

DRAFT REPORT

10th meeting of the GRRF informal group on Advanced Emergency Braking and Lane Departure Warning Systems

Venue: OICA Offices, 4 rue de Berri, Paris

Chairman: Mr. Johan Renders (EC) (johan.renders@ec.europa.eu)

Secretariat: Mr. Olivier Fontaine (OICA) (ofontaine@oica.net)

1. Welcome and Introduction

The Chair recalled that time is running fast and urged all Parties to make the necessary compromises for achieving acceptable solutions before the deadline (the European Commission will make a decision just after the GRRF-69 session – February 2011 - on whether to continue the rulemaking in the UNECE platform or proceed with preparing a proposal for implementing measures inside the European regulatory framework).

2. Approval of the agenda

Document: AEBS/LDWS-10-01 (Chair)

The Agenda was adopted with no modification.

3. Approval of the draft minutes of the 7th + 8th meeting of the AEBS/LDWS IG

Document: AEBS/LDWS-08-01 (draft minutes)

The Minutes were adopted with no modification.

4. Outcome of the 9th meeting of the AEBS/LDWS IG

Document: AEBS/LDWS-09-04 (draft minutes)

The Chair orally reported about the outcomes of the 9th session of the informal group, held in Tokyo on 26-29 October 2010.

The draft minutes were adopted with some modifications in item 6.2.1.4. of the report (paragraph 5.1.1. of the text of the draft Regulation on AEBS-M): All parties in presence found appropriate that the vehicles equipped with AEBS be also equipped with ABS, however only Industry (OICA and CLEPA) found appropriate to mandate equipment of EVSC as well. CLEPA however could accept ABS only.

The Secretariat committed to edit a correction to the draft Minutes, referred to as AEBS/LDWS-09-04-Rev.1.

5. AEBS:

5.1. Review of the draft regulatory texts:

Document: AEBS/LDWS-04-08-r3e AEBS proposed test scenario after 9th meeting

The Chair organized a tour de table for having a clear view of the positions of each party concerning the criteria to be specified in the test scenarios. The above document was completed accordingly, and the Secretariat committed to edit a Revision 4 of the table, updated in accordance with the changes of position expressed by the experts during this 10th session of the informal group.

5.1.1. Draft proposal for a Regulation for a collision mitigation AEBS (AEBS-M)

Document: GRRF/2011/16 AEBS skeleton mitigation V1
 AEBS/LDWS-10-03 (J) input on AEBS-M
 AEBS/LDWS-10-04 (J) Justification about over-reliance provisions
 AEBS/LDWS-10-05 (D) Preamble AEBS
 AEBS/LDWS-10-06 (UK) Target annex only
 AEBS/LDWS-10-07 (D) Latest Warning time
 AEBS/LDWS-10-08 (CLEPA) input on collision mitigation skeleton paper
 AEBS/LDWS-10-09 (CLEPA) AEBS target proposal

The informal group firstly examined the document AEBS/LDWS-10-05, as a proposal from Germany to introduce the text of the Regulation by a Preamble collecting the main purposes and generalities of the expectations made on AEBS. Japan was keen to react about this document at the next meeting of the informal group (11th meeting, to be held in Paris on 26-28 January 2011). The expert of Japan however had some preliminary comments about the missing reference to the use of AEBS in “highway conditions”, with the aim of addressing relatively high speed usage.

The informal group however acknowledged that the wording “*a driver who is inattentive – has been driving for a long period of time without, e.g. actively using the brakes...*” does address with clarity the conditions under which it is expected that the AEBS will be beneficial to road safety.

The experts then undertook the second reading of the draft text on AEBS-M (document GRRF/2011/16).

OICA made clear about their wish that the two Regulations AEBS-M and AEBS-A be as aligned as possible, and that all amendments agreed for one of the regulations be copy/pasted to the other one, targeting the wording of the paragraphs 1, 2, 3, 4, 5, 7, 8, 9 and 10. Concerning the paragraph 6, the structure could well be aligned, keeping the values and requirements proper to each Regulation.

The Chair supported an alignment as far as possible between the two draft Regulations, but expressed some doubt as to whether full alignment would be achievable.

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

J requested to discuss this item at the time the subject of “overreliance” is considered.

D presented the document AEBS/LDWS-10-07 providing schemes of what could the shape of a braking demand look like, with a smooth or abrupt ramp, in cases of braking demands above and below 4 m/s², and consequently its influence on the definition of the reference point for the warning phase.

NL was of the opinion that a braking demand below 4 m/s² (1st graph) would better be called an ACC (Adaptive Cruise Control).

J recalled that the figure of 4 m/s² was adopted by the informal group because it is the threshold indicated in UNECE R13 for mandating the emission of the logic signal dedicated to the illumination of the stop lamps in case of emergency braking. The expert clarified that J supports the definition as proposed in the draft text, however the overreliance issue makes the reference to the maximum braking demand too dangerous in Japan's opinion.

CLEPA, supported by NL, questioned the validity of calling a braking at e.g. 2.5 m/s² an "emergency braking", in particular in the case when the wording for AEBS-A is aligned on the text in question.

OICA, supported by J, recalled that the criterion for AEBS energy loss is the speed reduction rather than the level of deceleration demanded by the system. The expert in addition supported the clarification presented by D, and repeated the OICA support for the definition as proposed in the document GRRF/2011/16. It was also suggested to improve clarity by commuting the paragraphs 2.11 and 2.12.

The Chair suggested to integrate the schemes into the text of the Regulation for the sake of improved clarity, then organized a tour de table to obtain the positions of all parties:

UK, NL, S: supported the J proposal to keep in the definition only the criterion of 4m/s² braking demand.

D: had no position about AEBS-M

F: supported to keep the current definition as in paragraph 2.11. The expert however stressed on the need to align this definition on the definition of Emergency Braking in UNECE R13.

CLEPA insisted about the necessity to make the difference between an AEBS and an ACC, as the driver is not aware of the situation in case of normal AEBS intervention. The expert in addition requested that the value of the braking demand be raised to 5 m/s² instead of the proposed 4 m/s².

OICA, supported by J, pointed out that the AEBS Regulation regulates the intervention of an automatic braking system rather than the vehicle braking capabilities, hence the proposal for raising the braking demand to 5 m/s² cannot be relevant. In addition, the expert from OICA challenged the Japanese proposal to add a reference to the Time-To-Collision (TTC) value (see proposal for new paragraphs 6.6.4. and 6.7.4.) because it would add a new requirement in the Regulation, and imply new measurement equipment in the test procedure.

A debate took place for defining the criteria which make the differences between an ACC and an AEBS. The limit of a braking demand deceleration as the unique criterion was supported by Japan and CLEPA because it would prohibit systems intervening at low decelerations, hence avoid too early warnings and annoyance to the driver, making it discouraging the driver to switch-off the system.

OICA clarified that, while an ACC can be permanently switched-off by the driver, the AEBS cannot, this being the main difference between the two systems: the false warnings could not provoke a decrease in the safety level because the system could not be permanently switched off by the driver.

J, UK, NL, S and CLEPA supported the following wording:

"2.11. [*"Emergency braking phase" means the phase starting when the AEBS emits ~~the maximum braking demand~~ or a braking demand for at least 4 m/s² deceleration to the service braking system of the vehicle.*]"

OICA supported the proposal as below, suggested by the Chair:

"2.11. *"Maximum braking demand" means the maximum deceleration the AEBS requests from the service braking system necessary to significantly decrease the speed of the vehicle at the time of the collision.*

2.12. *"Emergency braking phase" means the phase starting when the AEBS emits the maximum braking demand (as specified in paragraph 6.XXX) ~~or a braking demand for at least 4 m/s² deceleration to the service braking system of the vehicle.~~"*

Conclusion: In view of the lack of possible consensus, the group agreed to postpone the decision to the next opportunity (see item 5.1.2.2. below), and the Chair urged all parties to prepare valuable proposal to solve the issue.

5.1.1.2. Highway conditions usage, equipment with ABS and EVSC (paragraph 5.1.1.)

a. Highway conditions

NL supported a reference to the highway conditions usage in this paragraph of the Regulation, but could also accept a simple reference in the Preamble.

CLEPA supported such reference in the text of the Regulation, with some change in the wording, as “highway” can be interpreted as being any kind of road. The expert suggested to adopt the wording proposed by CLEPA in the document AEBS/LDWS-10-02 (reference to “urban, inter-urban, inter-city”). Mr. Mehr (CLEPA) pointed out that the manufacturers have to cope with some urban conditions anyway.

D supported the deletion of such reference from the text of the Regulation, and accommodating the relevant wording in the Preamble.

OICA supported the reference to the highway use even if the understanding of the word is subject to discussions.

ISO informed that the draft Standard makes no distinction between highways, and makes only the difference between off-road and on-road situations.

J supported a reference in the preamble only.

Conclusion: Proper wording to be accommodated in the Preamble.

b. Equipment with EVSC

J found ABS as fundamental, and recognised some additional merit in EVSC equipment. The expert in addition drew the attention of the informal group on the proposal from J as set out in document AEBS/LDWS-10-03: “... the performance requirements of...”.

CLEPA found mandatory EVSC better than ABS only in terms of safety benefits because AEBS is addressing a system taking the control of the situation in case of extreme conditions, with no idea of the road conditions at that time, e.g. slippery surface, curve, driver already braking, etc. In these conditions EVSC provides better stability compared to ABS. CLEPA however agreed that if the Contracting Parties consider this not necessary, CLEPA can accept mandatory ABS only.

OICA found necessary that the vehicles equipped with AEBS be also equipped with both ABS and EVSC.

D pointed out that vehicles approved to UNECE R13 will anyway be equipped with both ABS and EVSC.

Conclusion: Since CPs are keen for mandating ABS whilst industry is in favour of mandating EVSC, no final decision could be made.

c. Reference to UNECE R13

CLEPA was still keen to have the reference to UNECE R13 in the text of the Regulation in order to clarify the system in reference.

NL was of the opinion that, theoretically, there is no need for a precise reference to an existing Regulation. The expert however supported the J proposal indicating “the performance requirements of...”

S could accept this compromise as well.

Conclusion: all Contracting Parties can accept the wording proposed by J per document AEBS/LDWS-10-03.

5.1.1.3. General provisions against false alarms and braking (paragraph 5.2.4.)

NL considered that these provisions should better be in the performance requirements than in the Preamble.

D could accept that the manufacturer demonstrates compliance with these provisions by presenting relevant documentation, instead of specifying testing provisions for this purpose. CLEPA found better to include these provisions in the main text of the Regulation, but could accept them being included in the Preamble. CLEPA supported a demonstration by documentation.

J could accept as well the provisions to be included in the Preamble. In addition, J found appropriate to turn the “should” into a “shall”. The expert recalled the J proposal tabled at the 9th meeting of the informal group (Tokyo, October 2010), with a testing in one particular condition, addressing false braking only, and the other conditions being demonstrated by documentation.

UK supported inclusion of the wording into the preamble. In addition, UK found necessary that the system works properly in all conditions, and the expert proposed that the text includes three tests, among which one would be conducted at the agreement between the manufacturer and the Technical Service.

F preferred that the provisions be included into the main text of the Regulation, with the requirement that the manufacturer must demonstrate compliance in all situations.

S had no strong position and could accept the text being included into the preamble.

OICA pointed out that, in the performance requirement chapter, the wording should be with a “shall”, however, when inserted into the Preamble, the wording could be a “should”.

ISO, supported by J, found the wording proposed in document GRRF/2011/16 too severe.

OICA suggested to soften the wording of GRRF/2011/16 and add some examples in the Preamble.

The Chair then suggested to simplify the wording in paragraph.5.2.4., with a reference to the relevant paragraph in the test section and the addition of examples in the Preamble, as follows:

“5.2.4. 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 recognize an impending forward collision. This shall be demonstrated in accordance with paragraph. 6.X.X..”

Conclusion: above Chair’s suggestion adopted.

5.1.1.4. Interruption by the driver (paragraph 5.3.)

a. Means to interrupt the collision warning phase

The group held a debate on whether such means should be mandatory or optional.

J referred to document AEBS/LDWS-10-03, insisting that the means should be at the option of the manufacturer because a rigid application of the provision, if a “shall” is articulating the requirement, would imply that, if the driver initiates a steering action to avoid the danger, the warning would be stopped and the driver could believe that the danger disappeared. The same would occur if the driver brakes strong enough to avoid the collision: the warning would disappear when the system calculates that there will be no collision.

UK, NL, D and CLEPA favoured a mandatory equipment of this means.

F had no position.

S favoured an optional means in the case of the warning, and a mandatory means in the case of the braking.

OICA had no strong position on this issue.

ISO informed that the collision warning Standard makes the means to interrupt the warning optional, and that the FVCMS Standard just refers to the warning standard (FVCWS).

OICA intervened and pointed out that the allowance of an “off switch” would anyway cover the case of such interruption means.

The Chair made an attempt to capture all positions in one consolidated sentence as follows:

“The AEBS-M shall be designed so as to discontinue the collision warning phase and/or Emergency Braking phase when there is a clear movement of a driver control that indicates that the driver is aware of the impending collision. This interruption may be initiated by any positive action (e.g. kick-down, operating the direction indicator control). The vehicle manufacturer shall state these positive actions to the technical service at the time of type approval [and they shall be listed in the test report/Annex 3]”

This proposal however could not be accepted by Japan, and raised some further concern of interpretation.

Conclusion: item to be revised for the next opportunity, request to Japan to revise their position.

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

No party was in favour of listing the actions in Annex 3. A debate took place about the necessary retention of confidential information versus the need for the Technical Services to assess whether the actions are relevant.

CLEPA was of the opinion that the level of confidentiality in this case is not such that there is a risk for the system or the vehicle manufacturer. CLEPA hence supported to put the information in the test report.

NL, UK, D, F and S supported a listing in the test report.

OICA and J requested further consideration.

Conclusion: positions to be provided at the next opportunity (see also item 5.1.2.5. below).

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

Japan presented their new position concerning their wish that the switch-off control be beyond direct reach from the driver, as in document AEBS/LDWS-10-03. The expert insisted on the increased flexibility of the new proposal as it clearly permits the switch to be inside the driver’s compartment.

CLEPA challenged the principle of the provision because they considered it not logical to provide a switch and simultaneously make it not accessible to the driver. The expert recalled that nothing prevents the manufacturer to provide an off-switch e.g. in the engine compartment for the case of a damaged sensor.

UK was in favour of having no switch-off control. If nevertheless it was considered necessary, UK would request to make the control difficult to reach.

NL also favoured the absence of such switch, but supported CLEPA that when the switch does exist, then it must be easy to reach.

OICA challenged the principle of the Japanese proposal, and recalled that all new technology safety systems, like e.g. ESC, ABS, LDWS, etc. provide an off-switch. The expert drew the attention of the informal group that, with the automatic re-activation at each ignition cycle, and the mandatory tell-tale on the dashboard, the complete system remains of a high level of safety. On the contrary, making the switch-off control uneasy to reach, would be contradictory to safety as the driver may try to reach it when driving, or would have to stop

the vehicle on the side of the road, generating some additional danger, to operate the control, and last but not least, would make the re-activation difficult as well, jeopardising again the safety. OICA also questioned the coherence of having different philosophies for each safety system.

J could not accept the comparison with ESC because the latter makes the switch-off control necessary in certain conditions which do not exist for AEBS. The expert from Japan then accepted to delete from the proposal the examples of controls not easy to reach and the 2-button switch.

Conclusion: Japan is urged to reflect about the issue again, in the light of the comments emitted during the meeting.

5.1.1.6. Audibility of the AEBS warning system (paragraph 5.5.7.)

UK suggested to consult the ITS guidelines on this subject.
No party supported this paragraph.

Conclusion: paragraph 5.5.7 deleted.

5.1.1.7. Accuracy of the measurements (paragraph 6.2.)

NL, F, S, OICA, CLEPA supported the deletion of this paragraph.

J requested to align the LDWS draft Regulation on the decision made on AEBS.

The Chair recalled that LDWS needs some accuracy provisions for the measurement of the drift rate.

NL supported the deletion of the requirement from the LDWS draft Regulation as well.

The informal group was of the opinion that the LDWS draft Regulation should be re-considered about this subject at the next meeting.

Conclusion:

- paragraph 6.2. deleted in both AEBS-A and M.
- informal group to look at LDWS draft Regulation for consistency, at next meeting.

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

UK presented the document AEBS/LDWS-10-06 proposing some descriptions for the targets. The expert insisted that the proposed list of targets is not exhaustive, and that the choice of the target within the list should be made in agreement between the Technical Service and the manufacturer. UK found the description of the targets of high importance, by reference to e.g. the Pedestrian Protection and the frontal crash Regulations. The expert pointed out that letting the choice of the target to the manufacturer or to an agreement between the Technical Service and the manufacturer could not guarantee it being representative.

J, supported by OICA, found the last sentence of the proposal sufficient: *“The target used for the test shall be agreed between the manufacturer and the type approval authority and recorded on the approval certificate”*.

The informal group held a debate on the best wording.

CLEPA during the session produced the document AEBS/LDWS-10-09. This document was reviewed by the group, slightly revised and adopted for both AEBS-M & A.

ISO informed about the way the targets are addressed in the draft ISO Standard: each target type is considered in accordance with its “detectability specifications” and its “physical constraints” (optical radar, radio wave radar or optically visible).

See also item 5.1.2.13. below.

5.1.1.9. Description of the warning and activation test with moving target (paragraph 6.6.1.)

CLEPA clarified that the “functional part” of the test is where the functionality of the system is tested.

The group adopted the wording proposed by CLEPA per document AEBS/LDWS-10-09 with slight editorial improvements. This was applicable to the AEBS-A draft Regulation as well.

5.1.1.10. Cascade of warning signals (paragraph 6.6.2.1.)

The group held a debate about the understanding of the previous agreement that only the two last warnings should be regulated. CLEPA challenged that understanding because it could be contradictory to safety if the system provides an alert such soon that it is not understandable to the driver. After some discussions, CLEPA finally agreed to the understanding of the majority, but the informal group convened that the proposed wording needs improvement to avoid misunderstandings.

A new wording was adopted, permitting CLEPA to withdraw their proposal for a soonest time for the 1st warning (“warning window”).

5.1.1.11. Simultaneous warning signals (paragraph 6.6.2.2.)

A lengthy debate took place on whether this paragraph should remain in the text of the draft Regulation. Some concerns were raised:

- Need to provide provisions specifying that the warning remains provided
- Problem of understanding: it could be understood that it is forbidden to provide a warning after the indicated timing

Conclusion: the final wording was agreed as indicated in the revision of the draft regulation, to be copy/pasted in the draft Regulation on AEBS-A

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

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.

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

UK could possibly support the restriction at $TTC < 3$ s.

J announced that the change of the definition of emergency braking phase (see item 5.1.1.1.) makes not necessary anymore the proposed paragraphs 6.6.5. and 6.7.5.

OICA could certainly not support the proposal to mandate a braking demand above 4 m/s². The expert made the calculation of the collision avoidance scenario, braking from 80 km/h to 10 km/h, and arrived to the result of 2.4 s TTC. As a consequence, should the proposal from J be adopted, the vehicle would achieve collision avoidance with more than 10 m safety margin. The expert found such overregulation unjustified and contradictory to safety because the system would activate the brakes even when the driver would keep time enough to avoid the collision. OICA however could accept a reference to the parameter “TTC”, but recalled that such parameter would imply the use of additional measurement devices like GPS for measuring the vehicle speed, and questioned whether the Technical Services own this kind of instrumentation.

NL shared the concern of Japan against a system looking like an ACC with early braking and low decelerations. But the expert found the reference to the TTC unnecessary as this concern is addressed by the minimum deceleration requirement. D shared the NL view. F and S had no opinion on the $TTC < 3.0$ sec provision.

CLEPA had no problem with the inclusion of the parameter “TTC”, but found the proposed value too high.

CPs supported the principle to specify a minimum value for the emergency braking demand (cf. § 2.11).

Conclusion: the complete paragraph remains pending, with in addition, to be decided whether the maximum deceleration must be located in the text of § 6.6.5 or in the definition of § 2.11.

5.1.1.14. Moving target speed (paragraph 6.7.1.)

The group agreed to re-write the whole paragraph in accordance with the text proposed by CLEPA in document AEBS/LDWS-10-09 (see item 5.1.1.8. above).

The group agreed to base further discussions on a target speed of 15 ± 1 km/h, subject to future confirmation.

5.1.1.15. Cascade of warning signals (paragraph 6.7.2.1.) and simultaneous warning signals (paragraph 6.7.2.2.)

See items 5.1.1.9. and 5.1.1.10 above.

5.1.1.16. Performance requirements – speed reduction (paragraph 6.7.3.)

See item 5.1.11. above.

5.1.1.17. Earliest start for the emergency braking phase (paragraph 6.7.4.) and Maximum braking demand (proposed paragraph 6.7.5.)

See item 5.1.1.12. above.

5.1.1.18. False reaction test (paragraph 6.10)

OICA shared its doubts about the relevancy of such additional test, as it is obvious that this cannot ensure the quality of the system. The expert recalled that no such test, experiencing that the system does not react in certain condition, currently exist in the Regulations annexed to the 58 Agreement.

The UK were keen to add at least one such test. They suggested the addition of 3 scenarios, i.e. one alleyway test, one bridge test and one “overtaking in a bend” test, among which one test would be performed, at the agreement between the manufacturer and the Technical Service.

NL, supported by S, found such false reaction test more important than the activation test because a false braking makes the system counter productive. The expert suggested to use a bridge made of two pillars and one top.

F supported such false reaction test, with documentation supporting the validity of the strategy developed by the manufacturer.

D repeated their previous position that they cannot support such false reaction test.

J accepted to remove the proposed moving target test (draft paragraph 6.10.2.). The expert insisted that the test proposed by J be adopted as it is proved reproducible. NL and S supported the deletion of the proposed paragraph 6.10.2.

ISO informed about the existence of a technique simulating a bridge, with some reflectors at a prescribed height.

Conclusion:

- J is willing to check whether the false activation test has to cover both braking and warning
- All Contracting Parties but UK are keen for specifying one false activation test procedure only
- UK keen to have a three false activation test procedures specified, out of which one can be selected in common agreement between manufacturer and type approval authority, committing to provide draft text proposals for such procedures.
- D and OICA not convinced about the need of a false activation test.

5.1.2. Draft proposal for a Regulation for a collision avoidance AEBS (AEBS-A)

Documents: GRRF/2011/15 AEBS skeleton avoidance V1
 AEBS/LDWS-10-02 (CLEPA)
 AEBS/LDWS-10-09 (CLEPA)

5.1.2.1. Definition of target (paragraph 2.5.)

CLEPA supported the view that the basic target should be a real vehicle. When the test offers no risk, there is no problem with a real vehicle as a target. Only when there is some risk, a soft target is convenient.

CLEPA produced document AEBS/LDWS-10-09 during the session, with the aim of capturing all the references to the target in the draft regulatory text.

The group reviewed the above mentioned document and agreed with the text as slightly improved. All experts were in agreement to align the texts of both draft Regulations.

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

OICA acknowledged the wish of the Contracting Parties to delete the reference to the maximum braking demand. The expert could accept this deletion, but requested then to delete the requirement that the speed reduction during the warning phase be limited (in § 6.6.2.3). There is some logic in defining the emergency braking phase as being above 4m/s^2 , and the warning phase as being below 4m/s^2 . This would also permit to adapt the deceleration to the category of vehicle.

CLEPA supported the idea of treating the passenger vehicles differently to the other ones. This was challenged by D and NL who were of the opinion that the AEBS is a safety system rather than a comfort system, and that the decelerations experienced by the occupant in case of a collision are much higher than during an emergency braking. Permitting a lower deceleration for passenger vehicles would be safety counter-productive.

Conclusion:

- Reference to the maximum braking demand deleted.
- Discussions on differentiations among the vehicle categories to be held at a subsequent stage.

5.1.2.3. Highway conditions usage, equipment with ABS and EVSC (paragraph 5.1.1.)

See item 5.1.1.2. above.

5.1.2.4. General provisions against false alarms and braking (paragraph 5.2.4.)

See item 5.1.1.3. above

5.1.2.5. Interruption by the driver (paragraph 5.3.)

See item 5.1.1.4. above.

In addition, the group agreed on the following text: “*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*”.

5.1.2.6. Easy access to the AEBS-OFF control

Same conclusion as in item 5.1.1.5. above.

5.1.2.7. Audibility of the AEBS warning system

See item 5.1.1.6. above

5.1.2.7 bis Warning indication of ABS failure during switch-off/switch-on cycle (paragraph 5.5.5)

Additional provision proposed by CLEPA was withdrawn

5.1.2.8. Warning signal when the AEBS is temporarily not available (paragraph 5.5.8.)

The group agreed that the warning signal should be yellow.

5.1.2.9. Test surface (paragraph 6.1.1.)

Addition of a provision mandating good adhesion proposed by CLEPA was accepted .

5.1.2.10. Visibility range (paragraph 6.1.3.)

Improvement of the wording agreed.

5.1.2.11. Accuracy of the measurements (paragraph 6.2.)

See item 5.1.1.7. above

5.1.2.12. Description of the test course (paragraph 6.3.)

Improvement agreed per document AEBS/LDWS-10-02

5.1.2.13. Description of the target used in the test (paragraph 6.5.1.)

J, D, NL supported the text proposed by CLEPA per document AEBS/LDWS-10-09.

UK and F had reservations

Conclusion: UK and F to provide input at the 11th meeting of the informal group. Conclusion will be applicable to AEBS-M as well (see item 5.1.1.8. above).

5.1.2.14. Description of the warning and activation test with moving target (paragraph 6.6.1.)

The group agreed to copy/paste the wording adopted for the AEBS-M draft Regulation (see item 5.1.1.9. above), with some restriction for the value of the moving target speed, which still has to be agreed upon.

5.2. Outstanding issues from previous IG meetings

Document: AEBS/LDWS-07-06-Rev.1 (OICA)

The group discussed the OICA proposal for a staggered introduction of AEBS requirements, into one unique regulation.

As a reminder, GRRF, at its 68th session, agreed on the establishment of two Regulations on AEBS: one addressing collision mitigation and the other addressing collision avoidance.

This GRRF decision was however subsequently challenged by OICA, through a e-mail circulated on the 21st of October 2010 to the members of the GRRF informal group on AEBS/LDWS, indicating that the above mentioned decision by GRRF would “jeopardize the spirit of the World Forum for Harmonization of Vehicle Regulations (WP.29) in the frame of the 1958 Agreement” which tend to improve global harmonisation. OICA explained in this e-mail that it believe that the aim of GRRF should be to define one unique UNECE regulation with harmonized requirements that are recognised by all Contracting Parties, and that it was keen to discuss this point at the 9th informal group meeting at Tokyo (26-29 October 2010).

At the 9th meeting of the informal group held in Tokyo, the Chair, as representative of the European Commission, “pointed out that the European Commission considers that the decision made at GRRF must be respected as it respects the necessity of mutual recognition”. OICA presented a non-official paper for a staggered approach based on a unique regulation + series of amendments approach. The discussion on this non-official paper by OICA resulted in a varying degree of support and a commitment by OICA to decide on whether to officially table their proposal at the next informal group meeting.

OICA tabled document AEBS/LDWS-07-06-Rev.1, at the 10th meeting of the informal group, providing a consolidated OICA position.

OICA introduced this proposal insisting on the relationship between the scope, the technical requirements and the introduction dates indicated in the table. The experts from OICA also stressed on the need for exemptions and the technical and cost limitation Industry is facing concerning the mandatory equipment of AEBS on some categories of vehicle.

The group firstly discussed the one Regulation approach. The Chair recalled that GRRF had decided a 2-Regulation approach for accommodating the divergence of views between Japan (wishing to avoid requirements for collision avoidance), and Germany (in favour to require collision avoidance from the beginning). The Chair considered it necessary to have a unequivocal position from the informal group on a one-Regulation approach with convincing arguments that this approach will ensure to solve all divergences between parties, before reporting back to GRRF and requesting to consider reverting to a one regulation approach for AEBS..

The representative from J made clear that:

- J can accept a one Regulation approach. The informal group is currently following the path of a 2-Regulation approach for answering the GRRF request

- J confirmed they find not appropriate to introduce collision avoidance as a 1st step, but J can accept the staggered implementation approach proposed by OICA in document AEBS/LDWS-07-06-Rev.1
- Japanese accidentology implies the introduction of stationary target test as from Step 1. J was keen to mandate a moderate Regulation in the beginning, but ready to make it evolve. J is flexible about the implementation date for the 2nd step
- Concerning category 2, J can support the approach of introducing the provisions as from step 2 as long as it is suitable for the European Commission
- J is keen to introduce more severe requirements in step 2 for the test with stationary target for M3/N3 vehicles.

The representative from D requested the European Commission position on the issue, as the EC will propose the implementing measures for the EU. The Chair, in his capacity of representative of the European Commission services, explained that the General Safety Regulation as adopted by European Member States calls for establishing the technical requirements within the UNECE platform, and that the GSR (General Safety Regulation) requires to implement LDWS/AEBS carriage requirements for all 4 categories of vehicles (M2, N2, M3, N3) as from 2013 (for new type approvals) / 2015 (for new registrations). The European Commission services can be flexible on the stringency of the technical requirements in a staggered implementation approach, provided that the implementation dates specified by the GSR are respected in this approach.

The representative from D stated he was in favour of one unique regulation.

The Netherlands were strongly in favour of one unique Regulation. The expert from NL found necessary to compromise toward Japan, as well as J does toward the other Contracting Parties. The expert was optimistic as the positions are not so far away, and found also necessary to guarantee robust systems, i.e. the Regulation should not force the manufacturers to put on the market systems dangerous to the road users, and preferred to decrease the performance. He found acceptable to include a stationary target test as from step 1.

Sweden supported Japan, but somewhat shared the concerns of Germany. Sweden could support the 2-step approach.

UK acknowledged that the decision from GRRF was unfeasible to Industry, and thanked OICA for having prepared their proposal. The UK could support the approach for one Regulation with two steps, but found that the exemptions are mostly not necessary at UNECE level, and would better find place at the Brussels platform. The expert was of the opinion that exemptions in the UNECE Regulation would prevent the manufacturers from having an approval for the vehicles not included in the scope of the AEBS Regulation.

The spokesman from CLEPA was pessimistic about the possibility of progress in the direction of one unique Regulation. He could envisage that the two Regulations come together in the future, or that one dies. The expert was sceptic about having 2 steps from the beginning in one Regulation as it is difficult to understand and he could not find it would provide benefits politically and technically, taking into account that series of amendments and supplements are difficult to manage as two Contracting Parties could refer to two different series of amendments. CLEPA found the two Regulation approach simpler to manage.

The Chair pointed out that going in the direction proposed by OICA would imply a need for flexibility to accommodate the divergent views and wishes from the parties. He therefore asked OICA to what extent OICA could be flexible in their proposal for a staggered approach. The representative from OICA firstly shared his optimism in view of the positive reactions of the Contracting Parties. He added that the manufacturers are ready to make some compromise on the

figures in order to reach consensus, taking as an example that some flexibility could be possible about the introduction of a stationary target test in step 2 for M3/N3. Concerning the principle of one unique Regulation approach, the expert insisted about the benefits of global harmonization even toward countries not signatories to the 58 Agreement.

The Chair then turned to the Contracting Parties represented and requested their view about the introduction of requirements for M2/N2 in a later phase (step 2).

The UK found necessary to separate the issues typical to some regions from the UNECE discussions where the Regulation should not be restrictive, and was of the opinion that category 2 vehicles should be regulated from step one. Concerning the application, then the UK would be supportive of exemptions in the Brussels framework for vehicles having a technical or cost/benefits challenge.

J was keen to put the priority to category 3, then address category 2 with some flexibility, depending on the EU Member States position.

NL said that it is obviously difficult for category 2 to fulfil the requirements already in 2013. The NL could accept implementing the AEBS requirements for category 2 vehicles in a second step.

D supported NL. The exemptions should be technically based. The expert found important to have the support from the EU about the exemptions.

France supported the position expressed by NL.

S supported the introduction of AEBS requirements for category 2 vehicles as from step 1, trusting that the European Commission will exempt some vehicles from mandatory equipment of AEBS in accordance with article 14 of the GSR, based on a proper cost/benefits analysis.

CLEPA was of the opinion that for some category 2 vehicles AEBS requirements could be introduced as from the 1st step. The expert explained that the weight range where there are various braking systems extends from about 3.5 tons to 12 tons and was of the opinion that there is no purely technical reason to exempt vehicles > 7.5 tons equipped with pneumatic system from applying the AEBS requirements already in the 1st step. About M2/M3, the division should be considered in accordance with the capacity of having standing passengers because high decelerations would call for treating vehicles for standing passengers differently.

OICA considered harmonisation into one unique Regulation as the priority. The expert stated that, practically, mandatory fitment of AEBS on vehicles of category 2 in 2013 seems unfeasible, and it is not reasonable that some vehicle categories would become non-existing due to the fact that they could not meet the requirements of a non-adapted Regulation. He added that it is premature to provide information about AEBS functioning on vehicles of category 2 at the current stage because such vehicles equipped with AEBS systems do not yet exist. The expert from OICA recognised that the heavy M2/N2 may be equipped with the same braking system as the light M3/N3, but the manufacturers do not have experience with those vehicles; he summarized the situation as a compromise combination of timing, finance and resources.

The Chair summarised the discussions as showing there might be some slight possibility of successfully capturing all requirements into one Regulation, even while recognizing there is no unanimity within the group. He considered it however necessary to carefully check the viability of the one Regulation approach at the next meeting of the informal group, based on a draft regulatory text proposal to be elaborated by a drafting group piloted by OICA, in which all agreements reached to date by the informal group would be taken on board and also all specific requests by

parties would be accommodated to the largest extent possible to demonstrate the viability of this approach of providing a guarantee to an expeditious and acceptable solution for all outstanding issues.

In the mean time, he suggested to continue to work according to the request from GRRF, and at the next meeting verify the viability of the alternative based on a one regulation approach, by considering and discussing the document to be prepared by the drafting group piloted by OICA. . Based on the outcome of these discussions, the informal group would report back to GRRF as to which approach would be desirable to proceed with and to finalise the work on AEBS.

Conclusion:

- Support of the contracting parties for the principle of capturing all requirements into one unique Regulation (scepticism from CLEPA)
- OICA to take the lead in producing a document for one Regulation, with the 2 steps, taking over all the agreements reached by the informal group to date and accommodating with maximum flexibility the requests by all parties with regard to the outstanding issues.
- Proposal to be discussed at the 11th meeting of the informal group (Paris, 26-28 January 2011)
- According to the outcome of the discussions at the 11th meeting, informal group to report back to GRRF, and request guidance about the regulatory approach to be followed for finalising the work on AEBS.

6. List of action items for next IG meeting

- Amendments to the draft AEBS Regulations to be sent to UNECE Secretariat as proposals for amendments to the existing documents (done as documents GRRF-69-04 & 05)
- OICA to produce a document capturing all requirements in one unique Regulation and including a 2-step approach (first draft circulated by email of 5 January 2011, to be discussed by drafting group through phone conference on 12/01/2011, before submitting draft proposal to informal group members on 13/01/2011)
- Secretariat to check deadline submitting official documents to GRRF-70 to be held on 12-13 May 2011 (25 March 2011)

7. Schedule for further IG meetings.

Wabco and Knorr-Bremse keen to organise a demonstration, in Germany, probably at Bosch Boxberg Proving Ground.

- AEBS/LDWS-13 (buffer meeting): week of 22-24 March: probably in Brussels
- AEBS/LDWS-14: 9-11 May 2011, in the same week as and prior to GRRF 70. To be held tentatively in Germany, connected with a demonstration at Boxberg. If not possible in Germany, then to take place in Brussels.