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**Economic Commission for Europe**

Inland Transport Committee

**World Forum for Harmonization of Vehicle Regulations****Working Party on Lighting and Light-Signalling****Eighty-ninth session**

Geneva, 24-27 October 2023

Item 7 (b) of the provisional agenda

**Device UN Regulations:****UN Regulation No. 150 (Retro-Reflective Devices)****Proposal for a Supplement to the 01 series of amendments to  
UN Regulation No. 150****Submitted by the experts from the International Automotive Lighting  
and Light-Signalling Expert Group \***

The text reproduced below was prepared by the experts from the International Automotive Lighting and Light-Signalling Expert Group (GTB) with the aim to align the procedure to follow in case of a surface reflection for both coefficient of luminous intensity (CIL) measurement and colour measurement. The proposed modifications to the current text of the UN Regulations are marked in bold for new or strikethrough for deleted characters.

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\* In accordance with the programme of work of the Inland Transport Committee for 2023 as outlined in proposed programme budget for 2023 (A/77/6 (Sect. 20), table 20.6), 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.



## I. Proposal

*Paragraph 4.2.1.2.*, amend to read:

“4.2.1.2. For testing the colour of the retro-reflective device, the device shall be illuminated by CIE Standard Illuminant A, with an angle of divergence of  $1/3^\circ$  and an illumination angle of  $\beta_1 = \beta_2 = 0^\circ$  ~~degree~~ or, if this produces a colourless surface reflection, an angle  $\beta_1 = \pm 5$  degrees,  $\beta_2 = 0$  degree, ~~as specified in Annex 4, Part 1, paragraph 1.1. shall be used.~~ The trichromatic coordinates of the reflected luminous intensity ~~must~~ shall be within the limits according to the specifications in paragraph 2.30. of UN Regulation No. 48. **for the night-time colour of the light retro-reflected from that device, as defined in UN Regulation No. 48.**”

*Annex 4, Part 1, paragraph 1.1.*, amend to read:

“1.1. When the  $R_I$  of a retro-reflective device is measured for an angle  $\beta$  of  $\beta_1 = \beta_2 = 0^\circ$ , it shall be ascertained whether any mirror effect is produced by slightly turning the device. If there is any such effect, a reading shall be taken with an angle  $\beta$  of  $\beta_1 = \pm -5^\circ$ ,  $\beta_2 = 0^\circ$ . ~~The position adopted shall be that corresponding to the minimum  $R_I$  for one of these positions.~~”

## II. Justification

*General*

1. In UN Regulation No. 150, the measuring procedure when having a surface reflection on the retroreflector is different for the measurement of colour and retroreflection. This may result in different measured colour coordinates in different laboratories.
2. In paragraph 3.1. of Annex 4, Part 1 the position of the photometer head, the reference axis and the directions are clearly described. If the surface reflection is on the opposite side of the source from the photometer head, which is given at an angle of ( $\beta_1 = -5^\circ$ ), the surface reflection has no influence on the measurement. This is true for the measurement of  $R_I$  values as well as for colour measurement.
3. The proposed solution is based on an existing description in UN Regulation No. 27 (namely paragraph 2.6. of Annex 6) concerning the procedure to follow in case of a surface reflection for both colour measurement and CIL measurement.

*Changes to paragraph 4.2.1.2.*

4. The word “degree” is replaced by the sign “°”.
5. Instead of indicating the angles, a reference is made to the relevant text in Annex 4.
6. The reference to UN Regulation No. 48 is wrong. To correct this, and make the text future proof, the specific reference has been replaced with the relevant text.

*Changes to Annex 4, Part 1, paragraph 1.1.*

7. There is only one angle of  $-5^\circ$  which assures that the surface reflection is on the opposite side of the detector. For this reason, the symbol “ $\pm$ ” has been replaced by “-”.
8. The last sentence is deleted because it is not needed, since there will be only one possibility to set the correct angle.