



Economic and Social Council

Distr.: General
29 December 2014

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

165th session

Geneva, 10-13 March 2015

Item 4.9.15 of the provisional agenda

**1958 Agreement – Consideration of draft amendments
to existing Regulations submitted by GRE**

Proposal for Supplement 10 to Regulation No. 99 (Gas discharge light sources)

Submitted by the Working Party on Lighting and Light-Signalling*

The text reproduced below was adopted by the Working Party on Lighting and Light-Signalling (GRE) at its seventy-second session (ECE/TRANS/WP.29/GRE/72, para. 7). It is based on ECE/TRANS/WP.29/GRE/2014/24, as amended by Annex III to the report ECE/TRANS/WP.29/GRE/72. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee AC.1 for consideration.

* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, 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.

Paragraph 3.6.2., amend to read:

- "3.6.2. Run-up
- 3.6.2.1. For gas-discharge light sources having an objective luminous flux which exceeds 2000 lm:
- When measured according to the conditions specified in Annex 4, the gas-discharge light source shall emit at least:
- After 1 second: 25 per cent of its objective luminous flux;
- After 4 seconds: 80 per cent of its objective luminous flux.
- The objective luminous flux as indicated on the relevant data sheet.
- 3.6.2.2. For gas-discharge light sources having an objective luminous flux which does not exceed 2000 lm and does not contain black stripes:
- When measured according to the conditions specified in Annex 4, the gas-discharge light sources shall emit at least 800 lm after 1 second and at least 1000 lm after 4 seconds.
- The objective luminous flux as indicated on the relevant data sheet.
- For gas-discharge light sources having an objective luminous flux which does not exceed 2000 lm but does contain black stripes:
- When measured according to the conditions specified in Annex 4, the gas-discharge light sources shall emit at least 700 lm after 1 second and at least 900 lm after 4 seconds.
- The objective luminous flux as indicated on the relevant data sheet."

Annex 1,

List of categories of gas-discharge light sources and their sheet numbers, amend to read:

"

<i>Light source category</i>	<i>Sheet numbers</i>
D1R	DxR/1 to 7
D1S	DxS/1 to 6
D2R	DxR/1 to 7
D2S	DxS/1 to 6
D3R	DxR/1 to 7
D3S	DxS/1 to 6
D4R	DxR/1 to 7
D4S	DxS/1 to 6
D5S	D5S/1 to 5
D6S	D6S/1 to 5
D8R	D8R/1 to 6
D8S	D8S/1 to 5

"

List of sheets for gas-discharge light sources and their sequence in this Annex, amend to read:

"

Sheet numbers

DxR/1 to 7	(Sheet DxR/6: two pages)
DxS/1 to 6	
D5S/1 to 5	
D6S/1 to 5	
D8S/1 to 5	
D8R/1 to 6	

"

Sheet DxR/4, the table, amend to read:

" ...

D1R: Cap PK32d-3	
D2R: Cap P32d-3	in accordance with IEC Publication 60061 (sheet 7004-111-5)
D3R: Cap PK32d-6	
D4R: Cap P32d-6	

..."

Sheet DxS/4, the table, amend to read:

" ...

D1S: Cap PK32d-2	
D2S: Cap P32d-2	in accordance with IEC Publication 60061 (sheet 7004-111-5)
D3S: Cap PK32d-5	
D4S: Cap P32d-5	

..."

Sheet D5S/3, the table, amend to read:

" ...

D5S: Cap PK32d-7	in accordance with IEC Publication 60061 (sheet 7004-111-5)
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..."

Sheet D6S/3, the table, amend to read:

" ...

D6S: Cap P32d-1	in accordance with IEC Publication 60061 (sheet 7004-111-5)
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..."

Sheet D8S/3, the table, amend to read:

" ...

D8S: Cap PK32d-1	in accordance with IEC Publication 60061 (sheet 7004-111-5)
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..."

After sheet D8S/5, insert new sheets D8R/1 to 6, to read (see following pages; one page per sheet):

The drawings are intended only to illustrate the essential dimensions (in mm)

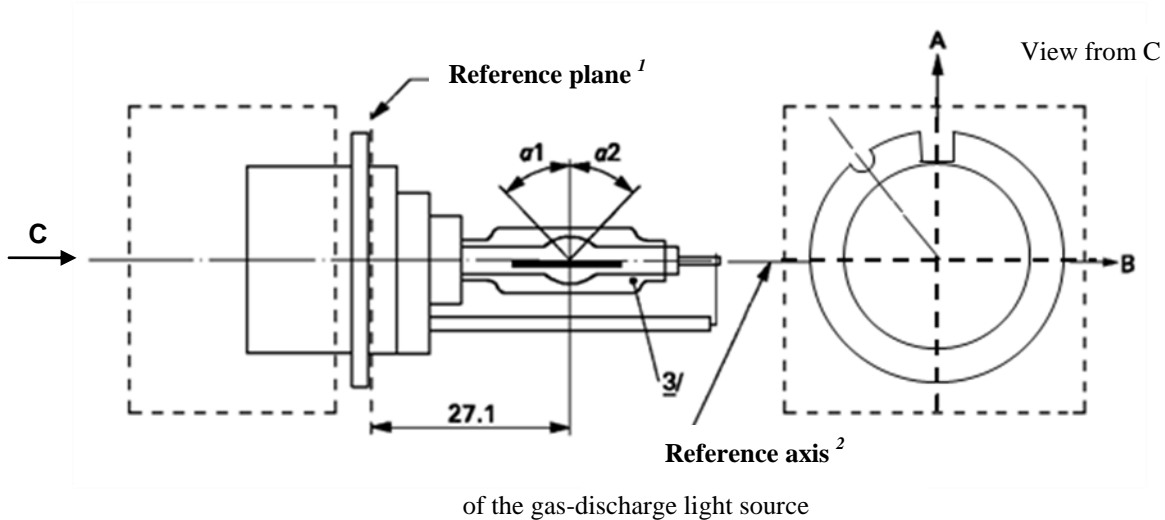


Figure 1
Category D8R - Cap PK32d-8

¹ The reference plane is defined by the positions on the surface of the holder on which the three supporting bosses of the cap ring will rest.

² See sheet D8R/2.

³ When measured at a distance of 27.1 mm from the reference plane and with respect to the mid-point of the inner bulb, the outer bulb shall have an eccentricity of 1 mm max.

The cap shall be pushed in this direction

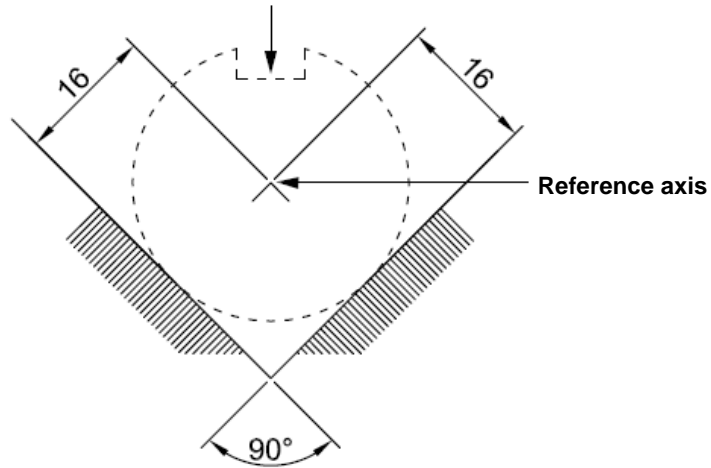


Figure 2
Definition of reference axis¹

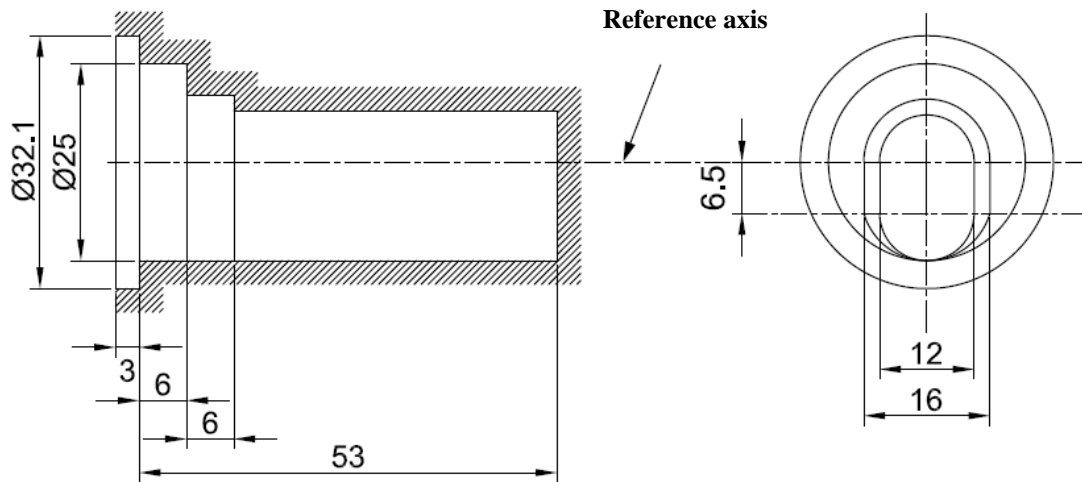


Figure 3
Maximum lamp outline²

¹ The reference axis is perpendicular to the reference plane and crosses the intersection of the two parallel lines as indicated in figure 2.

² Glass bulb and supports shall not exceed the envelope, as indicated in figure 3. The envelope is concentric with the reference axis.

<i>Dimensions</i>		<i>Production light sources</i>	<i>Standard light sources</i>
Position of the electrodes		Sheet D8R/4	
Position and form of the arc		Sheet D8R/5	
$\alpha 1^1$		55° min.	
$\alpha 2^1$		55° min.	
D8R: Cap PK32d-8 in accordance with IEC Publication 60061(sheet 7004-111-5)			
Electrical and photometric characteristics			
Rated voltage of the ballast	V	12 ²	12
Rated wattage	W	25	25
Test voltage	V	13.2	13.2
Objective lamp voltage	V	42 ± 9	42 ± 4
Objective lamp wattage	W	25 ± 3	25 ± 0.5
Objective Luminous flux	lm	1900 ± 300	1900 ± 100
Chromaticity coordinates	Objective	x = 0.375	y = 0.375
	Tolerance area ³	Boundaries	x = 0.345 y = 0.150 + 0.640 x
			x = 0.405 y = 0.050 + 0.750 x
		Intersection points	x = 0.345 y = 0.371
			x = 0.405 y = 0.409
			x = 0.405 y = 0.354
x = 0.345 y = 0.309			
Hot-restrike switch-off time	s	10	10

¹ The part of the bulb within the angles $\alpha 1$ and $\alpha 2$ shall be the light emitting part. This part shall be as homogeneous in form as possible and shall be optically distortion free. This applies to the whole bulb circumference within the angles $\alpha 1$ and $\alpha 2$ except for the black stripes.

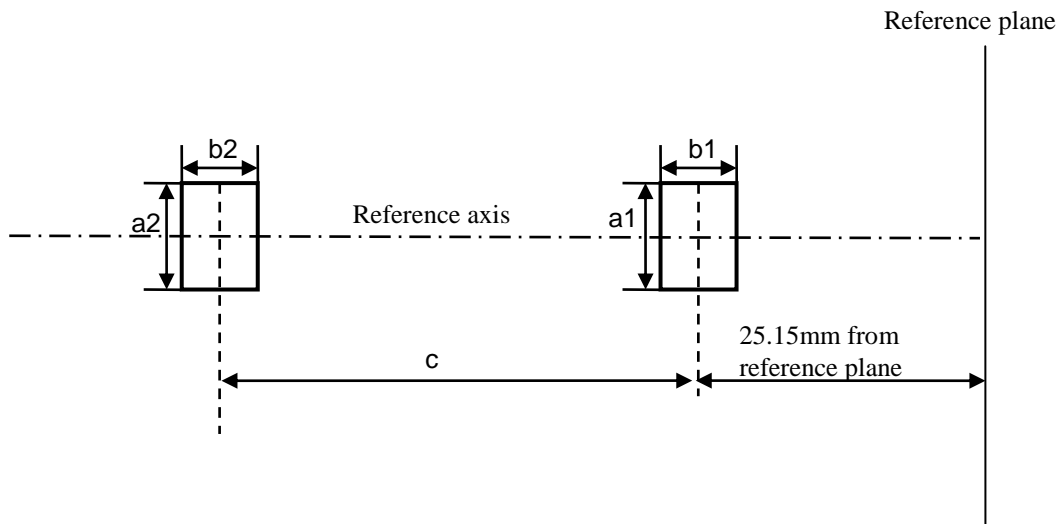
² Application voltages of ballasts may differ from 12 V.

³ See Annex 4.

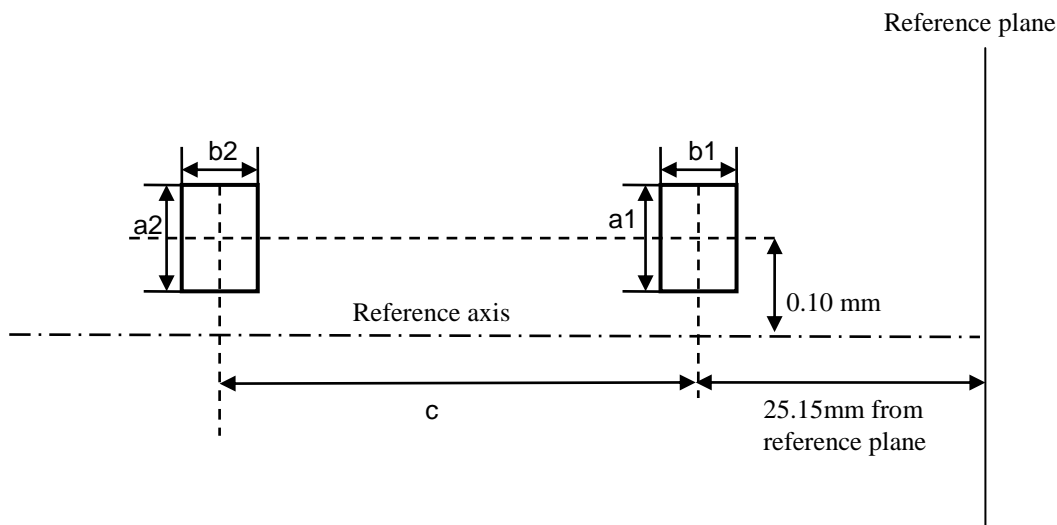
Position of the electrodes

This test is used to determine whether the electrodes are correctly positioned relative to the reference axis and the reference plane.

Top view (schematic):



Side view (schematic):



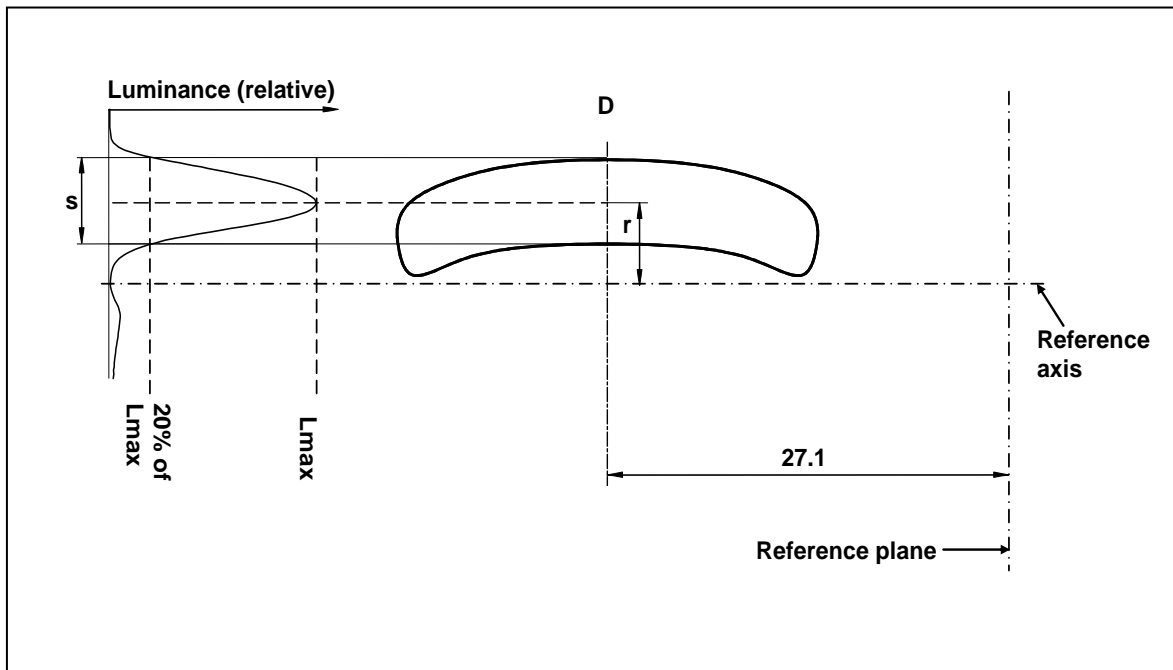
Measuring direction: light source side and top view

Dimension in mm	Production light sources	Standard light sources
a1	0.50	0.20
a2	0.70	0.35
b1	0.40	0.15
b2	0.80	0.30
c	3.90	3.90

The arc attachment point to the electrode nearest to the reference plane shall be positioned in the area defined by a1 and b1. The arc attachment point to the electrode furthest from the reference plane shall be positioned in the area defined by a2 and b2.

Position and form of the arc

This test is used to determine the form of the arc and its position relative to the reference axis and the reference plane by measuring its bending and diffusion in the cross section at a distance 27.1 mm from the reference plane.



Relative luminance distribution in the central cross section D.

The form of the arc is for illustration purpose only.

Measuring direction: light source side view

When measuring the relative luminance distribution in the central cross section as indicated in the drawing above, the maximum value shall be located within the distance r from the reference axis. The point of 20 per cent of the maximum value shall be within s.

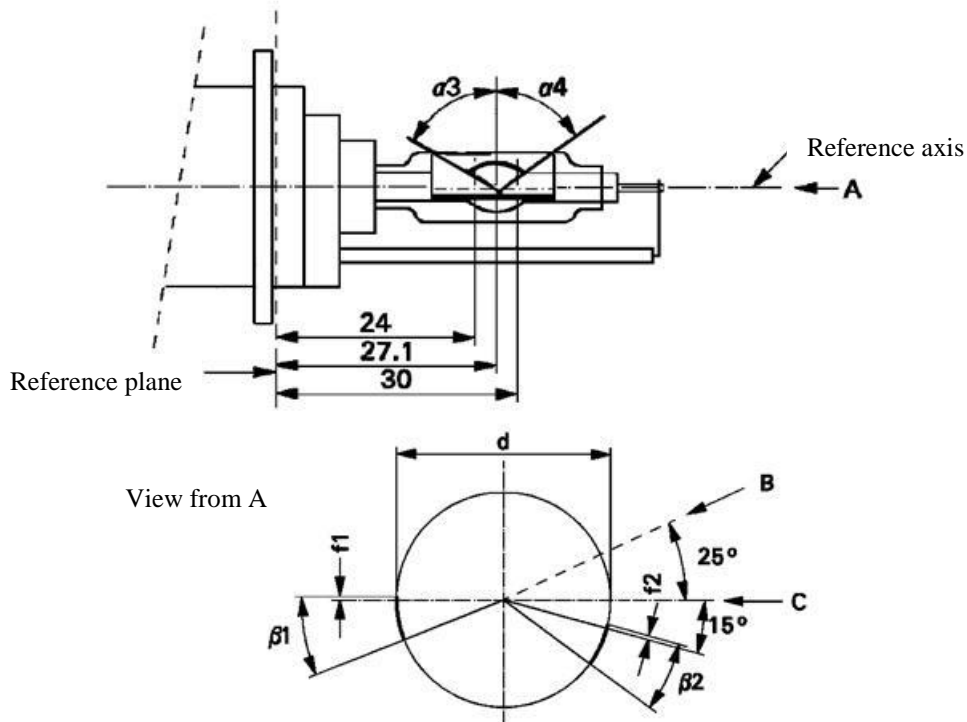
<i>Dimension in mm</i>	<i>Production light sources</i>	<i>Standard light sources</i>
r (arc bending)	0.50 +/- 0.25	0.50 +/- 0.15
s (arc diffusion)	0.70 +/- 0.25	0.70 +/- 0.15

Category D8R

Sheet D8R/6

Position of black stripes

This test is used to determine whether the black stripes are correctly positioned relative to the reference axis and the reference plane.



When measuring the luminance distribution of the arc in the central cross section as defined on sheet D8R/5, after having turned the light source so that the black stripe is covering the arc, the measured luminance shall be $\leq 0.5\%$ of L_{max} .

Dimensions	Production light sources	Standard light sources
α_3	70° min.	
α_4	65° min.	
$\beta_1/24, \beta_1/30, \beta_2/24, \beta_2/30$	25° ± 5°	
$f_1/24, f_2/24$ ^{1/}	0 ± 0.25	0 ± 0.20
$f_1/30$ ^{1/}	$f_1/24$ mv ± 0.15 ^{2/}	$f_1/24$ mv ± 0.1
$f_2/30$ ^{1/}	$f_2/24$ mv ± 0.15 ^{2/}	$f_2/24$ mv ± 0.1
$f_1/24$ mv - $f_2/24$ mv	± 0.3 max.	± 0.2 max.
d	9 ± 1	

^{1/} "f1/.." means dimension f1 to be measured at the distance from the reference plane indicated in mm after the stroke.

^{2/} ".../24 mv" means the value measured at a distance of 24 mm from the reference plane. "

Annex 4, paragraph 10., amend the text to read (and keep the drawing):

"10. Colour

The colour of the light source shall be measured in an integrating sphere using a measuring system which shows the CIE chromaticity co-ordinates of the received light with a resolution of ± 0.002 . The following figure shows the colour tolerance area for colour white and the restricted tolerance area for the gas-discharge light sources D1R, D1S, D2R, D2S, D3R, D3S, D4R, D4S, D5S, D6S, D8R and D8S."
