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Working Party on Lighting and Light-Signalling

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Item 6 (a) of the provisional agenda
UN Regulation No. 48 (Installation of lighting and light-signalling devices): Proposals for amendments to the 05 and 06 series of amendments

Proposal for Supplement [10] to the 05 series of amendments and Supplement [8] to the 06 series of amendments to UN Regulation No. 48 (Installation of lighting and light-signalling devices)

Submitted by the expert from the International Automotive Lighting and Light Signalling Expert Group (GTB)*

The text reproduced below was prepared by the expert from GTB, with the aim of reducing discomfort glare from rear signalling lamps when viewed at close proximity in slow moving traffic. The modifications to the existing text of the Regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2018–2019 (ECE/TRANS/274, para. 123 and ECE/TRANS/2018/21/Add.1, cluster 3.1), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate

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I. Proposal

Paragraph 5.26., amend to read:

"5.26. Rear direction indicator lamps **of category 2b**, rear position lamps **of category R2**, stop lamps **of category S2** ~~(except stop lamps of category S4)~~ and rear fog lamps **of category F2** with variable luminous intensity control, which respond simultaneously to ~~at least~~ one **or more** of the ~~following~~ external influences~~: ambient lighting, fog, snowfall, rain, spray, dust clouds, contamination of the light emitting surface,~~ **listed in paragraphs 5.26.1. and 5.26.2., are allowed,** provided that their prescribed intensity relationship is maintained throughout variation transitions. ~~No sharp variation of intensity shall be observed during transition. Stop lamps of category S4 may produce variable luminous intensity independent from the other lamps. It may be possible for the driver to set the functions above to luminous intensities corresponding to their steady category and to return them to their automatic variable category.~~

5.26.1. Environmental conditions

Variation of the luminous intensity, in the limits prescribed in the pertinent UN Regulations, is allowed in relation to the following conditions:

(a) ambient lighting,

(b) fog,

(c) snowfall,

(d) rain,

(e) spray,

(f) dust clouds,

(g) contamination of the light emitting surface.

5.26.2. Traffic conditions

Reduction of the luminous intensity, in the limits prescribed in the pertinent UN Regulations, is allowed only if:

(a) the vehicle speed is below 20 km/h, and

(b) the distance to the following vehicle(s) is less than 20 m.

5.26.3. Stop lamps of category S4 may produce variable luminous intensity, based on the external influences listed in paragraphs 5.26.1. and 5.26.2., independently from the other lamps.

5.26.4. No sharp variation of intensity shall be observed during transition.

It may be possible for the driver to set the functions above to luminous intensities corresponding to their steady category and to return them to their automatic variable category."

II. Justification

1. This proposal is intended to reduce the discomfort caused by the glaring effects of increasingly performant rear-signalling lamps, when seen at short distance, while assuring correct perception of the signals in all cases.

Rear signalling lamps in slow moving traffic

2. Safety on the road requires that the overall appearance of the signalling functions is as homogeneous as possible in all driving conditions. To achieve this, new categories of lamps (for variable intensity) were introduced some years ago into the UN Regulations. However, recently, factors such as:

(i) the use of increasingly efficient LED light sources installed in lamps having very smooth and transparent outer lenses,

(ii) the reduced dimensions of the apparent surface, especially dedicated to higher performance functions such as rear fog and/or stop-lamps,

(iii) the requirement to achieve the photometric ratios between lamp functions,

can result in a wide range of luminous intensities that may create discomfort to drivers and consequential possible danger in slow moving or stationary traffic at night-time.

3. The current provisions of the UN Regulation do not take account of proximity or vehicle speed with respect to discomfort glare. This proposed amendment introduces the additional technical parameters of speed and separation distance, as a means of identifying a condition of proximity in dense traffic. Under these conditions the intensity of the variable functions may be varied in order to reduce the risk of discomfort glare for the following driver.

4. With respect to the parameter of vehicle speed, it is proposed to allow reduced intensity in the case of speeds of lower than 20 km/h. This is consistent with the recent proposal of the Task Force on Headlamp Switching (TF HS) to increase the speed value from 10 km/h, presently used as limit to allow automatic activation and deactivation of lighting functions (such as deactivation of the auxiliary reversing lamps / manoeuvring lamps or the activation of the daytime running lamps) to 20 km/h. Similarly the speed of 20 km/h is also used for the safety belt reminder.

5. With respect to the parameter of vehicle separation, a distance of 20 m is proposed, that allows the sensors to detect the approach of following vehicles. At a speed of 20 km/h the distance covered by a vehicle is approximately 5.6 m per second. Considering the case of a vehicle reducing its speed as it approaches the vehicle in front, it can be estimated that the intensity variation will be completed within 3-4 seconds before the vehicle stops. Consequently a smooth variation of the intensity of the involved function can be achieved.

6. Finally several editorial changes have been introduced, included the separation of the original paragraph in four sub-paragraphs, in order to have a better readability of the requirements.