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Regulation No. 7 (Position, stop and end-outline lamps)

Proposal for Supplement 22 to the 02 series of amendments to Regulation No. 7 (Position, stop and end-outline lamps)

Submitted by the expert from China*

The text reproduced below was prepared by the expert from China modifying the requirements of the photometric performance of front position lamps incorporated with front fog lamps and rear position lamps incorporated with rear fog lamps. The modifications to the existing text of Regulation No. 7 are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2010–2014 (ECE/TRANS/208, para. 106, ECE/TRANS/2010/8, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

I. Proposal

Paragraph 6.1., amend to read:

"6.1. The light emitted by each of the two devices supplied shall be in the reference axis, of not less than the minimum intensity and of not more than the maximum intensity specified below:

	Minimum luminous intensity in cd	*Maximum luminous intensity in cd when used as*	
		Single lamp	*Lamp (single) marked "D" paragraph (4.2.2.6.)*
6.1.1. Front position lamps, front end-outline marker lamp A or AM	4	140	70
6.1.2. Front position lamps incorporated in a headlamp **or front fog lamp**	4	140	-
6.1.3. Rear position lamps, rear end-outline marker lamp	4	17	8.5
6.1.3.1. R, R1 or RM1 (steady)			
6.1.3.**2**. R2 or RM2 (variable)	4	42	21
6.1.4. Rear position lamps, rear end-outline marker lamp incorporated in a rear fog lamp			
6.1.4.1. R, R1 or RM1 (steady)	**4**	**25**	-
6.1.4.2. R2 or RM2 (variable)	**4**	**62**	-
6.1.**5**. Stop-lamps			
6.1.**5**.1. S1 (steady)	60	260	130
6.1.**5**.2. S2 (variable)	60	730	365
6.1.**5**.3. S3 (steady)	25	110	55
6.1.**5**.4. S4 (variable)	25	160	80

"

Paragraph 6.2.3., amend to read:

"6.2.3. However, a luminous intensity of 60 cd shall be permitted for rear position lamps reciprocally incorporated with stop-lamps **or rear fog lamps** (see paragraph 6.1.3. above) below a plane forming an angle of 5° with and downward from the horizontal plane;"

II. Justification

1. UN Regulation No. 48 does not prohibit the reciprocal incorporation of front position lamps with front fog lamps and of rear position lamps with rear fog lamps. Manufacturers need the uses.

2. Similar to conditions of front position lamps reciprocally incorporated with headlamps, the photometric performance should be increased for front position lamps reciprocally incorporated with front fog lamps and rear position lamps reciprocally incorporated with rear fog lamps.

3. The maximum value for rear position lamps incorporated in rear fog lamps is calculated on the basis of a ratio of luminous flux of filament lamps of P21/5W, P21W and W5W.

4. When a filament lamp of category of P21/5W with nominal luminous flux of 35/440 is used for a stop lamp and a rear position lamp reciprocally incorporated together, the intensity maximum of rear position lamp complies to the maximum value of 260 cd specified for stop lamp calculated based on the ratio of luminous flux is 20.7 cd. But for minor filament, the light output will decrease by about 12 per cent because it is not on the focus point as the major filament. Normally, the designed maximum value will be less than the specified maximum value, and if a factor of 0.9 is chosen, the maximum value will be the specified maximum value of 17 cd for rear position lamp. Accordingly, for rear position lamp reciprocally incorporated with rear fog lamp, the calculated maximum intensity is about 19 cd.

5. By the same way, for filaments P21W and W5W, the calculated maximum intensity is ≈ 25 cd.

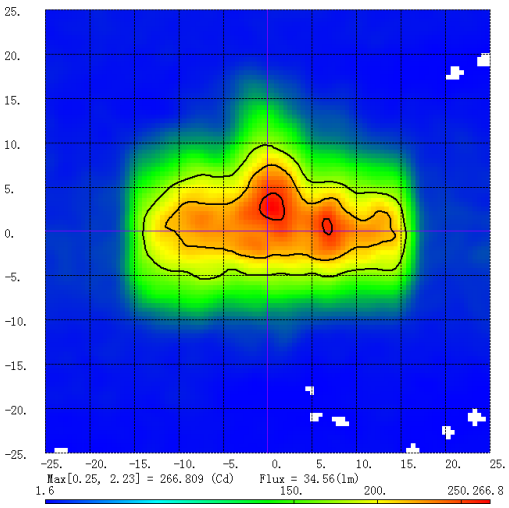
6. These two cases are more likely found in design, and use of other light sources will more easy comply with the requirements.

7. In the case of a lamp with variable luminous intensity, the maximum value is calculated by the ratio of steady and variable luminous intensity of a single rear position lamp.

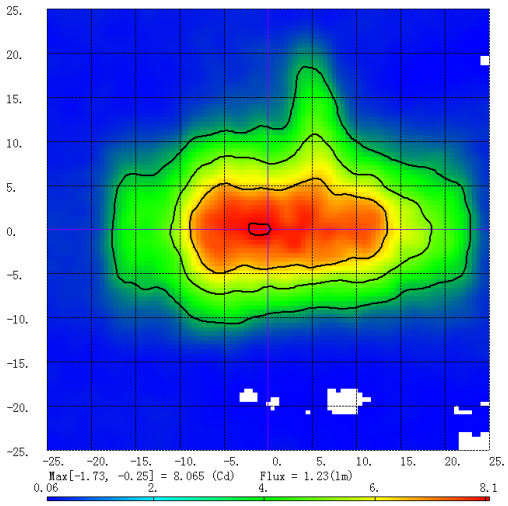
8. In simulations for the two categories of filament lamps P21/4W and P21/5W and in testing actual products with the respective light sources mentioned above, the respective results are as follows:

The result of simulation for light source P21/4W by software:

Rear fog lamp (440 lm)



Rear position lamp (15 lm)



9. The simulation indicates that rear fog lamp has a maximum intensity of 266.8 cd and rear position lamp has a maximum intensity of 8.1 cd. According to the ratio of luminous flux of the two filaments, the maximum intensity of rear position lamp should be 9.1 cd, but it is simulated to be 8.1 cd. The reason is that the main filament is positioned and the second filament is not positioned in the focus of the reflector.

10. Test results of some samples with P21/4W light source showed that, for the rear fog lamp, a maximum intensity of 268.0 cd was measured and, for the rear position fog lamp, a maximum intensity 10.2 cd was measured.