

Proposal to amend GRE/2020/13/Rev.1

The modifications to the current proposal text are identified in underlined blue characters.

I. Proposal

UN Regulation No. 53, insert a new paragraph 6.16.5.1., to read:

"6.16.5.1. The vertical inclination of the center of the area of maximum illumination of ADB shall remain between ± 0.5 per cent, except in the case where an external adjusting device is present.

In case ADB is adjusted together with the passing-beam(s), this provision shall not apply."

UN Regulation No. 53, paragraph 6.16.8.1.1.4., amend to read:

"6.16.8.1.1.4. The overall performance of the automatic control shall be demonstrated by the applicant by documentation or by other means accepted by the Type Approval Authority. Furthermore, the manufacturer shall provide a documentation package which gives access to the design of "the safety concept" of the system. This "safety concept" is a description of the measures designed into the system, for example within the electronic units, so as to address system integrity and thereby ensure safe operation even in the event of mechanical or electrical failure which could cause any discomfort, distraction or glare, either to the driver or to oncoming and preceding vehicles. This description shall also give a simple explanation of all the control functions of the "system" and the methods employed to achieve the objectives, including a statement of the mechanism(s) by which control is exercised. The "safety concept" shall describe the measures taken to ensure that failure mode is triggered if any external agent (e.g. caused by dirt) obscures the sensor input.

A list of all input and sensed variables shall be provided and the working range of these shall be defined.

The functions of the system and the safety concept, as laid down by the manufacturer, shall be explained. The documentation shall be brief, yet provide evidence that the design and development has had the benefit of expertise from all the system fields which are involved.

For periodic technical inspections, the documentation shall describe how the current operational status of the "system" can be checked.

For Type Approval purposes this documentation shall be taken as the basic reference for the verification process."

II. Justification

1. As specified in UN Regulation No. 149, ADB prevents glare to other road users by adapting its beam pattern above the H-H line to the presence of oncoming and preceding traffic. ADB may also emit light below the H-H line to illuminate the near-field, which is not subject to adaptation. To avoid light below the H-H line producing glare, it is proposed to introduce requirements to ensure proper aiming of the ADB on the motorcycle.

2. Paragraph 6.16.8.1.1.4. in document GRE/2020/13/Rev.1, based on paragraph 6.22.9.2.3 of UN Regulation No. 48, contains requirements for the manufacturer to provide a documentation package to the Approval Authority describing the “safety concept”, which shall describe the measures to ensure the system integrity and guarantee safe operation even in the event of failure.

3. The ADB sensor of a vehicle of category L₃ may be more exposed to external agents (e.g. dirt) than in case of a vehicle of category M or N. Therefore, it is proposed to explicitly require a description in the “safety concept” of the mechanisms to trigger the failure mode if any external agent obstructs the sensor input, returning to the conventional driving-beam / passing-beam switching.
