

Proposal for improvements to document GRE/2020/4/Rev.1

This informal document is based on the official GTB proposal (GRE/2020/4/Rev.1) and all the proposed modifications are highlighted in yellow.

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

Add a new paragraph 2.7.8. to read:

“2.7.8. “Driver Assistance Projection” means a modification of the light distribution for driver assistance purposes, exclusively as patterns (simple geometric shapes such as lines, rectangles, triangles, etc. without any complex combination of all of them, and easily/intuitively understandable by the driver) and/or simple symbols, without causing discomfort, distraction or glare to road users and without causing distraction to the driver.”

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 these patterns and/or symbols shall be provided by the manufacturer.”

Add a new paragraph 5.9.4 to read:

“5.9.4. Patterns and symbols for Driver Assistance Projection, as defined in paragraph 2.7.8., may flash, at a frequency of 4.0 ± 1.0 Hz, in case of specific imminent danger as defined in Regulations.”

Add a new paragraph 5.35. to read:

“5.35. General provisions relating to Driver Assistance Projection

5.35.1. Driver Assistance Projection shall be constituted of patterns and/or symbols exclusively.

5.35.1.1. Patterns shall be simple geometric shapes such as lines, rectangles, triangles, etc. without any complex combination of them.

5.35.1.2. Patterns shall be easily/intuitively understandable by the driver.

5.35.1.3. Symbols that may be used for driver assistance projections are listed in Annex [16].

5.35.2. Driver Assistance Projection shall neither cause discomfort, distraction or glare to road users nor cause distraction to the driver.”

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

“6.22.9.3.2. The adaptive main-beam may produce driver assistance projections as patterns and/or symbols on the road in order to inform or warn the driver appropriately regarding special traffic situations or conditions.

~~Symbols that may be used for driver assistance projections are listed in Annex [16].~~

6.22.9.3.2.1. The lateral distance from the outer edges of the driver assistance projections on the road with respect to the trajectory of the centre of gravity of the vehicle shall not be more than 1,875 mm. This shall be demonstrated by the manufacturer by calculation or by other means accepted by the Type Approval Authority.”

Add a new Annex [16] to read:

“Symbols for the use as driver assistance projections

1. Symbol for slippery road warning



2. Symbol for collision warning



...”

B. New Supplement to UN Regulation No. 149

Add a new paragraph 3.1.3.4. to read:

“3.1.3.4. In the case of driver assistance projections 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. to 3.1.3.7. accordingly.

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

“5.3.3.8. Driver assistance projections 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° and below

horizontally: ± 25°

The projections 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.

5.3.3.8.1. The colour of the driver assistance projections shall be white.”

II. Justification

GTB has continued its work on Driver Assistance Projection and some possible improvements of the already presented proposal (GRE/2020/4/Rev.1) have been identified. Such improvements take into account the comments and suggestions presented during the GRE 83rd session and at a special session with interested contracting parties and GTB on 15 January 2021.

In addition, a study from the ISAL 2019 symposium¹ shows that the assistance projections have no impact on oncoming drivers about glaring and dazzling whatever the wetness of the road. As a consequence, we did not deem it necessary to introduce any limitations due to wet road nor bad weather.

Amendments to UN Regulation No. 48.

- 2.7.8. In UN Regulation No. 48, requirements were separated from definitions for better understanding. The part of the proposed definition dealing with required characteristics of the Driver assistance projections have been moved to the new paragraph 5.35. and related sub-paragraphs.
- 5.9.4. The possibility to improve the perception of the Driver assistance projection in case of imminent danger situation was identified; it is then proposed to add this new paragraph allowing the Driver assistance projection to flash at high frequency (4.0 ± 1.0 Hz, the same frequency already prescribed for the Emergency Stop Signal and Rear-End Collision Alert Signal).
- 5.35. (and related sub-paragraphs) The requirements previously contained in paragraph 2.7.8. have been moved in the sub-paragraphs 5.35.1. to 5.35.1.2. and 5.35.2. while the text in paragraph 5.35.1.3. has been taken from paragraph 6.22.9.3.2.
- 6.22.9.3.2. The second sentence is moved to paragraph 5.35.1.3. since it is a general requirement for Driver assistance projection and not a specific requirement for those produced by an AFS only.

Amendments to UN Regulation No. 149.

- 3.1.3.4. The reference to UN Regulation No. 48 was added to specifically refer to the function Driver assistance projection as defined and regulated by such a Regulation.
- 5.3.3.8.1. The requirement of this paragraph has to be intended to allow the symbols and patterns projected either in positive (symbols and patterns in white light on dark background) or in negative (dark symbols and patterns on a background illuminated by white light).

¹ M. Hamm; “Real Driving Benefits and Research Findings with Digital Light Functions”; ISAL 2019 Proceedings; pp 113-122