

DRAFT REPORT

13th meeting of the GRRF informal group on

Advanced Emergency Braking and Lane Departure Warning Systems

Venue: ACEA, 85 Avenue des Nerviens, 1040 Brussels
Chairman: Mr. Johan Renders (EC) (johan.renders@ec.europa.eu)
Secretariat: Mr. Olivier Fontaine (OICA) (ofontaine@oica.net)
Dates of the session: Tuesday, 22 March 2011 until Thursday, 24 March 2011

1. Welcome and Introduction

Mr. Ivan Hodac, Secretary-General of the European Automobile Manufacturer's Association (ACEA) kindly welcomed the participants to the meeting.

The Chair proposed to IG members to hold a minute of silence in respect to the Japanese delegates with regard to the disaster which caused many problems to the Japanese people and country.

The Chair introduced the meeting, recalling that it was a necessary "buffer" meeting in view of the remaining outstanding issues and the deadline for the informal group to deliver its final draft regulatory proposals on AEBS to GRRF.

2. Approval of the agenda

Document: AEBS/LDWS-13-01 (Chair)
AEBS/LDWS-13-13 (CLEPA)

The IG reviewed the draft agenda and the list of meeting documents to be considered.

The OICA spokesman informed the IG that OICA had produced a revised version of their proposal for a phase-in process for AEBS (circulated as document AEBS/LDWS-07-06-Rev.2)

The CLEPA spokesman read out a formal statement as per document AEBS/LDWS-13-13 protesting against the fact that some information has not been made available to all the members of the informal group.

The IG adopted the agenda without changes.

3. Outcome of the 11th and 12th meeting of the AEBS/LDWS IG and of GRRF-69

Oral report by the Chair and approval of the draft minutes

Document: AEBS/LDWS-12-02 (draft minutes)

The Chair informed the group that the draft report of the last two meetings would be circulated later during the meeting. He recalled however that the annotated agenda already provided a

substantial amount of information on the outcome of the previous meetings and on the outstanding issues.

The Chair recalled that the group agreed at its previous meetings to set up a drafting group piloted by OICA to elaborate a draft regulatory text proposal based on a 1 unique Regulation approach, for further consideration and discussion with a view to assess its viability as an alternative to the guidance provided by GRRF 68 for the IG to develop 2 stand alone Regulations on AEBS.

The Chair informed the IG that no further guidance on the regulatory approach was provided by GRRF-69 nor by WP29/AC2 (153rd session), and proposed therefore to the informal group to continue to work on both regulatory approaches in parallel, with the understanding that agreements and decisions made in the context of the 2 Regulations approach would also be incorporated in the alternative 1 Regulation approach. He informed the IG that he verified this way of working with the GRRF Chair, who indicated that he could accept this parallel approach being pursued by the IG, so that a decision could be made at the GRRF session in May 2011 (70th session).

Concerning the draft Regulation on LDWS, it was understood from the positive outcome of GRRF 69 that there is no further need for the IG to work on this subject.

NL asked why WP29 did not come to a decision on the regulatory approach on AEBS. The Chair replied that according to his knowledge, the subject was not formally discussed at WP29.

D requested clarification on the position of the European Commission concerning the regulatory approach and the phase-in introduction. The Chair replied that the services of the European Commission have provided to the European Member States in writing their views and intentions with regard to the preparation of the implementing measures on AEBS and LDWS under the General Safety Regulation in a follow-up to the exchange of views at the MVWG meeting in January 2011. However, he considered it not appropriate to enter into further details at this IG meeting.

CLEPA requested clarification about whether the European Commission had the intention to introduce a European Regulation. In particular, CLEPA was concerned about the intention of the European Commission to implement a “warning-only system” requirement for category 2 vehicles in the first implementation phase

The Chair recalled the obligation incumbent on the European Commission stemming from the General Safety Regulation to adopt an implementing Regulation on AEBS, directly applicable in the EU Member States. Preferably this implementing Regulation should be based on the performance and test requirements to be developed by UNECE, hence the Commission services' commitment to endeavour compatible solutions through the UNECE platform as long as this would not restrict or hamper the European Commission to adopt an implementing Regulation before the end of 2011 (deadline imposed by the General Safety Regulation). In order to respect this deadline, the Commission services have to start preparing this implementing Regulation immediately after the 13th meeting of the informal group. Concerning the Commission services' intention to propose in this implementing Regulation a warning-only system requirement for category 2 vehicles for the first implementation step, this was developed following the exchange of views with the EU Member States and industry stakeholders at the MVWG meeting in January 2011, and builds further on the bottom line acceptable for the European Commission as was explained at the 11th meeting of the GRRF informal group. The Chair also recalled the intervention from CLEPA at the 11th meeting on this point, and reminded that the “warning-only system” requirement for category 2 vehicles as part of the first implementation phase was the bottom line below which it was impossible for the Commission to compromise, and repeated that should this

bottom line not be accepted, the European Commission would come back to its initial position (i.e. full AEBS requirements for category 2 vehicles as from the first implementation phase). He also pointed out that the task of the GRRF informal group is to develop technical requirements for the AEBS system and not to limit or restrict the prerogative of CPs to mandate the installation of AEBS to the categories of vehicles as deemed appropriate by CPs.

On the 2nd day of the meeting, the informal group continued the exchange about the regulatory approach.

OICA announced to be ready to prepare a text proposal to include a footnote stating that the performance requirements for vehicles equipped with hydraulic braking systems would be defined in a later stage.

NL recommended using a footnote without performance requirements but with a date for defining them before a certain time.

CLEPA was sceptical about the feasibility of such approach.

D proposed not to use a footnote, but rather wait for after the implementation of the 1st step and propose some performance requirements later.

The Chair considered that the OICA proposal may not be compatible with the Terms of Reference of the informal group, which specifies that the requirements should be developed for all vehicles of categories M2, N2, M3 and N3. As representative of the European Commission, the Chair cautioned that the approach proposed by OICA was not sufficient to implement the requirements of the EU GSR (General Safety Regulation) by the deadline specified in the GSR.

J requested more time to consider the OICA proposal.

OICA acknowledged the European Commission statement and noted that only few Contracting Parties did provide an opinion. OICA committed to prepare the draft text proposal for the last day of the meeting (became documents AEBS/LDWS-13-08 and AEBS/LDWS-13-09). In-depth discussions about these proposals can be found under item 7.2 of this report.

4. Outcome of GRRF69

Document: ECE/TRANS/WP.29/GRRF/69

Oral report by the Chair as per item 3 above, and as reflected in the annotated agenda under points 5.3, 5.4, 5.6, 5.9 and 5.10.

5. Outcome of IG 11 + IG 12 and GRRF69 meetings on outstanding issues from the 10th IG meeting

5.1. Introductory text of the draft AEBS Regulation

Documents: AEBS/LDWS-10-05 + AEBS/LDWS-11-09

Conclusion IG12: Preamble to be discussed later, when decisions are made

The Chair suggested to park this discussion to a later stage.

5.2. Definition of “Emergency Braking Phase” (paragraph 2.11)

*Conclusion IG12: agreed that the 4m/s² are applicable to the 4 categories.
(see also point 5.8 below)*

The group had no further comments to the outcome of the last meeting about this item.

5.3. Prerequisite for equipment with ABS and EVSC (paragraph 5.1.1.)

Document: AEBS/LDWS-13-03 (OICA)

Conclusion GRRF-69: GRRF agreed that it was necessary to clarify in paragraph 5.1.1 that vehicles exempted from EVSC were not directly exempted from AEBS requirements.

Outcome IG 12: "5.1.1. Any vehicle fitted with an AEBS complying with the definition of paragraph 2.1. shall meet the performance requirements contained in paragraphs 5.1. to 5.6.2. of this Regulation and shall be equipped with an anti-lock braking function in accordance with the performance requirements of Annex 13 of Regulation No.13 [and a Vehicle Stability Function in accordance with the performance requirements of Annex 21 of Regulation No.13]."

OICA did not find it necessary to hold again a long discussion on this item, but recalled that the Contracting Parties should take their responsibility about the final decision and its logical consequences, and would welcome to check the positions of the Contracting Parties:

- NL was keen to get clarification about the arguments put forward by OICA because EVSC can only release the brakes, in view of the fact that the brakes are already applied.
- OICA proposed to show a video of a simulation. The advantage would arise in case of non ideal situation, i.e. in case of road lateral slope, unbalanced load, emergency braking in a curve, etc. NL was keen to know to what extent the braking distance would increase in case EVSC would be required to be fitted. OICA clarified that the stabilisation of the vehicle was more important than the braking distance per say. NL was also concerned about the amount of exemptions which would have to be handled.
- S partly supported NL and requested further analysis to make the appropriate decision.
- D confirmed their opinion that both systems (ABS and EVSC) should be a prerequisite for AEBS.
- J did not change their position that EVSC is preferable but no “must”. The expert pointed out that the simulation presented at this meeting showed a different situation than the cases explained by OICA at GRRF-69. For example, J has low experience about full trailers. It seems that the cases where EVSC is not necessary are more realistic than the cases where EVSC is a must.

OICA clarified that Regulation N°13 bases the EVSC exemptions on technical reasons, and that these are relevant for AEBS.

NL could not be convinced about this link.

S was still unsure about the practical effect of the exemptions.

D confirmed the need for a clear link between AEBS and EVSC, and raised the question of the reasons of EVSC exemptions, as well as the quantity of vehicles being affected by the exemptions.

The expert from OICA confirmed the OICA position that the vehicles exempted from EVSC should be automatically exempted from AEBS.

J repeated they were not sure about the technical reasons.

The Chair concluded that there was still no consensus amongst IG members on this issue and regretted that the informal group was not able to take a decision about the text to be included in the draft regulations.

The Chair hoped that the UK (not yet present at the time of discussion) could provide their position about the issue at a later stage.

Conclusion: the informal group could not make any progress on this issue. If no consensus can be found between experts at the next IG meeting, the issue would need to be submitted to GRRF 70 for decision.

5.4. Interruption by the driver (paragraph 5.3.)

a. Means to interrupt the collision warning phase

Conclusion GRRF69: GRRF agreed that means to interrupt the collision warning phase should remain optional

*Agreement IG12: "5.3.1. The AEBS **may** provide the means for the driver to interrupt the collision warning phase. **However, when the vehicle service braking system is used to provide a haptic warning, the system shall provide the driver with a means to interrupt the warning braking.**"*

CLEPA proposed some wording improvement in line with document AEBS/LDWS-13-04 as below:

*"5.3.1. The AEBS may provide the means for the driver to interrupt the collision warning phase. However, when ~~the vehicle service braking system~~ **a vehicle braking system** is used to provide a haptic warning, the system shall provide the driver with a means to interrupt the warning braking."*

Conclusion: IG confirmed the new improved wording as adopted.

b. Overriding capabilities and actions list in the report (paragraph 5.3.3.)

*Agreement IG12: "5.3.3. In both cases above, ~~a clear movement of a driver control that indicates that the driver is aware of the impending collision may/shall result in the AEBS actions being overridden as appropriate. This~~ **this** interruption may be initiated by any positive action (e.g. kick-down, operating the direction indicator control) that indicates that the driver is aware of the emergency situation. The vehicle manufacturer shall provide a list of these positive actions to the technical service at the time of type approval and it shall be annexed to the test report."*

The group had no further comments to the outcome of the last meeting about this item.

5.5. Easy access to the AEBS-OFF control (paragraph 5.4.3.)

Conclusion IG12: Japan withdraws proposal. As a result paragraph 5.4.3. is deleted from both AEBS-M and A and unique Regulation.

This item was considered resolved thanks to the withdrawal by J of their proposal.

5.6. Description of the test targets (paragraph 6.5.1.)

Conclusion GRRF69: GRRF agreed that, for the purpose of describing the test targets, it was sufficient to refer to M₁ saloon cars or soft targets

Agreement IG12: "6.5.1. The target used for the tests shall be a regular high volume series production passenger car of category M1 AA saloon or alternatively a "soft target" representative of such a vehicle in terms of its identification characteristics applicable to the sensor system of the AEBS under test^{1/}

^{1/} The identification characteristics of the soft target shall be agreed between the Technical Service and the vehicle manufacturer as being equivalent to a passenger car of category M1 AA saloon, e.g. ~~2 reflectors each of less than 15 dBsm in the case of a 77 GHz radar.~~

The group had no further comments to the outcome of the last meeting about this item.

5.7. Performance requirements – speed reduction (paragraph 6.6.3.)

Conclusion IG10: "CLEPA and J found necessary to distinguish the vehicles of category 2 according to the braking system (pneumatic vs. hydraulic) or the weight (below 7.5 tons vs. above).

The group however decided not to enter yet into discussing the details of the test requirements in terms of speed reduction values at the time of impact."

Outcome IG12: OICA proposal for unique regulation approach covers category N2 vehicles above 7,5 tons, if fitted with pneumatic braking and pneumatic rear suspension. No criteria for other category 2 vehicles discussed and agreed upon yet.

The Chair recalled the revised document AEBS/LDWS-07-06-Rev.2 proposed by OICA. OICA presented the document as an answer from OICA to the strong request that there should be no exemption of subcategories. The expert recalled that the parameter for differentiating the vehicles should be the braking technology rather than the vehicle category or its weight.

OICA proposed a third implementation step, 7 years after the 1st one, to add vehicles equipped with hydraulic braking. The proposed speeds and performance requirements are considered reasonable as representing highway conditions and OICA does not intend to amend the test procedure. The proposed last warning for this type of vehicles would be later than for the heavier vehicles because the dynamics of these vehicles is such that the driver could react in a shorter time span so the warning can be provided later.

CLEPA questioned the dates foreseen for vehicles equipped with rigid suspension. OICA answered to this valid question that they will investigate the matter for the next meeting. D confirmed their support for the braking system as a criterion for a breakdown of mandatory equipment. D however was keen that the Regulation does not address the stationary target scenario. This was based on the fact that the EU will make AEBS mandatory.

OICA clarified that a system able to detect and react to a stationary target would anyway improve the situation on the road.

The Chair questioned whether D would oppose to the AEBS Regulation in case it includes the stationary target scenario.

NL, S and J could not support the D point of view. It was considered that the state of the art being the possibility to react on stationary targets, the manufacturers should be allowed to approve such vehicles, and J confirmed their need to address stationary targets.

Concerning the OICA document, J acknowledged the proposed breakdown by braking system technology. The expert however found more relevant, from a legal point of view, to

have the vehicle weight as a criterion. Concerning the issue of rear suspension, the expert from J clarified that for vehicles of category 3 there is no need to limit the requirements to vehicles equipped with a pneumatic rear suspension only. J could not take a position about vehicles of category 2 because of lack of experience. Concerning step 1 and 2, J supported the table. Concerning step 3, J had some sympathy for the OICA proposal.

CLEPA questioned whether collision warning systems should be integrated in the table. OICA found not necessary to include those systems which had never been discussed and for which no formal proposal exists.

CLEPA found the timescale for the 3rd implementation step (7 years) excessive, believed there was no reason for some restriction to pneumatic rear suspension, and favoured a target vehicle speed, in line A, to be 10km/h. CLEPA was in agreement with the rest of the proposed criteria in the table.

The Chair pointed out that the proposed test speeds avoid the collision in steps 1 & 2, but would provoke some collision at step 3, and questioned whether this was intentional. OICA confirmed that the test in step 3 would provoke an impact. The question remains whether the informal group believes it is good to integrate vehicles equipped with hydraulic braking.

D found such provisions for hydraulic systems not necessary. OICA furthermore clarified that the step 3 would be implemented by way of an additional series of amendments. As an alternative, the expert recalled the existence in the Regulation N°13 of footnotes indicating the necessity to wait for future technology.

CLEPA was sceptical about the feasibility to capture so many divergent views in a 1-Regulation approach.

NL preferred the 1-Regulation approach, but found a 3-step implementation too complicated. S questioned the possibility for a manufacturer to type approve a vehicle complying with step 3 before its implementation date. OICA clarified that the possibility was existing. D found incoherent that the manufacturers claim on the one hand they cannot produce vehicles with AEBS and hydraulic braking, and then on the other hand nevertheless foresee in step 3 such systems on light vehicles.

J still supported the 2-Regulation approach according to the GRRF guidance.

The informal group held a debate about the way to approve a vehicle equipped with hydraulic braking and ready before the relevant requirements in the Regulation are finalized (joint proposal by D and S, reference to document AEBS/LDWS-12-01, paragraph 5.1.1.1.)

The Chair suggested to refer to the revised guidelines for amendments to the Regulations (document WP29/2011/48), where it is recommended not to use some wording like “at the request of the manufacturer, etc.” because it entails some requirements for the Contracting Parties, i.e. any Contracting Party would be obliged to accept an approval granted by such way even if they are not foreseen in the Regulation.

J was of the opinion that hydraulic braking system vehicles should be included in the draft Regulation.

The Chair, on behalf of the European Commission, recalled the proposal for a warning-only system for vehicles equipped with hydraulic brakes as a possible approach to go forward. NL was keen to integrate hydraulic braking systems as far as possible.

OICA committed to take into account the outcome of the discussion, and the likelihood of the informal group to make a decision about the necessity to continue the 1-Regulation approach in 2 steps. If confirmed, then OICA was ready to prepare a document for Thursday 24 March (last day of the 13th meeting).

See also the debate held by the experts on the technical performance requirements in item 7.1. below.

5.8. Earliest start for the emergency braking phase (paragraph 6.6.4.) and Maximum braking demand (proposed paragraph 6.6.5.)

Agreement IG12: "2.9. "Emergency braking phase" means the phase starting when the AEBS emits a braking demand for at least 4 m/s² deceleration to the service braking system of the vehicle."

"6.6.4. The emergency braking phase shall not start before a TTC equal to or less than ~~reaches down to~~ 3.0 seconds.

Compliance shall be verified by either actual measurement during the test or using documentation provided by the vehicle manufacturer, as agreed between the Technical Service and the vehicle manufacturer."

Conclusion: IG confirmed this agreement

5.9. Limitation of speed reduction during warning phase (paragraph 6.6.2.3. and 6.7.2.3)

Conclusion GRRF69: GRRF also agreed that, to differentiate AEBS from Adaptive Cruise Control systems, it was necessary to require a certain value of speed reduction applied by the AEBS when the latter applies the service brake during the warning phase.

Outcome IG 12: [When the AEBS applies the service braking during the warning phase, the speed reduction demanded by the AEBS shall not exceed [7 / 10] km/h.]

CLEPA presented the document AEBS/LDWS-13-02, clarifying that the diagrams represent a situation with ACC off.

The NL were keen to limit the discussions to the values of [7/10] km/h in the current draft text.

J was of the opinion that such additional requirement should not make an obstacle to the manufacturer for an increased value.

OICA pointed out that in normal use, the ACC is ON, making necessary that a certain higher deceleration makes AEBS different from ACC. In addition, OICA considered relevant that the 3rd and 4th diagrams are not considered as AEBS. The expert suggested that the speed reduction be limited to 50% of the total speed reduction, or, if there is a need for a value, to limit to 20km/h for both the stationary and the moving target scenarios. The expert added that the shape of the braking demand is a question of HMI. The systems currently on the road in EU make no difference between the case with ACC on and off, and have a warning braking composed of a jerk followed by a braking demand of 3m/s².

The expert from OICA presented a diagram showing the state of the art on vehicles currently on the market in Europe.

CLEPA found the OICA proposals not acceptable

J favoured the OICA proposal for 50% of the total speed reduction.

NL found 50% an excessive value as it makes more than the 20 km/h speed reduction, and supported 10 km/h

S supported the Japanese position for a 50% speed reduction.

D supported the state of the art proposed by OICA.

Intermediate conclusion reflecting the diverging positions,: *[When the AEBS applies the service braking during the warning phase, the speed reduction demanded by the AEBS shall not exceed [10 km/h] / [20 km/h or 50% of the total speed reduction.]*

CLEPA presented the document AEBS/LDWS-13-04.

NL supported the wording proposed by CLEPA.

D, J and S could accept the wording proposed by CLEPA for § 6.6.2.3 to read: "**Any speed reduction** during the warning phase demanded by the AEBS shall not exceed *[10 km/h] / [20 km/h or 50% of the total speed reduction.]*"

A debate took place about the activation of ACC during the test. CLEPA was of the opinion that it is more practical that all the braking sources are taken into account because it is impossible for the Technical Service to discriminate the origin of the braking. OICA could also accept the proposed wording, subject to further clarification of the final value.

OICA presented document AEBS/LDWS-13-07, replacing the earlier proposed figures for the maximum speed reduction during the warning phase by 15 km/h or 30% of the total subject vehicle speed reduction. NL, D, F, UK and J supported the proposal from OICA. CLEPA supported the concept and suggested some editorial improvement.

Conclusion: the experts agreed to adopt the principle proposed by OICA with following values: "15 km/h or 30% of the total subject vehicle speed reduction, whichever is higher"

5.10. False reaction test (paragraph 6.10)

Conclusion GRRF69: GRRF agreed that the alleyway test was an appropriate false reaction test.

Outcome IG 12:

"6.9. *False reaction test*

6.9.1. *Two stationary vehicles, of category M₁ AA saloon, shall be positioned:*

(a) *with the vehicle [centre line in the centre of a lane / located at the borderline closest to the lane of travel of the subject vehicle] to the right and left of the subject vehicle lane,*

(b) *[so as to face in the same direction of travel as the subject vehicle,]*

(c) *with the rear of each vehicle aligned with the other,*

where all three lanes are 3.5m wide.

6.9.2. *The subject vehicle shall travel for a distance of at least 60m, at a constant speed of 50 ± 2 km/h, in a straight line, in the centre of the centre lane before passing between the 2 stationary vehicles.*

During the test there shall be no adjustment of any subject vehicle control other than slight steering adjustments to counteract any drifting.

6.9.3. *The AEBS shall not provide a collision warning and shall not initiate the emergency braking phase."*

J presented the document AEBS/LDWS-13-05 and concluded that it would be better to warn the driver in the case where the obstacles are placed at the inner borderline of the adjacent lanes.

NL found necessary to perform the test with the obstacles close to the inner borderline because 1) this is the only test performed for false reaction test, and 2) the test method is more objective.

CLEPA could accept the Japanese proposal and proposed to position the obstacles relative to the sides of the subject vehicle.

Sweden supported the position of OICA for a necessary warning in case the obstacles would be placed at the inner borderline of the adjacent lanes.

D repeated their former position that there is no need for such false warning and activation test.

The informal group held a debate about the pros and cons of each proposed solution, taking into account the necessity of improving safety on the road, allowing future technologies and keeping the test method practicable.

The informal group then discussed document AEBS/LDWS-13-06 proposed by CLEPA. NL, supported by the UK, requested a value of 4.5 m for the distance between the two stationary obstacles.

J requested time to consider the proposal

D could accept the majority

F could support the proposal, but suggested to introduce a coefficient to take into account the width of the subject vehicle, by dividing the width of the lane by the one of the vehicle.

CLEPA stressed that the sensor and the algorithm do not change according to the width of the lane. In addition, the test driver could be in danger if the gap between the two obstacles would be too narrow. The expert stressed that the vehicle should be right in the centre of the line and not be steering to avoid the false warning. Moreover, he questioned whether such test conditions do represent real traffic conditions. CLEPA however could live with the proposed value of 4.5m.

OICA requested some time to confirm the proposed value.

OICA explained that the manufacturers need some margin for certainty of passing the test and hence proposed a value of 5.0 m. Should this not be accepted, then the figure of 4.5m would have to remain in [].

NL repeated they found 4.5m more appropriate.

Conclusion: value of 4.5 m to be introduced between [].

6. Consideration of new documents submitted:

Note: This agenda item was handled before agenda item 5, to provide IG members with a short presentation on the main elements addressed in the new documents submitted.

- 6.1. **AEBS-LDWS-12-01** - (Germany and Sweden) Amendments to the draft AEBS (Based on AEBS-LDWS-11-02-Rev.1 Draft AEBS M+A after Paris 26-28/1)
D recalled that the state of the art of the technology is such that the AEBS should be limited to the vehicles equipped with air braking system and pneumatic rear suspension.
- 6.2. **AEBS-LDWS-13-02** – (CLEPA) AEBS: Braking During The Warning Phase
CLEPA explained that their opinion that the warning braking should remain to a limited extend, and the doc illustrates the reason for this.

6.3. AEBS/LDWS-13-03 – (OICA) Link between AEBS and EVSC

OICA explained that this document was the last call to the Contracting Parties to take their responsibility about the safety consequences of having AEBS without EVSC.

6.4. AEBS/LDWS-07-06-Rev.2

OICA presented the new proposal, insisting on the technical limitations and the possibility to easily introduce the changes into the draft texts of the regulations.

6.5. AEBS/LDWS-13-04

CLEPA presented the document.

6.6. AEBS/LDWS-13-05

J presented the concern of J about the position of the obstacles during the “false reaction” test. The expert informed that a video would be available.

Some further documents were produced during the meeting as reflected in these minutes.

7. Review and update of draft regulatory text proposals**7.1. AEBS-M and AEBS-A draft Regulations**

Documents: ECE/TRANS/WP.29/GRRF/2011/21 – Rev 1 (AEBS-M)
ECE/TRANS/WP.29/GRRF/2011/20 – Rev 1 (AEBS-A)

The informal group held a debate about the precise scope of application of the draft AEBS-M Regulation. OICA was of the opinion that the draft Regulation, as revised during the 13th meeting, should apply only to vehicles with pneumatic rear suspension and pneumatic braking systems. CLEPA believed that only some figures remaining in [] should be subject to exemption of those vehicles.

The experts agreed to delete the paragraph 6.2. (description of the test course) because the test procedure in paragraphs 6.5.1. and 6.6.1. sufficiently covers this aspect. Similarly, the proposed paragraphs 6.4.2. and 6.4.3. (positioning of stationary and moving targets) were deleted from the draft texts (subject to the information of § 6.4.3 being copied into § 6.6.1).

Concerning the speed of the moving target and its tolerance in AEBS-M, CLEPA clarified that 15 km/h represents what the suppliers are currently able to provide. In addition, a lower speed makes the test easier to perform. However, CLEPA subsequently accepted the value of $30^{+2}/_{-2}$ km/h as this value was preferred by most other parties .

OICA considered beneficial that the vehicle does not impact the target and favoured the higher value of 30 km/h.

J was unhappy that the parties could still not achieve a consensus.

The informal group held a debate on the speed of the target vehicle and the necessity to differentiate it in accordance with the subject vehicle category. CLEPA however saw no need to make such differentiation.

Concerning the speed of the moving target and its tolerance in AEBS-A, OICA supported a value of $12^{+2}/_{-2}$ km/h for vehicles equipped with pneumatic braking and pneumatic rear suspension, but requested 32 km/h for air/hydraulic vehicles. CLEPA supported $12^{+2}/_{-2}$ km/h for vehicles with air brakes, and all suspension types. D supported OICA. NL supported CLEPA.

J supported $12^{+2}/_{-2}$ km/h for the vehicles of category 3

After some debate, NL, UK, F and D supported the value of $32^{+2}/_{-2}$ km/h for vehicles with air over hydraulic brakes.

In conclusion for the speed of the moving target and its tolerance, it was agreed the tolerances to be aligned as above in all the documents.

The group agreed that the latest time for the activation of the first collision warning should be 1.4 s for AEBS-M (both for the stationary and moving target tests), 1.4 s as well for AEBS-A in the case of the stationary target test, but could not reach consensus for the moving target test in the case of AEBS-A (1.4 s versus 2.0 s). For this later case, CLEPA recalled that the value of 2.0 s could be acceptable subject to the adoption of the value of 12 km/h for the target vehicle speed, and OICA, supported by D, favoured the value of 2.0 s for vehicles equipped with pneumatic rear suspension and pneumatic braking system, and favoured the value of 1.4 s for vehicles equipped with air over hydraulic braking system. J supported the value of 1.4 s in all cases as a human value not depending on the test conditions.

The informal group held a debate about the necessity to keep the mandatory emergency braking phase in the case of the test toward a stationary target (draft paragraph 6.5.3.) as the current systems produced in Europe do not always initiate the emergency braking phase in all these conditions.

OICA clarified that the paragraph 6.5.3. was still necessary for the sake of test method, but that the requirement of a maximum speed reduction in the warning phase was clearly not acceptable. OICA committed to provide a proper wording in due time (became document AEBS/LDWS-13-07 – see item 5.9.above). S anticipated the discussion on this announced wording by stating that it could already support the proposal from OICA based on the above approach, as the S representative would not be present for this discussion.

The informal group held a debate about the total speed reduction in the case of AEBS-A for the stationary target test (paragraph 6.5.5. of the draft text). J favoured a value of 20 km/h (different to their position for AEBS-M) for category 3, and had no position for category 2. D requested a value of 50 km/h. D clarified that their proposal in document AEBS/LDWS-12-01 applied to the 2-Regulation approach as well as the 1-Regulation approach. OICA agreed with 20 km/h for vehicles with pneumatic braking, and 10km/h for vehicles with air/hydraulic, always with the understanding this specification would be limited to vehicles with pneumatic rear suspension.

UK supported 10 km/h for all categories irrespective of the braking and suspension system.

Concerning the total speed reduction in the case of AEBS-A for the moving target test (paragraph 6.6.3. of the draft text) the informal group agreed that the emergency braking phase should result in the subject vehicle not impacting the target vehicle.

The informal group also held a debate about the total speed reduction in the case of AEBS-M for the stationary target test (paragraph 6.5.4. of the draft text). OICA informed that the value of 10 km/h was acceptable subject to the limitation to vehicles equipped with pneumatic brakes and pneumatic rear suspensions.

J preferred 20 km/h but stated afterwards that they could accept 10km/h for category 3 whatever the type of rear suspension and that they had no position on category 2.

UK supported 10 km/h for all vehicle categories whatever type of braking and suspension systems used.

NL preferred 20 km/h but could accept 10 km/h for all categories equipped with pneumatic rear suspension and pneumatic brakes.

D and S supported NL.

F had no position.

CLEPA was of the opinion that 10 km/h is not enough and recommended a value of 20 km/h, limited to air brake but including rigid suspension, and believed that this was achievable in the future.

In conclusion, no consensus could be reached on this particular item.

Concerning the total speed reduction in the case of AEBS-M for the moving target test (paragraph 6.6.3. of the draft text), the experts wondered whether the test should result in the subject vehicle impacting the target or not. CLEPA was of the opinion that the vehicles should impact the target in a “mitigation” Regulation.

NL supported not to impact the target, supported by J, D, S

France and CLEPA believed that the requirement should be based on the calculations and measurements of the speeds. Both however showed some flexibility by accepting the "no impact" criterion supported by other parties.

Conclusion: agreement for the wording of the AEBS-A and the 1-regulation with regard to the result of the emergency braking phase in the activation test for the moving target scenario.

The informal group agreed to submit updated documents to GRRF-70, reflecting the outcome of the discussions by maintaining between square brackets the issues for which no consensus could be reached. It was also agreed to clarify the references and identifications of the documents.

CLEPA pointed out that some of the concessions they made are subject to the introduction of a preamble to the Regulations, and expressed concern that the concessions and the preamble were not reflected in the draft texts. The Chair proposed to include the draft preamble in [] in the documents to be tabled at GRRF, to reflect that its content still needs to be discussed and agreed upon (see also agenda item 5.1).

CLEPA presented the document AEBS/LDWS-13-11 with the purpose of transferring all “pass-fail” criteria into a separate table to be annexed to the respective draft regulatory text proposals.

D, J and OICA supported the proposal from CLEPA.

Some debate took place on whether to add the test figures into the tables. This was however not supported.

The informal group adopted the concept of a table showing the pass/fail figures, and agreed to produce the tables with a column A exhaustively showing the vehicle subcategories, and the rest of the table providing only the figures already proposed and discussed upon, maintaining square brackets for the figures for which no consensus could be reached, and leaving the cells blank for the vehicle categories for which no criteria have been proposed or discussed.

J was keen to subdivide the categories according to the vehicles weight and committed to provide a proposal along the lines of this philosophy at the next (14th) meeting of the informal group.

7.2. AEBS M+A (Unique Regulation + 1st series of amendments)

Documents: AEBS/LDWS-11-02: Draft text for a consolidated regulation capturing AEBS-M and AEBS-A into one unique regulation and a 2-step implementation – Step 1 (OICA on behalf of the GRRF informal group)
 AEBS/LDWS-11-03: Draft text for a consolidated regulation capturing AEBS-M and AEBS-A into one unique regulation and a 2-step implementation – Step 2 (OICA on behalf of the GRRF informal group)

AEBS/LDWS-13-08 (OICA)

AEBS/LDWS-13-09 (OICA)

OICA presented documents AEBS/LDWS-13-08 and AEBS/LDWS-13-09 and pointed out that the proposal for a unique Regulation (document AEBS/LDWS-13-08) was based on the draft Regulation on AEBS-M.

CLEPA questioned the amount of details to be included in the footnote 2 (exemptions) D supported the principle but was reluctant to include the exemptions at “scope” level, and felt that the CLEPA table should only show the requirements for vehicles where the system exist and that for other vehicles, the requirements should be at the discretion of the Contracting Parties.

The Chair and OICA supported this point of view.

UK supported in principle the 1-Regulation approach, but considered that its scope should cover all vehicle categories irrespective of the braking and suspension technology used. As for possible exclusions, these should be based on vehicle weight rather than on braking technology..

The Chair requested clarification in the wording of the footnote 2.

Concerning document AEBS/LDWS-13-09 the group questioned the sub-categories:

- Braking control transmission can be pneumatic, hydraulic and electronic
- Braking energy transmission can be pneumatic and hydraulic.

D could not support the proposed scope.

The Chair questioned the cancellation of some transitional provisions contained in the document AEBS/LDWS-11-03-Rev.1, and the exemptions added in the document AEBS/LDWS-07-06-Rev.2, and in addition questioned step 3.

OICA clarified that the currently requested exemptions remain, and that the step 3 is covered by the proposed footnote 2.

The Chair pointed out that the OICA proposal would permit any Contracting Party to mandate whatever it considers appropriate for vehicles equipped with hydraulic braking systems as they are not covered by the proposal.

D, supported by the Chair, pointed out that the issue of national registrations is a prerogative of Contracting Parties and is not covered in the 58 Agreement. Therefore, the proposed transitional provisions regarding national registrations should be deleted.

Some debate was held about the validity of footnote 2.

D proposed to introduce some “work plan” in the introduction.

The Chair expressed his concern that there is no proposal anymore for vehicles with hydraulic braking systems, because the step 3 proposed by OICA in document AEBS/LDWS-07-06-Rev.2 is considered by OICA to be covered by the footnote 2, while the footnote 2 received no support from the Contracting Parties.

NL confirmed they support for the 1-Regulation approach, but wondered how to accommodate e.g. the hydraulic braking vehicles in the future, and requested Industry to provide a solution for this.

Another round of exchange of views took place on this subject:

UK was in favour of a 1-Regulation approach and in favour of going forward with the OICA proposal, subject to the conditions it raised earlier;

F fully supported the 1-Regulation approach but requested detailed exclusions in the scope, and some exemptions in the table of Annex 3.

D fully supported the 1-Regulation approach but did not want any exemption in the scope, preferring not to include the vehicles not to be regulated, and listing only the special vehicles exempted from the requirements.

In the absence of the S representative, the secretary recalled the position from S in favour of the 1-Regulation approach.

The group revised the document AEBS/LDWS-13-08 (OICA proposal for the 1st step of the 1-Regulation approach)

NL could support the scope as proposed in the OICA document, but believed the footnote should be in the preamble of the Regulation.

CLEPA suggested to use the table as proposed in document AEBS/LDWS-11-13, where only the vehicles to be regulated would be included.

D proposed the following scope:

“This Regulation applies to the approval of vehicles of category M₂, N₂, M₃ and N₃¹ with regard to an on-board system to mitigate or avoid a rear-end in lane collision”

NL, J, F & UK could support this D proposal

D found the footnote 2 proposed by OICA (commitment to make evolve the regulation in accordance with the technology) not necessary anymore and suggested to delete it.

The IG agreed to delete footnote 2 in document AEBS/LDWS-13-08.

Concerning the paragraph 5.2.2., the informal group agreed with a common wording for all draft regulatory texts, as follows, and permitting to address both stationary and moving target scenarios (wording proposed by the Chair as per document AEBS/LDWS-13-10):

“5.2.2. Subsequent to the warning(s) of paragraph 5.2.1.1., and subject to the provisions of paragraphs 5.3.1. to 5.3.3., there shall be an emergency braking phase having the purpose of significantly decreasing the speed of the **subject** vehicle ~~at the time of the collision or of avoiding the collision~~. This shall be tested in accordance with paragraphs 6.5. and 6.6.”

The informal group then agreed that document AEBS/LDWS-13-08 should be revised as indicated above and submitted to GRRF (together with document AEBS/LDWS-13_09 as revised – see below) as an alternative package for the 2 Regulations approach. OICA clarified that the precise scope was still to be discussed with the performance requirements.

CLEPA introduced the revised table as an improvement of the table proposed in document AEBS/LDWS-13-11, and regretting having had no time to add a column for the moving target speed.

J and UK were keen to discriminate the vehicles according to the weight rather than according to technical specifications. UK clarified that they wanted the manufacturers to be able to approve any type of vehicles.

Some debate occurred about the blank spaces of the table.

The Chair stated that the table was a good tool to show to GRRF the results of the informal group, and found necessary to fill in the blank spaces.

D supported the table, with some fine tuning, and perhaps some specifications to accommodate the markings to permit the Technical Services to identify which type of vehicle they face.

The informal group agreed to include the table into the draft official documents to be presented at the 70th GRRF (AEBS-M, AEBS-A and AEBS-M+A)

The informal group then went through the document AEBS/LDWS-13-09 and agreed that the Series 01 of amendments to the Regulation would be based on the figures already in [] in the avoidance Regulation (cf. text proposals for amending §§ 6.5.4, 6.6.1 and 6.6.2.1). The IG also agreed that § 1.1 together with its footnote 2 be deleted.

Conclusion:

Informal group to table two packages, one addressing the 2-Regulation approach, and one addressing the 1-Regulation approach, both with 2 documents, and structured as per the table for the pass/fail criteria.

The informal group held a debate on the proposed transitional provisions.

The Chair recalled that the comments the Commission made to the document AEBS/LDWS-11-03 were still valid.

OICA agreed to put the entire § 12 on transitional provisions in [] + additional [] for particular sub-paragraphs 12.1 and 12.4. The Chair, in his capacity as representative of the European Commission proposed to amend sub-paragraph 12.2 by replacing the wording "refuse" by "be prohibited".

Concerning the exemptions for particular special vehicles, the Chair, as representative of the European Commission, recalled that the exemptions should be the prerogative of the Contracting Parties, and that should they be included in the draft texts of the regulations, they should be in [] to reflect that there is no consensus in the IG on this issue.

UK and NL supported the European Commission.

D supported the possibility to have exemptions in the Regulation.

CLEPA warned that if there were no exemptions, a Contracting Party could mandate the Regulation for vehicles where the technology is not available.

The European Commission clarified that the vehicles of other categories than 2 and 3 were excluded from the scope because it was not in the mandate of the informal group to accommodate them.

8. Other business

9. List of action items:

- 9.1. Issues to be carried over to the 14th AEBS/LDWS IG meeting

10. Schedule for further meetings.

CLEPA provided information on the demonstration to be held in Geneva: Daimler, Knorr-Bremse and Wabco, are expected to present 4 vehicles. The test track won't permit to reach the proposed 80km/h, making the demonstration at a lower speed. In addition, some components will be presented with the help of videos. In addition, MAN is expected to show some static vehicles to show the possibility of installing the sensors. The timing would be from 11h00 to 15h00 on the 12th of May.

OICA committed to provide a list of vehicles and the purpose of the vehicles to be presented. Furthermore some soft targets will be presented.

UN requested the press to be present as well.

WABCO is the manager of the event.

CLEPA/OICA agreed to prepare some explanatory document presenting the demonstration.

The meeting of the informal group proper will start on Monday 9 May, at 10:30.