

This document is including all the changes proposed, by means of informal documents or during the GRE 85th session, to the GTB proposal on “Driver assistance projection”.

The changes proposed here below in respect to the official GTB proposal (Document GRE/2021/18) are highlighted in green.

I. Proposal

A. New Supplement to the 06, 07 and 08 series of amendments to UN Regulation No. 48

Add new paragraphs 2.7.8. and 2.7.9. to read:

“2.7.8. “Driver Assistance Projection” means a modification of the light distribution for driver assistance purposes.

2.7.9. “RCT (Risk of Collision Time)” means the estimated time for the own vehicle and the preceding vehicle to collide, assuming that the relative speed, at the time of estimation, remains constant.”

Add a new paragraph 3.2.9. to read:

“3.2.9. Where a system is able to provide driver assistance projections on the road, a list of the patterns and symbols shall be provided by the manufacturer.”

Add a new paragraph 5.35. and related sub-paragraphs to read:

“5.35. General provisions relating to Driver Assistance Projection

The Driver Assistance Projection shall be constituted of patterns, symbols or both.

5.35.1. Symbols and patterns shall be related and limited only to warning/highlighting:

- (a) the presence of hazardous traffic situation**
- (b) the presence of other road users which require the driver’s attention**
- (c) to maintain the distances to surrounding road users and infrastructure**
- (d) to maintain the correct lane**

The patterns and symbols shall be explained in the owner’s handbook.

5.35.2. The only symbols and patterns that may be used for the Driver Assistance Projection, and their associated underlying conditions, are listed in Annex [16].

5.35.3. It shall be always possible to manually deactivate and reactivate the system which operates the Driver Assistant Projection.

5.35.4. The projected symbols and patterns shall no longer be projected when their associated underlying conditions allowing them to be shown do not exist anymore.

5.35.5. The projected symbols and patterns shall stop flashing when their associated underlying conditions allowing them to flash do not exist anymore.

5.35.6. The Driver Assistance Projection shall be deactivated automatically in case of an electrically detectable failure of the system that affects the visual information.”

Paragraph 6.22.9.2.4., amend to read:

“6.22.9.2.4. To verify that the adaptation of the main-beam, **including Driver Assistance Projection**, does not cause any discomfort, distraction or glare, neither to the driver nor to oncoming and preceding vehicles, the technical service shall perform a test drive according to paragraph 2. in Annex 12. This shall include any situation relevant to the system control on the basis of the applicant’s description. The performance of the adaptation of the main beam shall be documented and checked against the applicant’s description. Any obvious malfunctioning shall be contested (e.g. excessive angular movement or flicker).”

Add a new paragraph 6.22.9.3.2. and its subparagraphs to read:

“6.22.9.3.2. The adaptive main beam may produce the Driver Assistance Projection in order to warn the driver appropriately regarding special traffic situations or conditions.

6.22.9.3.2.1. The lateral distance from the outer edges of the Driver Assistance Projection with respect to the trajectory of the centre of gravity of the vehicle shall not be more than 1,250 mm. This shall be demonstrated by the manufacturer by calculation or by other means accepted by the Type Approval Authority.

6.22.9.3.2.2. Driver Assistance Projection shall not interfere with information displayed by the Field of Vision Assistant as defined in UN Regulation No. 125.

6.22.9.3.2.3. ~~No Flashing flashing and/or transforming nor transforming~~ of driver assistance projections is ~~not~~ permitted, unless expressly allowed for the ~~use cases situations~~ described ~~under the conditions~~ in Annex [16].

6.22.9.3.2.4. Driver Assistance Projection shall not operate when the windshield wiper is switched ON and its continuous operation has occurred for a period of at least two minutes.”

In Annex 1, item 9.22., amend to read:

“9.22.	Adaptive front lighting system (AFS):	yes/no ²
9.22.1.	Main-beam ADB	yes/no²
9.22.1.1.	Main-beam ADB + Driver Assistance Projection	yes/no² ”

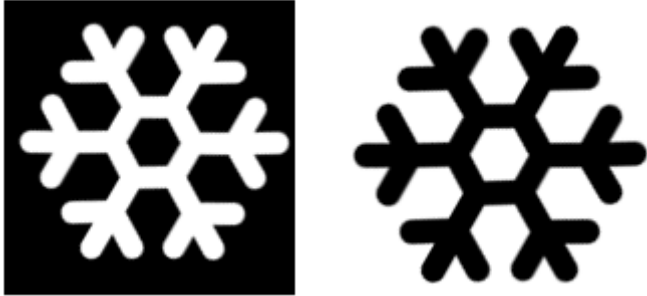

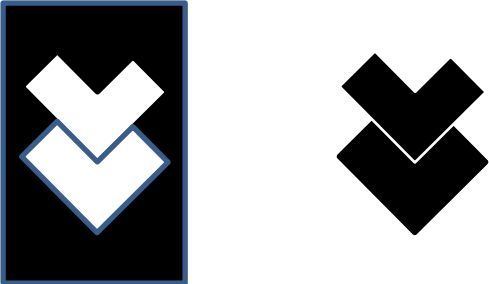
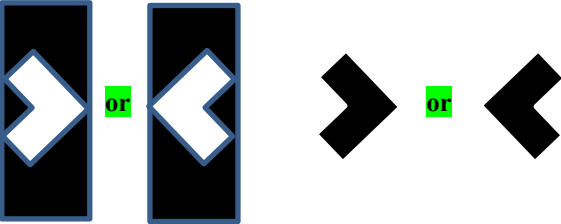
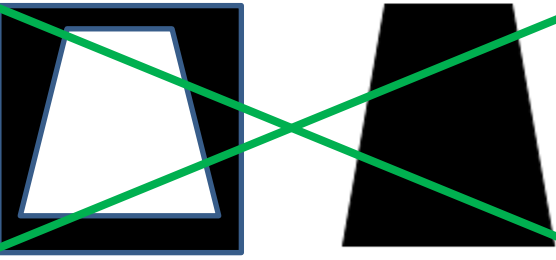
Add a new paragraph 2.8. in Annex 12; to read:

“2.8. For the test sections A, B, C and E in the table above the engineers conducting the tests shall evaluate Driver Assistance Projection if installed.”

Add a new Annex [16] to read:

“Annex [16]

Symbols and patterns for the use as Driver Assistance Projections and Explanations of the Warnings/Highlights

Symbols and Pattern	Use case	Conditions and remarks
	Slippery road warning	Shall not flash
	Risk of collision warning	<p>Triggered when the relative speed is larger than 30 km/h and Risk of Collision Time is less than 1.4 s.</p> <p>Flashing at 4.0 hz +/- 1.0 hz allowed.</p>
	Wrong way warning	<p>Activated when the vehicle is entering a one-way road or a highway in opposite direction.</p> <p>Flashing at 4.0 hz +/- 1.0 hz allowed.</p>
	Lane keeping assist warning	<p>Activated when if the vehicle unintentionally exits its lane.</p> <p>Shall not flash.</p>
	Predicted trajectory	<p>May be transforming according to the predicted trajectory of the vehicle.</p> <p>Shall not flash</p>

B. New Supplement ~~4~~ 1 to series of amendments 01 to UN Regulation No. 149

Add a new paragraph 3.1.3.4.2.3 to read:

“3.1.3.4.2.3 In the case of Driver Assistance Projection according to UN Regulation No. 48, it shall specify the size (horizontal and vertical angular limits) of the zone used for performing said projections.”

Renumber existing paragraphs 3.1.3.4.2.3 to 3.1.3.7.2.6.2 accordingly.

Add a new paragraph 5.3.3.8. and its subparagraph to read:

“5.3.3.8. The Driver Assistance Projection according to UN Regulation No. 48, paragraph 6.22.9.3.2., may be part of the driving-beam light distribution within a zone limited by the following angles:

vertically: - 1.2° and below

horizontally: ± 25°

The Driver Assistance Projection may be produced by modifying the beam pattern in the zone defined above, where the luminous intensity in any point of the entire driving beam shall not exceed the maximum value (IM) according to paragraph 5.1.3.5.4.2 and not less than the minimum intensities prescribed in Table 15.13 Part B.

5.3.3.8.1. The colour of the light emitted for Driver Assistance Projection shall be white.”

Justification

Please refer to the Justifications contained in the following documents:

- ECE-TRANS-WP29-GRE-2021-18 (GTB proposal for 85th GRE session);
- GRE-85-20 (from GTB, replacing document ECE-TRANS-WP29-GRE-2021-18);
- GRE-85-25 (from Japan, amending document GRE-85-20).

In addition, during the 85th GRE session, the following changes were proposed and discussed:

- Germany proposed to add a clarification in paragraph 6.22.9.3.2.3. and to delete the wording “**Shall not flash**” for all the symbols/patterns in Table 16 (this prohibition already exists in paragraph 6.22.9.3.2.3.).
- SAE proposed, in Table 16, to add the word “or” in between the two “chevrons” for the “Lane keeping assist warning” projection and, for the same function, to change as follows the text in the “Conditions and remarks” column: “Activated when the vehicle **is about to** unintentionally exits its lane.”
- OICA disagreed with the text change proposed by SAE; the requirement for activation of the “Lane keeping assist warning” projections so modified could be considered in conflict with the present requirements for LDWS. OICA is accepting the other SAE proposal.
- Finally, during the redactional work for the present document, GTB decided to suggest, for the text related to the activation of the “Lane keeping assist warning” projection, a simple change aligning it, from application point of view, to the one used in the COMMISSION REGULATION (EU) No 351/2012 for LDWS type approval.
- Finally, GTB changed the second part of its proposal to update the references to the numbering changes of the UN Regulation N° 149/01 series of amendments, adopted during this 85th GRE session.

No technical changes are introduced in respect to the previous text nor technical changes are deriving from the numbering updating.
