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Item 4 (c) of the provisional agenda
Simplification of lighting and light-signalling UN Regulations:
UN Regulation No. 149 (Road illumination devices)

Proposal to clarify and to correct the text of the draft 01 series of amendments to UN Regulation No. 149

Submitted by the Informal Working Group on Simplification of Lighting and Light-Signalling Regulations*

The text reproduced below was prepared by the Informal Working Group on Simplification of Lighting and Light-Signalling Regulations (IWG SLR) with the aim to clarify and to correct the text of the draft 01 series of amendments to UN Regulation No. 149. The modifications to the text adopted by the Working Party on Lighting and Light-Signalling (GRE) (namely ECE/TRANS/WP.29/GRE/2021/14 as amended by informal documents GRE-85-09, GRE-85-14 and GRE-85-33) are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2022 as outlined in proposed programme budget for 2022 (A/76/6 (Sect.20), para 20.76), 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 3.3.2.4.2., amend to read:

"3.3.2.4.2. In the case of headlamps/AFS installation unit designed to meet the requirements of both traffic systems**,** ~~by means of~~ **with or without** an appropriate adjustment of the setting of the optical unit or the light source(s) or light source module(s), a horizontal arrow with a head on each end, the heads pointing respectively to the left and to the right."

Table 6, Part A, amend to read:

"Table 6

Type approval photometric requirements for Classes C and V passing-beam (indicated for right-hand traffic)

	Element	***Angular coordinates in deg.***		***Luminous intensity in cd***			
				Class C		***Class V***	
		vertical	***horizontal***	***min***	***max***	***min***	***max***
…							
Part A	Segment 10	4°D	4.5°L to 2°R	$5.00 \cdot 10^2$		$3.50 \cdot 10^2$	
	Segment 10 and below	4°D	4.5°L to 2°R		0,8 x the actual measured value at 50R		0,8 x the actual measured value at ~~50R~~**25V**
	I_{max}	-	-				$4.41 \cdot 10^4$

"

Paragraph 5.2.3., amend to read:

"5.2.3. There shall be no lateral variations detrimental to good visibility in ~~any of the~~ zone~~s I,~~ III ~~and IV~~."

Table 7, Part A, amend to read:

"Table 7

Type approval photometric requirements for Classes C, V, E and W passing-beam in conjunction with Figure A4-VI (indicated for right-hand traffic)

	Element	***Angular coordinates in deg.***		***Luminous intensity in cd***							
		vertical	***horizontal***	***Class C***		***Class V***		***Class E***		***Class W*** [b]	
				min	***max***	***min***	***max***	***min***	***max***	***min***	***max***
Part A	Zone III	As specified in Table 9		-	$6.25 \cdot 10^2$	-	$6.25 \cdot 10^2$	-	$8.80 \cdot 10^2$	-	$8.80 \cdot 10^2$
	S50+S50LL+S50RR	As specified in Table 11		$1.90 \cdot 10^2$ [d]	-	-	-	$1.90 \cdot 10^2$ [d]	-	$1.90 \cdot 10^2$ [d]	-
	S100+S100LL+S100RR	As specified in Table 11		$3.75 \cdot 10^{32}$ [d]	-	-	-	$3.75 \cdot 10^2$ [d]	-	$3.75 \cdot 10^2$ [d]	-
	BR	1°U	2.5°R	-	$1.75 \cdot 10^3$		$1.75 \cdot 10^3$	-	$1.75 \cdot 10^3$	-	$2.65 \cdot 10^3$
…											
Part A	Segment 10	4°D	4.5°L to 2°R	$5.00 \cdot 10^2$	-	$3.50 \cdot 10^2$	-	$5.00 \cdot 10^2$	-	-	-
	Segment 10 and below	4°D	4.5°L to 2°R		0.8 x the actual measured value at 50R	-	0.8 x the actual measured value at ~~50R~~**25V**	-	0.8 x the actual measured value at 50R	-	$7.10 \cdot 10^3$
	I_{max} [c]	-	-		-	-	$4.41 \cdot 10^4$	-	-	-	-

"

Table 16, amend to read:

"Table 16
Type approval photometric requirements for Class CS and Class DS passing-beam

Element	***Angular coordinates in deg.*** [a]		***Luminous intensity in cd***		
	vertical	***horizontal***	***min***		***max***
			Class CS	***Class DS***	***Classes CS, DS***
…					
Segment 5	2°D	15°L to 15°R	$5.50 \cdot 10^2$	$1.10 \cdot 10^3$	--
Segment 6	4°D	20°L to 20°R	$1.50 \cdot 10^2$	$3.00 \cdot 10^2$	0.8 x the actual measured value at point ~~2~~**1.72°D-V**

"

Annex 1, item 9.1.8., amend to read:

"9.1.8. Total objective luminous flux as described in paragraph ~~4.5.3.4.~~ **4.5.3.5.** of this Regulation exceeds $2.00 \cdot 10^3$ lumens: yes/no/does not apply[2]"

II. Justification

Paragraph 3.3.2.4.2.

1. In UN Regulations Nos. 112 (paragraph 4.2.2.2.), 113 (paragraph 4.2.2.1.) and 123 (paragraph 4.2.2.7.), the marking of a double-headed arrow was mandatory for devices designed to meet the requirements of both traffic systems.

2. While devices, type approved to UN Regulations Nos. 112 or 123, can meet the requirements of both traffic systems "by means of an appropriate adjustment", for devices type approved to UN Regulation No. 113 this is an inherent characteristic as the beam is symmetric.

3. When UN Regulation No. 149 was drafted, the different paragraphs of UN Regulations Nos. 112, 113 and 123 where merged and led into current paragraph 3.3.2.4.2. The resulting text may be misinterpreted as if now only systems that include "means of an appropriate adjustment" need to be marked with the double-headed arrow, and symmetrical devices are no longer required to be marked.

4. The proposed change to paragraph 3.3.2.4.2. clarifies that the marking requirements continue to apply to all systems, including the symmetrical ones.

Tables 6, 7 and 16

5. Passing beams with a symmetrical cut-off - that is normally located at -0.57° – need a very sharp cut-off in order to produce high luminous intensities at vertically -0.86° and accordingly to allow the fulfilment of the maximum luminous intensity requirement for segment 10 (Tables 6 and 7) respectively segment 6 (Table 16) when these requirements are referenced to measurements at vertically -0.86°.

6. During the development of the improved and simplified photometric tables for the 01 series of amendments to UN Regulation No. 149 it was overseen, that for passing-beams with symmetrical cut-off the measuring points (elements) 50R respectively P2 - that are located at a distance of 50 m in front of the vehicle - are too close to the cut-off in order to get stable measurement results.

7. Accordingly, it is proposed to change this reference to a point that is located farther from the cut-off, at vertically -1.72° (i.e. 25 m ahead of the vehicle), in an identical way for all symmetrical passing-beams.

8. In Table 7, the value of the element “S100+S100LL+S100RR” of Class C should be $3.75 \cdot 10^2$ and not $3.75 \cdot 10^3$. The proposed change corrects this typo.

Paragraph 5.2.3.

9. In the 01 series of amendments to UN Regulation No. 149 there is only zone III because zones I and IV have been replaced by segments:

- segment 10 replaces zone I (at vertically 4°D) with regard to the allowed maximum luminous intensity;
- segments 25 (at vertically 1.72°D) and 50 (at vertically 0.86°D) replace zone IV with regard to the required minimum luminous intensities

10. The proposed change corrects the overlooked deletion of zones I and IV.

Annex 1, item 9.1.8.

11. The proposed change corrects a typo in the reference.