. The chair made clear that no value be in the text of the regulation.

Conclusion:

- AEBS group agreed that there is quantitative provisions for self-check.
- Distinction between a electrical failure (no delay), a non-electrical failure (short delay) an ongoing calibration (to be moved in another place) and self-check.

Discussions of D2

Proposal from the UK for clarifying the cumulative nature of the delay.

15 seconds: J concern that increasing the time increases the possibility of having an AEBS function working correctly. Keen to ave an upper limit as well. If the system does not succeed to calibrate then it is a failure.

Industry prefers an information rather than a warning, gives flexibility to the manufacturer.

NL supported

Conclusion: amended UK proposal adopted.

Addition of a paragraph 5.1.7. UK and D challenged the paragraph since it is too flexible. The chair questioned how the requirements on the warning and braking can be articulated with the paragraph 5.1.7.; i.e. whether the mandatory times for warning and emergency braking are still applicable. J shared the concern of D and UK. Industry stressed the necessity to address the case of e.g. a pedestrian leaving the path of the vehicle, i.e. the collision ceases to be "imminent" (definition of imminent by the way).

Proposal to split the paragraph into 2, one for the failure warning, and one for the emergency braking.

UK had a concern with the definition of "semi continuous". OICA accepted "continuous"

Paragraph 5.2.1.2.: NL and ROK presented document AEBS-07-02. AUS supported the presentation.

The Secretary pointed out the difference between a brake demand and a braking itself. Issue is "average braking demand". Industry pointed out the value is the possible minimum at R13H and also the regulation must address the real-world situations where the value might possibly be no physical possibility for reaching the value. debate on the misuse of the system as an ACC.

J recalled that the notion of "braking demand" was key for distinguishing the warning phase and the braking phase in the R131. The current draft regulation dropped the 2 phases hence the discussion is different. The chair found a contradiction in requesting the possibility to brake early and simultaneously defining an "emergency braking". UK questioned the wording "average". OICA stressed that there is no concern n the market (as proved by the ROK presentation) and this is due to the the fact that the system do brake at the very last moment.

The chair subsequently proposed to use the wording from OICA with the value of 6.43 m/s² for M1 vehicles (When the system has detected the possibility of an imminent collision, there shall be a braking demand of at least 6.43 m/s² issued to the service braking system of the vehicle). OICA recalled the reason for the 4 m/s² (engine disconnected in R13H -i.e. 5.76 m/s²-, ACC is defined as <3.3m/s², etc.). J proposed 6.6 m/s² as for ESS (emergency Stop Signal).

Industry then suggested replacing this paragraph with a requirement that the braking phase shall not start before an TTC of 3 seconds.

AUS stressed that any deceleration making the value comfortable should not be accepted.

UK keen for high value

J supports "a demand of 6.43"

NL support J

Conclusion: item to be re-discussed tomorrow;

Discussions of D2

OICA supported 4.0 m/s². OICA presented slide 18 of the PPT presentation. 4.0 m/s² is very rare. About misuse; see the presentation of last meeting. There are now videos showing the current state of technology. The warning will apply in any case, the 4.0 m/s² is not a comfort braking.

The chair questioned the contracting parties for 4.0 m/s², knowing that the effect would be more warning events and less braking events.

J had difficulties with the value of 6m/s². NL proposed 5m/s² as it is 80% of the deceleration required by the regulation.

OICA could accept 5m/s² even if it restricts the flexibility for the manufacturers, yet is better than 6.43m/s².

J was ready to follow the majority.

Conclusion: 5m/s² adpted.

Paragraph 5.2.1.4.

OICA presented Slide 7 of 07-05.

D supported OICA subject to clarity “unladen” means 2 persons + equipment.

Conclusion: OICA laden vehicle values adopted,

Discussion of D2

OICA keen to add the reference to Annex 3

Multiple tests: proposal from OICA to add: “The manufacturer shall provide the Technical Service with documentation and supporting evidence to demonstrate compliance with the performance requirements of this regulation. If the outcome of the tests prescribed in (...) is different to what has been declared by the vehicle manufacturer, the vehicle manufacturer may repeat the test with agreement from the Technical Service.”

Discussion on the philodophy: repeating one failed test among 6 succeeded, vs. repeating one failed test among 2 or 3. OICA confirmed the idea is to address rare cases, due to the fact that the conditions are not well controlled

M1 table: values : 42 km/h gives 9,20, rounded to 10.00 (subject to Industry comment)

The chair questioned the origin of “in the inertial system of the struck vehicle”: coming from D

Definition of testing mass: Industry approach adopted. “mass in running order”.

N1 table: Revision as per the calculation tool from D.

Special short wheelbase N1 vehicles.

The Secretary presented the proposed filled in table for N1 full-cab trucks.

D challenged the presentation based on the outcomes of the 5th meeting that the avoidance by steering would cover the lack of braking performance.

The chair suggested making national exemptions for such vehicles.

Discussions of D2

J showed new tables with a definition of those N1 vehicles and proposed reduced performance requirements.

J stressed that these vehicles are widespread in Asian countries, and that those vehicles are assumed approved to UN R13.

D challenged some of the justifications, because of the steering capabilities, the vehicles could brake earlier as well, the laden vehicles can nevertheless brake, and the unfair situation for other similar vehicles.

UK recalled the decision of the day before for national approval

NL supported D that laden vehicles should be able to brake hard.

J clarified that:

- LPS and braking timing: no data about LPS, but it is not different from the other vehicles. Customer acceptance is not different for those vehicles vs. other ones. Hence cannot change the braking timing
- Laden conditions: theoretically yes, but the OICA presentation shows that the vehicle stability issue is important, hence the braking performances are limited for the sake of stability. False positives should not jeopardise the stability, hence braking strategy is adapted.
- Number of vehicles: see Slide 8 of AEBS-07-10: those vehicles are of a special configuration, yet no data about the number of such vehicles in the market. Yet they are exported in Asian countries.

D proposed to remove those vehicles from the scope.

The chair stressed that this would “un-harmonize” those vehicles.

J stressed it is important that these vehicles are treated at UN level since they are approved to other UN regulations.

Conclusion:

- make the proposed requirements for these vehicles separate to those of the “normal vehicles”.
- GRVA to make a final decision with regard to those vehicles.

illumination conditions.

Industry stressed that the current status of the car target has no light illuminated at the rear hence night conditions cannot be tested. In addition, the NCAP proposes more than 1000 Lux.

Conclusion: 1000 Lux at this stage, and in the conditions of the regulation. To be reviewed later.

Additional sentence from Industry: reviewed and adopted. To be confirmed tomorrow.

Lateral offset: D keen to review the provision. Debate whether the value addresses the real world vs. the test conditions.

Conclusion: 0.2 m offset between each other.

Test scenario:

Test surface: adopted

Illumination: 1000 Lux adopted

Mass conditions: OICA keen that the solution is practical in terms of testing.

Conclusion: chair and secretariat to check with R13H and R13

Reference to ISO standards: agreed to have a fix reference. Conclusion :keep the proper references, fixed.

Paragraph 6.8.

The chair questioned whether some tests for sensor blindness, sensor misalignment and for calibration should be added.

Non-electrical failure to be addressed via CEL annex. Misalignment and sensor calibration to be addressed separately.

False reaction test.

Proposal to mandate this test under CEL Annex. J keen that paragraph 6.10 be removed

Attention: CEL annex still refers to “auxiliary steering equipment”.

Conclusion: alignment on the last version adopted at GRVA.

Discussions of D2

OICA was keen that tolerances are introduced into the test provisions.

The Secretary recalled the decision of last meeting for +/- 1km/h.

Conclusion:

- Tolerance of “-2km/h” for the subject vehicle since the system should not work at speeds higher than those it is designed for.
- Tolerance of “-2km/h” for the target as well

Deactivation:

D keen to showed an attempt to reflect the position of the group, which is not supported by D, hence the proposal to keep manual deactivation in [].

OICA recalled the outcomes of GRVA where GRVA requested D to provide evidence of the safety concerns with regard to manual deactivation.

D repeatedly stated that they had no flexibility on this.

The chair suggested to put all the section in [] since it does not make sense to have provisions for automatic deactivation only.

On D2, the group reviewed the presentations on the state of play at EuroNCAP

Conclusion: the decisions done by the AEBSM1N1 informal group seem supported by the data collected on EuroNCAP. Current markets seems compliant, the offset values seem relevant.

C2P

Presentation of the state of play at EuroNCAP

Results at EuroNCAP are not transposable to the regulation because of the offset values (25/75 vs. 50).

The function of the impact speed vs. the offset is not linear.

The night scenario is quite new at EuroNCAP.

Conclusion: seems the night-time debate will pop up at GRVA, hence the group must be prepared to debate on a delay.

Industry requested the possibility to repeat some tests when e.g. the results are influenced by the environment.

Paragraph 5.2.2.3.

J recognized that the proportion of C2P < 20kph is about 1-2% hence agreed to follow the majority of the group. Yet J is keen to expand the C2P of operational range and speed in the future.

Proposal to extent the range will be added into the justifications. For info: J-NCAP includes the 10kph scenario.

J committed to provide data on this low speed for next opportunity.

5.2.2.5.: will aligned on C2C

Offset: industry keen to have 0.1 in C2P instead of 0.2 (C2C). relevant wording could be found in the EuroNCAP est protocol. Also for C2B. reason is that the scenario is highly dependent on the accurate performance of the test; the results are sensitive to the pedestrian speed. The performance improve according to the “left” position of the impact point.

Proposal from D that an annex be added to specify the manufacturer control strategy.

Conclusion:

- Industry to provide a proposal for wording.
- Addition of the control strategy assessment into the Annex 3

Industry keen to test the C2P at 2000 Lux because of the difficulty of the testing. 1000 Lux fir information is the value when the automatic lamps automatically switch on. D is OK that the C2P be tested at 2000 since the nigh time scenario is quite new at NCAP, the night technology is new and not sufficiently mature for the time being. Need to have proper justifications for the value (BSIS is an information system, for C2B, test method is currently being experienced at NCAP). UK supported D with the justifications.

Conclusion: 2000 Lux without [].

Table: at high speed, full avoidance

PPT presentation by Industry (golden table for justifications of the speed reductions).

Pedestrrian scenario is highly volatile, pedestrian may stop suddenly at the last second. At high speed, need to brake earlier for the C2P than for the C2C.

Conclusion: Industry to provide robust justifications why it is a problem to copy/paste the C2C scenario

2nd step: J and D keen to have c/p of C2C values, no contracting party support for the OICA position.

Deletion of the Industry values, [] remain for initiating the discussions at GRVA such that Industry can defend their position there.

D proposed to de-escalate the warnings if there is no impact, for helping Industry. Yet this would not help Industry very much.

Laden column: same philosophy as for the C2C laden vs. unladen, with different values

1st step

M1: Industry to provide values over lunch for laden vehicles.

Unladen: UK lacks argument to defend the 15 km/h mitigation at GRVA.

Yet the chair suggests making the whole 1st step in [] as there was few support at GRVA for the 2-step approach. The chair stressed the only justification is that the regulation eif as soon as the document is published. Industry clarified the 15kph as some existing vehicles would not pass a more sever value. The 1st step must simply reflect the state of play in the market.

Test scenario.

NL suggested to copy/paste in the regulation the content of the ISO standard.

Conclusion:

- NL to provide the text.
- Secretariat to provide the ISO standards from the UN Secretariat to NL
- Secretariat to update the reference when text will be published.

EuroNCAP tests under the child dummy only in one, quite severe, test, meaning the regulation would become more severe than NCAP again.

Industry recalled that the conditions are so different at NCAP that there is no comparison possible.

False reaction test: no item to be discussed.

C2B

5.2.3.1.: OICA changes adopted

5.2.3.2.: OICA changes to be further reviewed

5.2.3.3.: OICA proposal adopted

5.2.3.5.:

Crossing scenario:

Industry requested to delete the speed reduction demand paragraph. The NCAP presentations from OICA and D show it is premature to require speed reduction.

The chair questioned whether any contracting party propose any performance requirements for speed reduction.

Review of the PPT presentations with regard to the B2C. Note from D that the technology is new on the market. Proposal from the chair: align on the worst result at NCAP.

Concern is that the angle of detection must be wider in the case of the B2C in the crossing scenario.

Concern for the user's understanding: the vehicle may brake at 40 km/h and not brake at 20 km/h. OICA stressed the challenge of requesting at the same time high performance requirements and in the same time require no false alarms/operation. Industry needs gaining experience, time to provide relevant input and values.

D about a bad system: we could decide one speed and one speed reduction today for the Step 2, in [].

NL showed that there are good results at EuroNCAP on the 35/15 scenario, hence this could already be in the proposal.

OICA stressed that if fitted equipment, when they mandate too high performance, might not be fitted at all. CLEPA added that accident data show that the sensor opening is a factor as well.

The chair summarized that there is no suitable proposal on the table for the moment.

Conclusion:

- Current systems not mature enough
- Table with TBD
- Jusifs must be relevant, a.o; explaining why the NCAP scenario cannot be copy/pasted
- In 6 months there will be more experience in the test scenario, but the technology will probably not be much evolved.

Longitudinal scenario

OICA presented their proposal.

D stressed that the TTC 1.2s permits taking into account the driver's reaction.

Chair:

- is TTC 1.2 relevant?
- How many vehicles in the market fulfil the 1.7 TTC requirement? Answer: 50%

Industry concern that a 1.7TTC leads to a setting at ca 1.9, hence the question is the behaviour of the system in the real world. Concern if the fulfilment of the regulation leads to less points at EuroNCAP.

D: this debate should take place not sooner than the C2P step 2 scenario. In addition, at EuroNCAP, losing a star does not prevent from selling the vehicle.

CLEPA insisted that the technology is not mature and should not be in the regulation.

UK suggested: "5.2.3.1.1. When the AEBS has detected the possibility of a collision with a cyclist at a constant speed of **up to** 15 km/h, a collision warning shall be provided as specified in Paragraph 5.5.1."

The chair refused restarting the discussion again.

Conclusion:

- Value of 1.7s

- All section (C2B) in []

(WHOLE SECTION OF CROSSING SCENARIO IN [] SINCE INDUSTRY REQUESTS NO SPEED REDUCTION AND NO APETITE AMONG THE CONTRACTING PARTIES FOR PERFORMANCE REQUIREMENTS, FOR THE TIME BEING)

5. Other business

2-step approach: the European Commission would support this as a new series of amendments. Yet this is not in the mandate of this group, some advise will be requested to the UN Secretariat, the document will be proposed with the 2 options (i.e. 1-step and 2-step approaches) and GRVA-02 may make a decision on this.

Conclusions:

- Manual deactivation: both manual and auto in []

- Same for special vehicles.

- 2-step approach:

- o C2P relevant paragraphs in []

- o C2B: []

- No meeting before GRVA-02, yet some document might be added at GRVA-02, and some further meeting may be organized after the GRVA-02

AEBS for trucks:

- Concordia 1B, 2nd floor same Building as today.

- Small drafting group, no official group yet.

6. List of action items

7. Dates and venues of next meetings