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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****Seventy-sixth session**

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Item 4 of the provisional agenda

Simplification of lighting and light-signalling Regulations**Proposal for a collective amendment to Regulations Nos. 98,
112 and 123****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 to delete the measurement at the point of intersection (HV) during the test for stability of photometric performance of the passing beam. 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 2014–2018 (ECE/TRANS/240, para. 105 and ECE/TRANS/2014/26, 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.

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I. Proposal

A. Supplement 8 to the 01 series of amendments to Regulation No. 98 (Headlamps with gas-discharge light sources)

Paragraph 6.4.2., amend to read:

"6.4.2. Additional tests are made after the reflector has been tilted vertically upwards by the angle quoted in paragraph 2.1.4. or 2 degrees, whichever is smaller, by means of the headlamp aiming devices. The headlamp is then re-aimed downwards (by means of the goniometer), and the photometric specifications must be met at the following points:

Principal passing beam: ~~HV B50L~~ and 75 R (**B 50 R and 75 L**, respectively);

Driving beam: I_M and point HV (percentage of I_M).

If the aiming devices do not allow a continuous movement, the position nearest to 2 degrees is chosen."

Annex 4, amend to read:

"Tests for stability of photometric performance of headlamps in operation

Test on complete headlamps

Once the photometric values have been measured according to the prescriptions of this Regulation, in the point for I_{max} for driving beam and in points ~~HV 25 L~~, 50 R and B 50 L for passing beam (or ~~HV 25 R~~, 50 L, B 50 R for headlamps designed for left-hand traffic) a complete headlamp sample shall be tested for stability of photometric performance in operation. "Complete headlamp" shall be understood to mean the complete lamp itself including ballast(s) and those surrounding body parts and lamps which could influence its thermal dissipation.

..." (the remainder of the text is unchanged)

Annex 5, paragraph 2.6.1.2., amend to read:

"2.6.1.2. Results

After the test, the results of photometric measurements carried out on the headlamp in accordance with this Regulation shall not exceed:

(a) By more than 30 per cent the maximum values prescribed at points B 50 L ~~and HV~~ and by more than 10 per cent below the minimum values prescribed at point 75 R (in the case of headlamps intended for left-hand traffic, the points to be considered are B 50 R, ~~HV~~ and 75 L)

or

(b) By more than 10 per cent below the minimum values prescribed for HV in the case of a headlamp producing driving-beam only."

Annex 8,

Paragraph 1.2.2.1., amend to read:

"1.2.2.1. For the passing beam, the values prescribed in this Regulation are met ~~at HV (with a tolerance of ± 170 cd) and related to that aiming~~ at one point within a circle of 0.35 degrees around points B 50 L (or R)¹ (with a tolerance of 85 cd), 75 R (or L), 50 V, 25 R1, 25 L2, and on segment I;"

Paragraph 2.4., amend to read:

"2.4. Measured and recorded photometric characteristics

The sampled headlamps shall be subjected to photometric measurements at the points provided for in the Regulation, the reading being limited to points I_{\max} , HV¹, HL, HR² in the case of the driving beam, and to points B 50 L (or R)¹, ~~HV~~, **50L (or R)**, 50 V, 75 R (or L) and 25 L2 (or R2) in the case of the passing beam (see figure in Annex 3)."

Annex 9, paragraph 1.2.2.1., amend to read:

"1.2.2.1. For the passing beam, the values prescribed in this Regulation are met ~~at HV (with a tolerance of ± 170 cd) and related to that aiming~~ at one point within a circle of 0.35 degrees around points B 50 L (or R) 1/ (with a tolerance of 85 cd), 75 R (or L), 50 V, 25 R1, 25 L2, and on segment I;"

B. Supplement 7 to the 01 series of amendments to Regulation No. 112 (Headlamps emitting an asymmetrical passing-beam)

Paragraph 6.4.3., amend to read:

"6.4.3. Additional tests are made after the reflector has been moved vertically $\pm 2^\circ$ or at least into the maximum position, if less than 2° , from its initial position by means of the headlamps adjusting device. Having re-aimed the headlamp as a whole (by means of the goniometer for example) in the corresponding opposite direction the light output in the following directions shall be controlled and lie within the required limits:

Passing-beam: points ~~HV B50L~~ and 75 R (**B50R and 75 L**, respectively);

Driving-beam: I_M and point HV (percentage of I_M)."

Annex 4, amend to read:

"Tests for stability of photometric performance of headlamps in operation

Tests on complete headlamps

Once the photometric values have been measured according to the prescriptions of this Regulation, in the point for I_{\max} for driving-beam and in points ~~HV 25L~~, 50 R, B 50 L for passing-beam (or ~~HV 25R~~, 50 L, B 50 R for headlamps designed for left-hand traffic) a complete headlamp sample shall be tested for stability of photometric performance in operation. "Complete headlamp" shall be understood to mean the complete lamp itself including those surrounding body parts and lamps which could influence its thermal dissipation.

..." (the remainder of the text is unchanged)

Annex 5,

Paragraph 1.2.2.1., amend to read:

"1.2.2.1. For the passing-beam, the values prescribed in this Regulation are met at ~~HV~~ (with a tolerance of +170 cd) and related to that aiming at least one point within a circle of 0.35 degrees around points B 50 L (or R) (with a tolerance of 85 cd), 75 R (or L), 50 V, 25 R, 25 L, and in the entire area of zone IV which is not more than 0.52 degrees above line 25 R and 25 L;"

Paragraph 2.4., amend to read:

"2.4. Measured and recorded photometric characteristics

The sampled headlamps shall be subjected to photometric measurements at the points provided for in the Regulation, the reading being limited at the points I_{max} , HV¹, HL, HR² in the case of a driving-beam, and to points B 50 L (or R), ~~HV 50L (or R)~~, 50 V, 75 R (or L) and 25 L (or R) in the case of the passing-beam (see figure in Annex 3)."

Annex 6, paragraph 2.6.1.2., amend to read:

"2.6.1.2. Results

After the test, the results of photometric measurements carried out on the headlamp in accordance with this Regulation shall not exceed:

(a) By more than 30 per cent the maximum values prescribed at points B 50 L and ~~HV~~ and by more than 10 per cent below the minimum values prescribed at point 75 R (in the case of headlamps intended for left-hand traffic, the points to be considered are B 50 R, ~~HV~~ and 75 L);

or

(b) By more than 10 per cent below the minimum values prescribed for HV in the case of a headlamp producing driving-beam only."

Annex 7, paragraph 1.2.2.1., amend to read:

"1.2.2.1. For the passing-beam, the values prescribed in this Regulation are met at ~~HV~~ (with a tolerance of +170 cd) and related to that aiming at least one point of each area delimited on the measuring screen (at 25 m) by a circle 15 cm in radius around points B 50 L (or R)¹ (with a tolerance of 85 cd), 75 R (or L), 50 V, 25 R, 25 L, and in the entire area of zone IV which is not more than 22.5 cm above line 25 R and 25 L;"

C. Supplement 8 to the 01 series of amendments to Regulation No. 123 (Adaptive Front-Lighting Systems (AFS))

Paragraph 6.4.3.1, amend to read:

"6.4.3.1. Passing beam: points ~~HV~~ **B50L** and 75R, or 50R if applicable;
Driving beam: I_M and point HV (percentage of I_M);"

Annex 4, first paragraph, amend to read:

"Tests for stability of photometric performance of systems in operation - Tests on complete systems

Tests on complete systems

Once the photometric values have been measured according to the prescriptions of this Regulation, in the point of Emax for driving beam and in points ~~HV~~ 25L, 50V and B50L (or R), whichever applies for passing beam, a complete system sample shall be tested for stability of photometric performance in operation.

..." (the remainder of the text is unchanged)

Annex 5,

Paragraph 1.2.1.1., amend to read:¹

"1.2.1.1. For the following values of the passing beam and its modes, the maximum unfavourable deviation may be respectively:

- (a) Maximum values at point B50L 170 cd equivalent 20 per cent and 255 cd equivalent 30 per cent;
- (b) Maximum values at zone III, ~~HV~~ and segment BLL: 255 cd equivalent 20 per cent and 380 cd equivalent 30 per cent;
- (c) Maximum values at segments E, F1, F2 and F3: 170 cd equivalent 20 per cent and 255 cd equivalent 30 per cent;
- (d) Minimum values at BR, P, at the groups S 50+ S 50LL+ S 50RR, S 100+ S 100LL+ S 100RR, and those required by footnote 4/ of Table 1 in Annex 3 of this Regulation (B50L, ~~HV~~, BR, BRR, BLL): half of the required value equivalent 20 per cent and three quarter of the required value equivalent 30 per cent."

Paragraph 2.4., amend to read:

"2.4. Measured and recorded photometric characteristics

The sampled headlamps shall be subjected to photometric measurements at the points provided for in the Regulation, the reading being limited:

To points Emax, HV ^{1/}, "HL" and "HR" ^{2/} in the case of a driving beam,

To points B50L, ~~HV if applicable~~ 50L, 50V, 75R if applicable, and 25LL in the case of the passing beam(s) (see figure in Annex 3)."

Annex 6, paragraph 2.6.1.2, amend to read:

"2.6.1.2. Results

After the test, the results of photometric measurements carried out on the system or part thereof in accordance with this Regulation shall not exceed by more than 30 per cent the maximum values prescribed at points B50L ~~and~~

¹ This paragraph is subject to deletion according to ECE/TRANS/WP.29/GRE/2016/28.

~~HV~~ and not be more than 10 per cent below the minimum values prescribed at point 75R, if applicable."

*Annex 7, paragraph 1.2.1.1., amend to read:*²

- "1.2.1.1. For the following values of the passing beam and its modes, the maximum unfavourable deviation may be respectively:
- (a) Maximum values at point B50L 170 cd equivalent 20 per cent and 255 cd equivalent 30 per cent;
 - (b) Maximum values at zone III, ~~HV~~ and segment BLL: 255 cd equivalent 20 per cent and 380 cd equivalent 30 per cent;
 - (c) Maximum values at segments E, F1, F2 and F3: 170 cd equivalent 20 per cent and 255 cd equivalent 30 per cent;
 - (d) Minimum values at BR, P, at the groups S50+S50LL+S50RR, S100+S100LL+S100RR, and those required by footnote 4/ of Table 1 in Annex 3 of this Regulation (B50L, ~~HV~~, BR, BRR, BLL): half of the required value is equivalent to 20 per cent and three quarters of the required value equivalent to 30 per cent."

II. Justification

1. The measurement point HV was deleted from the photometric requirement table for the passing beam by Supplement 3 to the 01 series of amendments to Regulation Nos. 98, 112 and 123, but remains as a requirement for checking photometric stability. This proposal removes the HV measurement point from the photometric stability requirements relating to the passing beam.
2. It should be noted that the deletion of the reference to the "HV" measurement point only applies to the passing beam requirements; the reference to the "HV" measurement point for the driving beam is not affected.

² This paragraph is subject to deletion according to ECE/TRANS/WP.29/GRE/2016/28.