

DRAFT AGENDA

Preparatory Task Force meeting for the 2nd meeting of GRRF informal group on

Automatic Emergency Braking and Lane Departure Warning Systems

Venue: German Ministry of Transport, Building and Urban Affairs, meeting room 0.105
Robert-Schuman-Platz 1, Bonn, Germany
<http://www.bmvbs.de/en/The-Ministry/-.2570/How-to-reach-the-Ministry.htm>

Chairman: Mr. Johan Renders (EC) (johan.renders@ec.europa.eu)
Secretariat: Mr. Olivier Fontaine (OICA) (ofontaine@oica.net)

Duration of the sessions: Thursday, 10 September: 10:00 am until 06:00 pm
Friday, 11 September: 9.00 am until approximately 4.00 pm

Note: Any comments or documents relating to this meeting should be sent to the OICA Secretariat (ofontaine@oica.net) in e-format, so that meeting documents can be made available to the UNECE secretariat for publication on the website of WP29.

1. Welcome and Introduction

2. Approval of the agenda

Documents: AEBS/LDWS-02-01 (Secretariat)
AEBS/LDWS-01-13 (Secretariat)
AEBS/LDWS-01-14-Rev1 (Secretariat)

3. Review of the action points from the kick-off meeting in Paris

4. Revision of AEBS skeleton paper

Document: AEBS/LDWS-02-02 (Secretariat)

4.1. Scope and purpose

4.1.1. Vehicle categories

Draft minutes excerpt: “Wide scope for the UNECE Regulation, leaving it to the discretion of contracting parties to decide to which types of vehicles they will mandate the installation of the system”.

Secretary proposal: limit the scope to heavy vehicles, as requested by the TOR (subject to further guidance from GRRF - see AEBS/LDWS-01-03, paragraph 9.1).

4.1.2. Collision avoidance vs. collision mitigation

Draft minutes excerpt: “substantive divergences in philosophy (moving vs. stationary vehicles and collision avoidance vs. mitigation) to be further clarified and resolved ...”

Some contracting parties seem keen to include collision mitigation provisions in the draft, at least as an option, for introduction into their national legislation, in addition to collision avoidance (see document AEBS/LDWS-01-13, paragraph 6.4.1.).

Some other contracting parties seem keen to regulate collision avoidance only.

- Secretary option 1: inspire from Regulation N°117 (tyre wet grip), by permitting the contracting parties to regulate one or both systems.
- Secretary option 2: mention no provision. It is up to each contracting party to define in its national legislation which parts of the regulation it will apply.
- Secretary option 3: introduce in the same time the original regulation and its Supplement 1. Original text would include collision avoidance only, and Supplement 1 would add provisions for collision mitigation. Each contracting party can then decide nationally whether it applies the original text or its Supplement 1.

4.2. Definitions

Experts are invited to provide input for proper definitions, in particular the necessity of defining “collision mitigation” and collision avoidance”. Some debate could also take place about the definition of the target vehicle (subject to further guidance from GRRF on the definition - see AEBS/LDWS-01-03, paragraphs 6.3.1 and 9.2).

4.3. Application for approval

Some information is needed for the Approval Authorities for granting the homologation. It is however restricted by the need for confidentiality of some data. System and vehicle manufacturers are expected to provide input.

4.4. Specifications

4.4.1. Performance requirements

To the Secretary’s opinion, main requirements are “*the warning before the crash is not avoidable*”, and “*the activation of the brakes for collision avoidance or collision mitigation*”.

Secretary proposals:

- Warning: when the time to collision is above 1,5 s
- Brake activation: conditions of Type-0 test, with a minimum deceleration of 3,3 m/s² as an alignment on the proposal from Japan. As an alternative, speed reduction could be the measurement criterion.

4.4.2. Overriding capabilities

Conforms to the Vienna Convention (Chapter II, Article 8, Paragraph 5). However, some good motivation could lead to provisions for a switch-off button (see paragraph 6.6. of AEBS/LDWS-01-13).

4.4.3. Malfunction detection

Proposal from the Secretariat, diverging from ISO 15623, introduces 3 types of warning:

- Remaining reaction time: optical, audible and/or haptic warnings are permitted, or any combination thereof.
- Failure mode (optical yellow)
- Manual switch-off

4.5. Test procedure

4.5.1. Test conditions

Proposal from the Secretary:

- One target vehicle only
- Target stationary or at constant speed only
- No test for when the system should not warn or brake
- System operating between 15 km/h and 90 km/h. See item 6.4.3. of the minutes of kick-off meeting (AEBS/LDWS-01-13)

4.5.2. Accuracy of measurements

Figures subject to discussions. The group might also discuss the necessity of this paragraph.

4.5.3. Test course

Secretary proposal: straight course only, no test on curved roads.

4.5.4. Vehicle conditions

Proposal from the Secretariat: vehicle to be tested in the conditions of the Type-0 test of Regulation N°13, unladen only.

4.5.5. Provisions for target vehicle

Proposal from the Secretariat: keep the requirements as simple as possible for definition of the target radar reflexion. A reference to the Annex C to ISO 15623 can be useful. The provisions proposed in the skeleton paper are inspired from the J proposal (document AEBS/LDWS-01-05, page 21, para. 2.3.). However, the RCS should better be expressed in “m²”.

4.5.6. Remaining reaction time warning test

4.5.6.1. Procedure for the case of a stationary target

Proposal from Secretary:

- 3 tests at relevant speeds
- Test must check whether the “remaining reaction time” defined by the manufacturer is always above a certain mandatory value (1,5 s is proposed as in ISO 15623, while J proposes 1.6 s), and that the system properly warns the driver.

4.5.6.2. Procedure for the case of a moving target

Proposal from the Secretary: copy the collision mitigation provisions. However, the upper test speed is proposed to be 60 km/h for convenience with the test course length.

4.5.7. Braking system activation test

4.5.7.1. Procedure for the case of a stationary target

Proposal from Secretary:

- 3 tests at relevant speeds
- Test must check whether the system properly decelerates the vehicle, starting deceleration at the latest when the time to collision equals 0,8 s (as suggested by J in para. 4.1.3. of AEBS/LDWS-01-05), with an average deceleration of 3,3 m/s².

Figures are subject to discussions.

4.5.7.2. Procedure for the case of a moving target

Proposal from Secretary:

- 3 tests at relevant speeds
- Test must check whether the system properly decelerates the vehicle, with the same criteria as for the case of a stationary target.

In both cases (stationary and moving target), debates must take place about the time the brakes should be released.

4.5.8. Malfunction detection

Proposal from Secretary: simulate a system malfunction. Misaiming of the sensor(s) can be subject of debate.

4.6. Conformity of production

Debate could take place concerning multi-stage vehicle manufacturing as sensors will possibly be installed by the bodybuilder rather than by the vehicle manufacturer.

4.7. Introductory provisions

Introductory provisions may be necessary to align the application date of the UNECE regulation on the EU-GSR and to permit the Industry to adapt the current production to the new mandatory requirements.

5. Revision of LDWS skeleton paper

Document: AEBS/LDWS-02-03 (Secretariat)

5.1. Scope and purpose

Draft minutes excerpt: “Wide scope for the UNECE Regulation, leaving it to the discretion of CP to decide to which types of vehicles they will mandate the installation of the system”.

Secretary proposal: limit the scope to heavy vehicles, as requested by the TOR. However, approval of vehicles of other categories should be permitted at the request of the manufacturer, as e.g. in Regulation N°94.

5.2. Definitions

Definition of LDWS as in document GRRF-65-20 was agreed during the 1st meeting of the informal group.

Explanatory schemes may not be necessary, or should only cover the necessarily defined items.

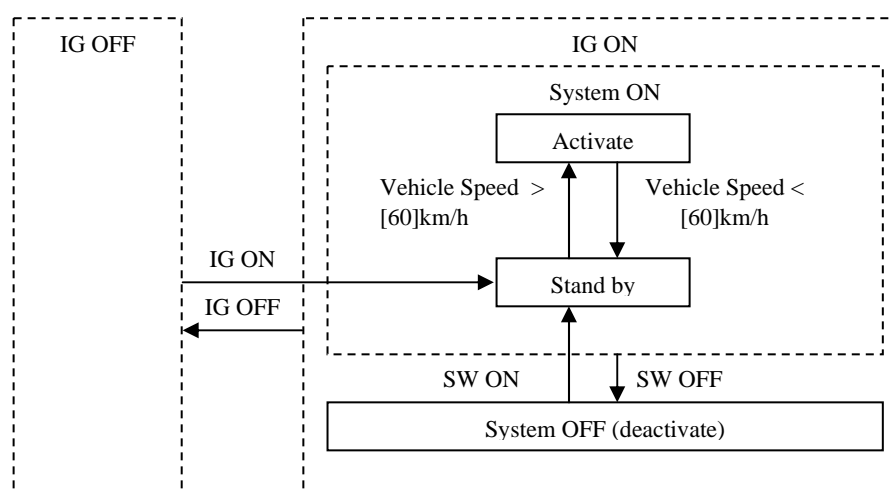
5.3. Application for approval

5.4. Specifications

5.4.1. Performance requirements

Main requirement is the warning before the front exterior wheel is more than 30 cm beyond the outside of the lane marking, as suggested at the kick-off meeting. It is also suggested to mandate LDWS automatic activation at the latest when the vehicle speed increases above 60 km/h (figure still subject to debate).

Texts of items 5. and 6. of the skeleton paper could also be extrapolated from the functional flow-chart below:



5.4.2. Malfunction detection

Provisions for system incapable of detection might be considered necessary by the group, as mentioned in paragraphs 7.4.6. and 7.6. of document AEBS/LDWS-01-13.

5.4.3. Warning indication

Proposal from the Secretariat for 2 types of warning:

- Lane departure : audible and/or haptic warning. Combination of both could be mandatory.
- Failure mode (optical yellow)

A further third warning might be found necessary for the case of the system incapable of detecting the lane boundaries (see item 4.4.2. above).

5.5. Test procedure

5.5.1. Test conditions

Proposal from the Secretariat: precise provisions for lane markings. Criteria for the Secretariat proposals are “*the test markings well representing the current markings in the world*” and “*a certain level of severity for the lane detection*”.

5.5.2. Accuracy of measurements

Figures subject to discussions

5.5.3. Test course

Proposal from the Secretariat: inspired from ISO 17361. Tests to be performed on straight course only. Debate possible about whether the surface should be dry.

5.5.4. Vehicle conditions

5.5.5. Lane departure warning test

Proposal from the Secretariat: divergence from the ISO 17361 as the warning generation test was erased, for keeping the repeatability test only, as per Germany request, re-named “lane departure warning test”.

5.5.6. Malfunction detection

Proposal from the Secretariat: simulate a simple system malfunction. Proposed warning delay is 60 minutes. Input from the experts is expected.

5.6. Introductory provisions

As for AEBS, introductory provisions may be necessary to align the application date of the UNECE regulation on the EU-GSR and to permit the Industry to adapt the current production to the new mandatory requirements.

6. Other business

7. List of action items