

Report on the 1st meeting of the GRRF informal group on
Advanced Emergency Braking Systems (AEBS) and
Lane Departure Warning Systems (LDWS)

Paris, 25 + 26 June 2009

Chair: Mr. J. Renders (EC)

Secretary: Mr. Olivier Fontaine (OICA)

General:

1. The 1st meeting of the AEBS/LDWS informal group set up under GRRF was hosted by OICA and 42 delegates and experts participated to this two-days meeting.
2. The main topics on the agenda (AEBS/LDW-01-01) were the review of the group's terms of reference and rules of procedure (agenda item 5), and the exploratory discussions on the main principles for developing a draft outline for UNECE Regulations on AEBS (agenda item 6) and on LDWS (agenda item 7).
3. In accordance with the decision by GRRF at its 65th session, the informal group agreed to consider the following draft proposals:

GRRF-65-20: proposal by Germany for amending Regulation N° 79 (Steering Equipment) with regard to the implementation of technical specifications for LDWS

GRRF-S08-04: proposal by CLEPA for draft amendments to Regulation N° 13 (Braking of heavy vehicles) to include requirements on AEBS, and

GRRF-S08-05: proposal by CLEPA for draft amendments to Regulation N° 13-H (Braking of M₁ and N₁ vehicles) to include requirements on AEBS¹

In addition, the informal group agreed to consider also a proposal by Japan for a draft regulation on advanced emergency braking systems, submitted for this first meeting of the informal group (AEBS/LDW-01-05).

¹ As the group's Terms of Reference provide that the informal group has to focus on systems for heavy duty vehicles and that vehicles of category M₁ and N₁ may be covered in a later stage, the informal group did not consider in detail this proposal by CLEPA.

Terms of Reference and Rules of Procedure:

4. Under agenda item 5 (review of the group's Terms of Reference) the group agreed first on the use of terminology and acronyms. Considerable debate took then place with regard to the vehicle categories and classes the group will have to focus on for developing draft regulations on AEBS and LDWS.

Whilst some participants favoured an as wide focus as possible, covering in principle all heavy vehicles of category M₂, M₃, N₂ and N₃, others considered that a more limited scope of focus would be appropriate. One contracting party was of the opinion that the Terms of Reference should not refer to vehicles of category M₁ and N₁ at all and that the European Commission should first carry out a cost/benefit analysis before the scope of focus for developing UNECE Regulations on AEBS and LDWS could be decided upon.

The Chair reminded that the task of the informal group to develop draft UNECE Regulations for AEBS and LDWS on the one hand and the possibility for the European Commission to exempt some vehicles or classes of vehicles within categories M₂, M₃, N₂ and N₃ from the AEBS and LDWS installation requirements under the EU Regulation on the General Safety of Motor Vehicles on the other hand are two distinct processes, and that - even when these processes would run in parallel - the latter should not impact on the former, moreover since the informal group should not consider cost/benefit issues or legal considerations (GRRF-65-19, para. 16.b).

Participants who would consider that some vehicles or classes of vehicles within categories M₂, M₃, N₂ and N₃ should be exempted from the AEBS and LDWS installation requirements under the EU Regulation on the General Safety of Motor Vehicles were therefore invited to submit reasoned suggestions and/or requests directly to the European Commission at the earliest convenience.

5. As the group could not reach consensus on which categories and classes of vehicles to focus on, it accepted the suggestion by its Chairman to place in para.2 of the Terms of reference (GRRF-65-38) the wording [of Classes B, II and III] and [Vehicles of category M₁ and N₁ may be covered in a later stage] between square brackets, with a view to seek further guidance from GRRF on this issue (see also point 9 below).
6. In the discussion on which vehicle categories the group should focus on to develop proposals for AEBS and LDWS regulations under the 1958 Agreement, participants also exchanged views on which regulatory approach would be appropriate for that purpose. Whilst some participants had already presented at the brainstorming meeting in December 2008 their position in favour of a regulatory approach based on either the "if fitted" or the "shall be fitted" principle, Japan called for applying a flexible approach as presented in

their draft proposal for an AEBS Regulation (AEBS/LDW-01-05), which would enable Contracting Parties to declare at the time of adopting the Regulations for which categories and classes of vehicles they would mandate the installation of the advanced vehicle safety systems covered by these Regulations.

7. In the discussion on the regulatory approach, participants also exchanged views on their positions as to whether the draft regulatory text proposals on AEBS and LDWS should take the form of new Regulations or amendments to existing Regulations.

In view of the fact that the report to GRRF on the brainstorming session on AEBS/LDWS (GRRF-65-19, para. 16.d) specifies that decisions on this issue will be determined by GRRF and WP.29, the group agreed to seek further guidance from GRRF on the basic principles of the regulatory approach to be followed, in particular on the choices between the "if fitted" versus "shall be fitted" approach and between developing new Regulations versus amendments to current Regulations.

8. The group reviewed the target dates for submission of draft regulatory texts and for the completion of its work. The EC proposed to advance these target dates with one GRRF session with a view to ensure that the implementing measures on AEBS and LDWS under the EU regulation on the General Safety of Motor Vehicles could be adopted within the specified deadline (end of 2011). The group agreed nevertheless to maintain the target dates as originally proposed in GRRF-65-38 (para. 4 and 5) to take account of the additional time that may be required in case the draft regulatory texts would need to be developed in the form of new Regulations.
9. Subject to further guidance from GRRF on the regulatory approach to be followed and on the categories of vehicles it should focus on (See paragraphs 1 and 2 of the Terms of Reference presented below) the group endorsed its Rules of Procedure and Terms of Reference.

1. *The informal group shall prepare draft regulatory proposals to incorporate ~~Automatic~~ **Advanced** Emergency Braking Systems (AEBS) and Lane Departure Warning Systems (LDWS) into [existing or new] Regulations annexed to the 1958 Agreement.*
2. *The group will focus on systems for heavy vehicles in categories N₂, N₃, M₂, and M₃ vehicles [of Classes B, II and III]. [Vehicles of category M₁ and N₁ may be covered in a later stage.]*

AEBS:

10. The review of existing AEBS technologies and consideration of the draft proposals for AEBS Regulations submitted by CLEPA (GRRF-S08-04) and by Japan (AEBS/LDW-01-05) revealed substantive differences in the basic principles and philosophies upon which these systems and draft proposals are based. The existing technology presented by Daimler (LDWS/AEBS-01-03) and the draft proposal for an AEBS Regulation by CLEPA (GRRF-S08-04) are aiming at avoiding collisions with moving and stopping vehicles only, whilst the draft proposal by Japan for an AEBS Regulation (AEBS/LDWS-01-05) is aimed at mitigating collisions with moving but also stationary vehicles.
11. Consequently, the group's discussions focused on the questions whether the draft Regulations on AEBS should cover moving and stopping vehicles only or also stationary vehicles and whether they should aim at collision mitigation only or also at collision avoidance. As the decision on these choices is of paramount importance for developing functional requirements and testing methods, the group acknowledged the need for further clarification and for undertaking an assessment of accident statistics (to be provided by OICA/Daimler and Japan) with a view to resolve these questions of principle at its future meetings. Decisions on these questions of principle will need to be taken into account for specifying the conditions for activation.
12. The group could not reach a consensus on the degree of detail required in the definition of AEBS and agreed to seek further guidance from GRRF on whether the definition should include further details on the type of emergency situation (accident scenario) to be covered. (choice to be made as indicated in the text between square brackets below).

*"Advanced Emergency Braking System" means a system which automatically detect [a **potentially forward collision / an emergency situation**] and activate the vehicle braking system to decelerate the vehicle with the purpose of avoiding or mitigating a collision.*
13. No consensus could be reached by the group on the possible scope of application of the AEBS Regulation to be developed, and whilst awaiting further guidance from GRRF, participants were invited for the next meeting of the informal group to consider an approach that would leave the decision on the scope to the Contracting Parties when adopting the Regulations (see also point 6 above) and to reflect on the possible consequences for the definition of AEBS.
14. The group agreed on the main principles with regard to HMI issues (driver controls and warnings), acknowledging the need for specifying in the AEBS Regulation the possibilities for the driver to override and switch-off the system.

15. After an exploratory exchange of ideas on speed range and road geometry boundaries, and on failure modes, in-use assessment and test methods, the group acknowledged the need for further clarification, discussion and elaboration on these subjects at its next meeting.
16. In order to facilitate further progress on these issues the group agreed to the secretariat preparing a skeleton paper reflecting in a structured manner the outstanding AEBS issues for further consideration at a preparatory meeting prior to the second meeting of the informal group in September 2009 (see also point 24).

LDWS:

17. The group considered the existing ISO 17361:2007 standard on LDWS, and exchanged views on and experiences with existing LDWS technologies. Germany presented their proposal for a draft Regulation on LDWS (GRRF-65-20). From these discussions emerged a broad consensus about using the ISO 17361 standard as a starting point for developing a UNECE Regulation on LDWS, although opinions diverged as to whether this should be done by simple referencing to the ISO standard or by spelling out in detail the applicable provisions of the ISO standard. As the detailed discussions on a possible outline specification for a LDWS Regulation revealed the need for some adaptation and simplification of the provisions of the ISO standard, direct referencing to the standard may prove not to be feasible (see point 19 below).
18. The group agreed on the definition of LDWS as proposed by Germany (GRRF-65-20), and to limit the scope of the Regulation to lane departure warning only, with the exclusion of Lane Change Assist and Active Lane Keeping. As to the categories and classes of vehicles to be covered by the future LDWS Regulation, the divergence of positions as expressed in the discussion on the Terms of Reference was confirmed (see points 4 and 5 above), but nevertheless a window to accommodate the various positions emerged, as further guidance may be provided by GRRF on this issue and as participants accepted the suggestion by the Chair to consider the feasibility of the approach proposed by Japan, which would enable Contracting Parties to declare at the time of adopting the LDWS Regulation for which categories and classes of vehicles they would mandate the installation of the system.
19. In the discussion on a possible outline for a Regulation on LDWS, the group agreed in principle with the simplified approach proposed by Germany to limit the functional requirements to the "latest warning line" provision of ISO 17361:2007 but to apply other reference points for measuring the lateral distance of departure across the lane boundary, i.e. the outer edge of the tyre of the front wheel and the outer edge of the visible lane marking. From this agreement follows that some of the provisions of the ISO standard need to be

revised and reworded before they can be incorporated in the draft regulatory text for a Regulation on LDWS.

20. The group committed to decide at its next meeting on the proposal by Germany to specify a maximum value of lateral distance of departure across the lane boundary for activation of the warning [30cm] and a minimum speed for activation of the system [60 km/h]. The group agreed there was no need to specify a maximum speed above which the system would not need to remain activated.
21. The group agreed on the basic principles for specifying HMI provisions (driver controls and warnings) in the draft regulatory texts. These would need to include information on the system status, with distinction to be made between warnings for system failure and for system incapable of detecting the lane boundary. As to the warning for lane departure, the group agreed - in line with the provisions of ISO 17361:2007 - that this should be haptic and/or audible, however without the need for specifying detailed standards for these warning signals. It was also agreed that LDWS should be able to take into account certain suppression requests and that the driver may have the possibility to switch-off the system. Further details will need to be elaborated based on the above principles at the next meeting of the group.
22. After an exploratory exchange of ideas on road geometry boundaries, and on failure modes, in-use assessment and test methods, the group acknowledged the need for further clarification, discussion and elaboration on these subjects at its next meeting.
23. In order to facilitate further progress on these issues the group agreed to the secretariat preparing a skeleton paper outlining in a structured manner the agreed principles and outstanding issues on LDWS for further consideration at a preparatory meeting prior to the second meeting of the informal group in September 2009 (see point 24 below).

Next steps:

24. The group decided to hold its second meeting in Geneva on the 14th of September 2009, the day before the start of the 66th session of GRRF. As the duration of this meeting is limited to one day and in order to enhance efficiency and to ensure progress, the group agreed with the proposal of the Chair to hold a 2-days meeting in the preceding week to prepare the grounds for this 2nd meeting. Germany kindly offered to host this preparatory meeting, which will take place in Bonn on 10 and 11 September 2009.
