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INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations (WP.29)

Working Party on Lighting and Light-Signalling (GRE)

(Fifty-first session, 15-19 September 2003,
agenda item 1.1.4.)

PROPOSAL FOR A DRAFT SUPPLEMENT 24 TO
THE 03 SERIES OF AMENDMENTS TO REGULATION No. 37

(Filament lamps)

Transmitted by the expert from the International Electrotechnical Commission (IEC)

Note: The text reproduced below was prepared by the expert from IEC in order:

- to replace in the Regulation sheets for filament lamps,
- to update references to IEC cap sheets and
- to correct some editorial details.

The text is based upon Revision 3 of Regulation No. 37 up to Supplement 23, adopted by WP.29 at its one-hundred-and-thirtieth session (TRANS/WP.29/2003/48).

Note: This document is distributed to the Experts on Lighting and Light-Signalling only.

A. PROPOSAL

Text of the Regulation,

Paragraph 3.9.4., amend to read:

"3.9.4. Filament lamps emitting selective-yellow light shall be tested...

...

... same type of filament lamp emitting white light. This test shall be left out if the approval is also given to the same type of filament lamp emitting white light."

Annex 1,

List of categories of filament lamps, amend to read:

<u>"Category</u>	<u>Sheet number(s)</u>
...	...
H7	H7/1 to 4
H8	H8/1 to 4
H8B	H8/1 to 4
H9	H9/1 to 4
H9B	H9/1 to 4
H10	H10/1 to 3
H11	H11/1 to 4
H11B	H11/1 to 4
H12	H12/1 to 3
...	... "

Sheet H7/3, the table, the IEC Publication sheet number, amend to read "(sheet 7004-5-6)".

Sheets H8/1 to 4, replace by new sheets H8/1 to 4; (see next pages).

Sheets H9/1 to 4, replace by new sheets H9/1 to 4; (see next pages).

Sheets H11/1 to 4, replace by new sheets H11/1 to 4; (see next pages).

Sheet H13/4, the table, the IEC Publication sheet number, amend to read "(sheet 7004-128-2)".

Sheet H14/3, the table, the IEC Publication sheet number, amend to read "(sheet 7004-133-1)".

Sheet HS5/3, the table, the IEC Publication sheet number, amend to read "(sheet [7004-138-1])".

Sheet P19W/2, the table, the IEC Publication sheet number, amend to read "(sheet 7004-127-2)".

Sheet P21/4W/1, the table, the IEC Publication sheet number, amend to read "(sheet 7004-11C-3)".

Sheet P24W/2, the table, the IEC Publication sheet number, amend to read "(sheet 7004-127-2)".

Sheet PY21W/1, the table, the IEC Publication sheet number, amend to read "(sheet 7004-19-2)".

Sheet R10W/1, the table, the IEC Publication sheet number for category RY10W, amend to read "(sheet 7004-19-2)".

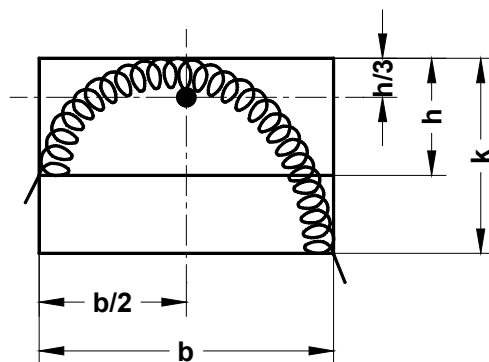
Sheet W21/5W/1, the table, the IEC Publication sheet number, amend to read "(sheet 7004-106-2)".

Sheet WY5W/1, should be deleted.

Sheet WY21W/1, footnote 2, amend to read: "The light emitted from filament lamps of normal production shall be amber. See also note 4/)."

Annex 4,

The drawing of filament shape No. 3, correct to read (replace by new drawing):



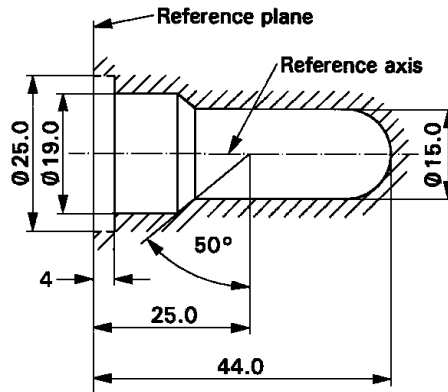
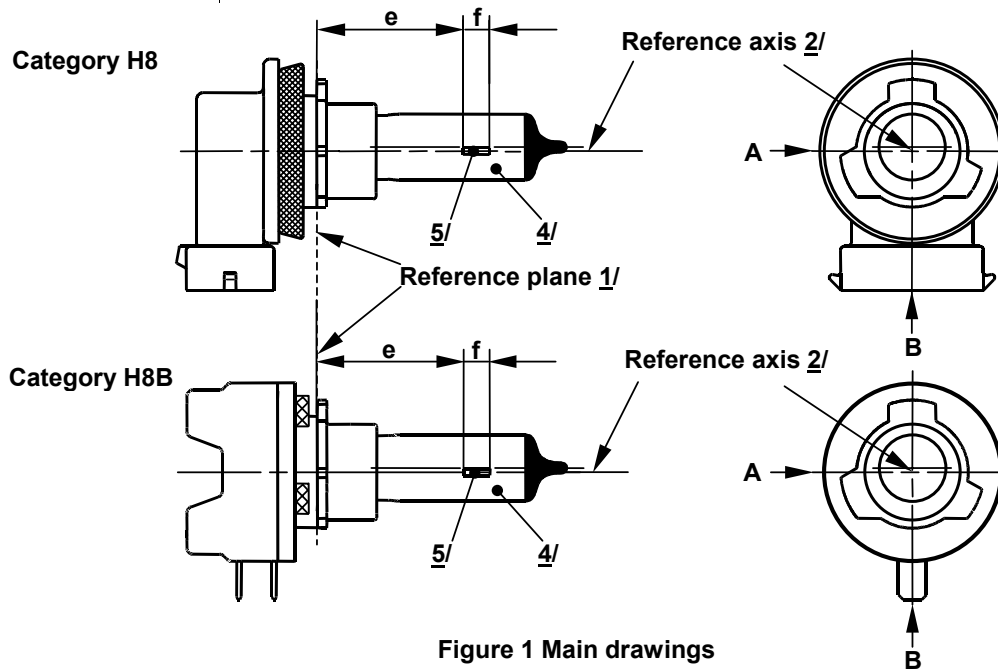
Add at the end of the text, to read:

" intersection of the dash-dot lines.

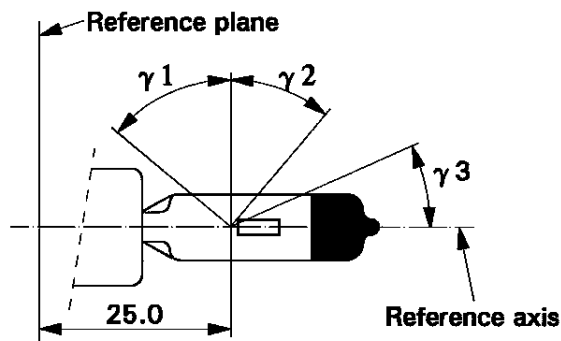
The drawings are intended only to demonstrate the essential dimensions."

* * *

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

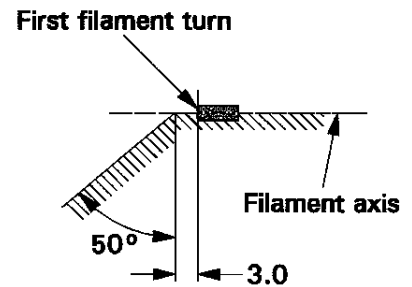


- 1/ The reference plane is the plane formed by the underside of the bevelled lead-in flange of the cap.
- 2/ The reference axis is perpendicular to the reference plane and passing through the centre of the 19 mm cap diameter.
- 3/ Glass bulb and supports shall not exceed the envelope as indicated in figure 2. The envelope is concentric to the reference axis.
- 4/ The light emitted shall be white or selective yellow.
- 5/ Notes concerning the filament diameter.
 - No actual diameter restrictions apply but the objective for future developments is to have $d_{max} = 1.2$ mm.
 - For the same manufacturer, the design diameter of standard (étalon) filament lamp and filament lamp of normal production shall be the same.



View B

Figure 3
Distortion free area 6/ and black top 7/



View A

Figure 4
Metal free zone 8/

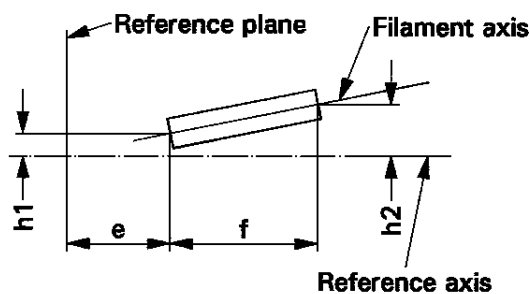
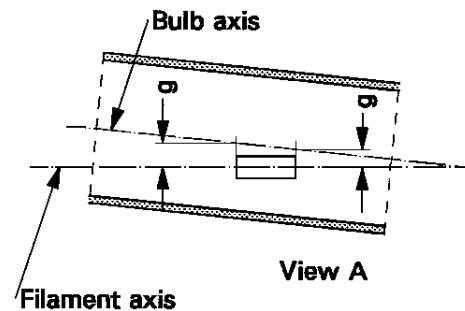


Figure 5

Permissible offset of filament axis 9/
(for standard filament lamps only)



View A

Figure 6
Bulb eccentricity 10/

- 6/ Glass bulb shall be optically distortion free within the angles γ_1 and γ_2 . This requirement applies to the whole bulb circumference within the angles γ_1 and γ_2 .
- 7/ The obscuration shall extend at least to angle γ_3 and shall extend at least to the cylindrical part of the bulb on the whole bulb top circumference.
- 8/ The internal design of the lamp shall be such that stray light images and reflections are only located above the filament itself seen from the horizontal direction. (View A as indicated in figure 1 on sheet H8/1). No metal parts other than filament turns shall be located in the shaded area as seen in figure 4.
- 9/ The offset of the filament with respect to the reference axis is measured only in viewing directions A and B as shown in figure 1 in sheet H8/1. The points to be measured are those where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.
- 10/ Offset of filament in relation to bulb axis measured in two planes parallel to the reference plane where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.

CATEGORIES H8 AND H8B

Sheet H8/3

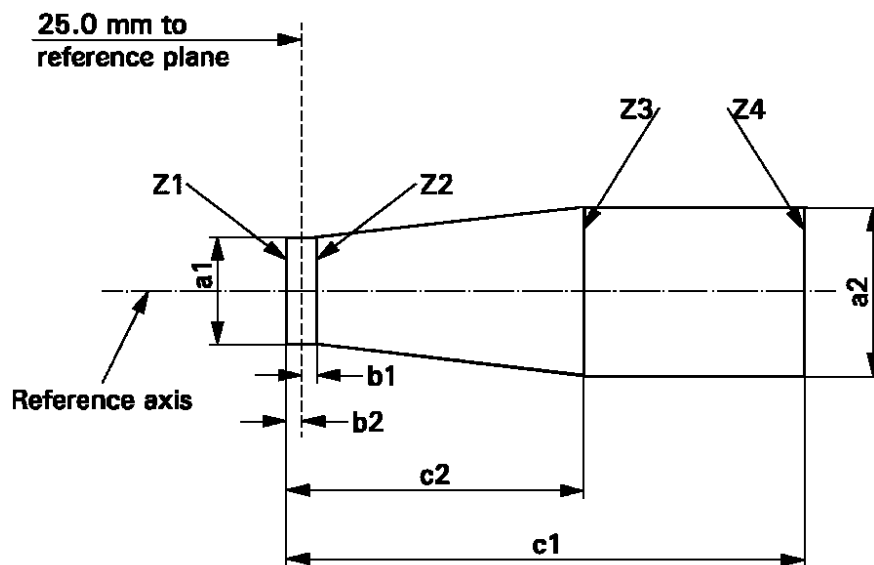
Dimensions in mm	Filaments lamps of normal production		Standard filament lamp
	12 V		12 V
e <u>11/</u>	25.0	<u>12/</u>	25.0 ± 0.1
f <u>11/</u>	3.7	<u>12/</u>	3.7 ± 0.1
g	0.5 min.		u.c.
h1	0	<u>12/</u>	0 ± 0.1
h2	0	<u>12/</u>	0 ± 0.15
γ1	50° min.		50° min.
γ2	40° min.		40° min.
γ3	30° min.		30° min.
Cap:	H8: PGJ19-1 H8B: PGJY19-1	in accordance with IEC Publication 60061 (sheet 7004-110-2) in accordance with IEC Publication 60061 (sheet 7004-...)	
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS			
Rated values	Volts	12	12
	Watts	35	35
Test voltage	Volts	13.2	13.2
Objective values	Watts	43 max.	43 max.
	Luminous flux	800 ± 15 %	
Reference luminous flux: 600 lm at approximately 12 V			

11/ The ends of the filament are defined as the points where, when the viewing direction is direction A as shown in figure 1 on sheet H8/1, the projection of the outside of the end turns crosses the filament axis.

12/ To be checked by means of a "Box System"; sheet H8/4.

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and reference plane, whether a filament complies with the requirements.



a1	a2	b1	b2	c1	c2
$d + 0.50$	$d + 0.70$	0.25		4.6	3.5

d = diameter of filament

The filament position is checked solely in directions A and B as shown on sheet H8/1, figure 1.

The filament shall lie entirely within the limits shown.

The ends of the filament as defined on sheet H8/3, note 11/, shall lie between lines Z1 and Z2 and between Z3 and Z4

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

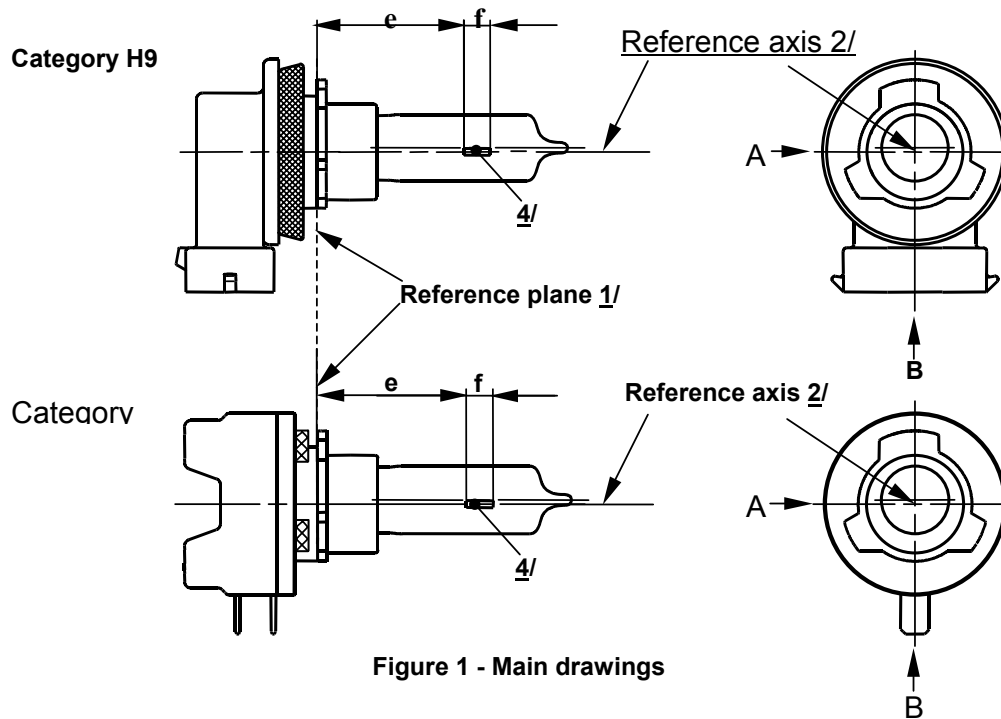


Figure 1 - Main drawings

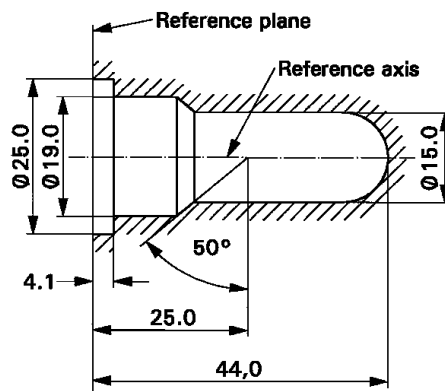


Figure 2 - Maximum lamp outline 3/

- 1/ The reference plane is the plane formed by the underside of the bevelled lead-in flange of the cap.
- 2/ The reference axis is perpendicular to the reference plane and passing through the centre of the 19 mm cap diameter .
- 3/ Glass bulb and supports shall not exceed the envelope as indicated in figure 2. The envelope is concentric to the reference axis.
- 4/ Notes concerning the filament diameter.
 - No actual diameter restrictions apply but the objective for future developments is to have $d_{max} = 1.4$ mm.
 - For the same manufacturer, the design diameter of standard (étalon) filament lamp and filament lamp of normal production shall be the same.

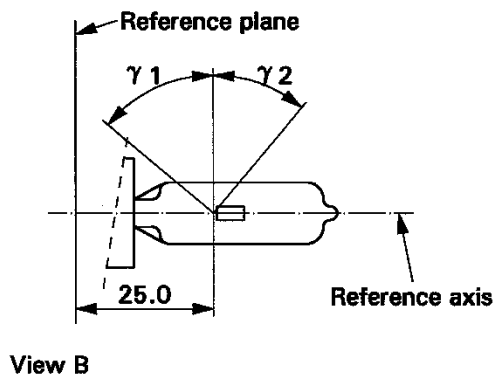


Figure 3
Distortion free area 5/

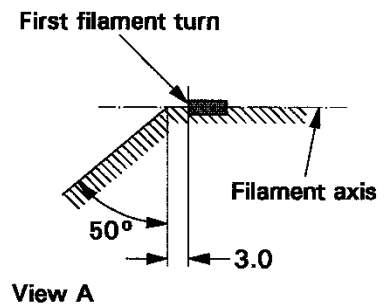


Figure 4
Metal free zone 6/

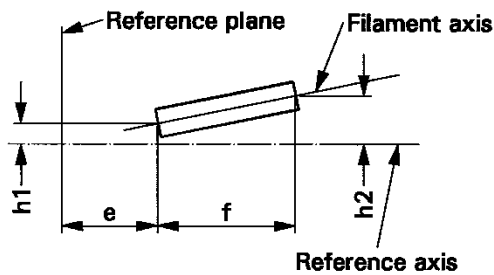


Figure 5
Permissible offset of filament axis 7/
(for standard filament lamps only)

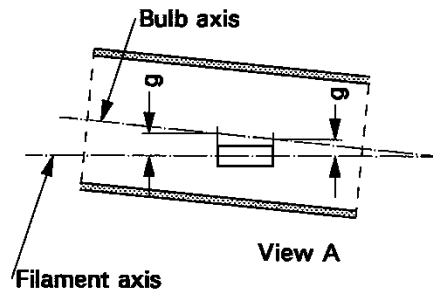


Figure 6
Bulb eccentricity 8/

- 5/ Glass bulb shall be optically distortion free within the angles γ_1 and γ_2 . This requirement applies to the whole bulb circumference within the angles γ_1 and γ_2 .
- 6/ The internal design of the lamp shall be such that stray light images and reflections are only located above the filament itself seen from the horizontal direction. (View A as indicated in figure 1, sheet H9/1). No metal parts other than filament turns shall be located in the shaded area as seen in figure 4.
- 7/ The offset of the filament with respect to the reference axis is measured only in viewing directions A and B as shown in figure 1 on sheet H9/1. The points to be measured are those where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.
- 8/ Offset of filament in relation to bulb axis measured in two planes parallel to the reference plane where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.

CATEGORIES H9 AND H9B

Sheet H9/3

Dimensions in mm		Tolerances		
		Filament lamps of normal production	Standard filament lamp	
		12 V	12 V	
e	<u>9/</u> <u>10/</u>	25	<u>11/</u>	± 0.10
f	<u>9/</u> <u>10/</u>	4.8	<u>11/</u>	± 0.10
g	<u>9/</u>	0.7	± 0.5	± 0.30
h1		0	<u>11/</u>	± 0.10 <u>12/</u>
h2		0	<u>11/</u>	± 0.15 <u>12/</u>
γ1		50° min.	-	-
γ2		40° min.	-	-
Cap:	H9: PGJ19-5 H9B: PGJY19-5	in accordance with IEC Publication 60061 (sheet 7004-110-2) in accordance with IEC Publication 60061 (sheet 7004-...)		
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS				
Rated values	Volts		12	12
	Watts		65	65
Test voltage	Volts		13.2	13.2
Objective values	Watts		73 max.	73 max.
	Luminous flux		2100 ± 10%	
Reference luminous flux: 1500 lm at approximately 12 V				

9/ The viewing direction is direction A as shown in figure 1 on sheet H9/1.

10/ The ends of the filament are defined as the points where, when the viewing direction is as defined in note 9/ above, the projection of the outside of the end turns crosses the filament axis.

11/ To be checked by means of a "Box System"; sheet H9/4.

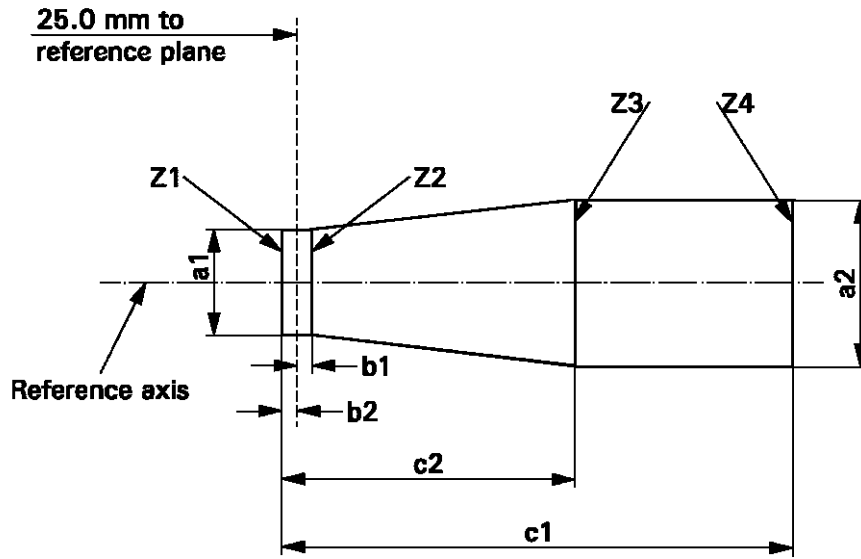
12/ The eccentricity is measured only in viewing directions A and B as shown in figure 1 on sheet H9/1. The points to be measured are those where the projection of the outside of the end turns nearest or furthest from the reference plane crosses the filament axis.

CATEGORIES H9 AND H9B

Sheet H9/4

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and reference plane, whether a filament complies with the requirements.



a1	a2	b1	b2	c1	c2
$d + 0.4$	$d + 0.7$	0.25		5.7	4.6

d = diameter of filament

The filament position is checked solely in directions A and B as shown on sheet H9/1, figure 1.

The filament shall lie entirely within the limits shown.

The ends of the filament as defined on sheet H9/3, note 10/, shall lie between lines Z1 and Z2 and between Z3 and Z4

CATEGORIES H11 AND H11B

Sheet H11/1

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

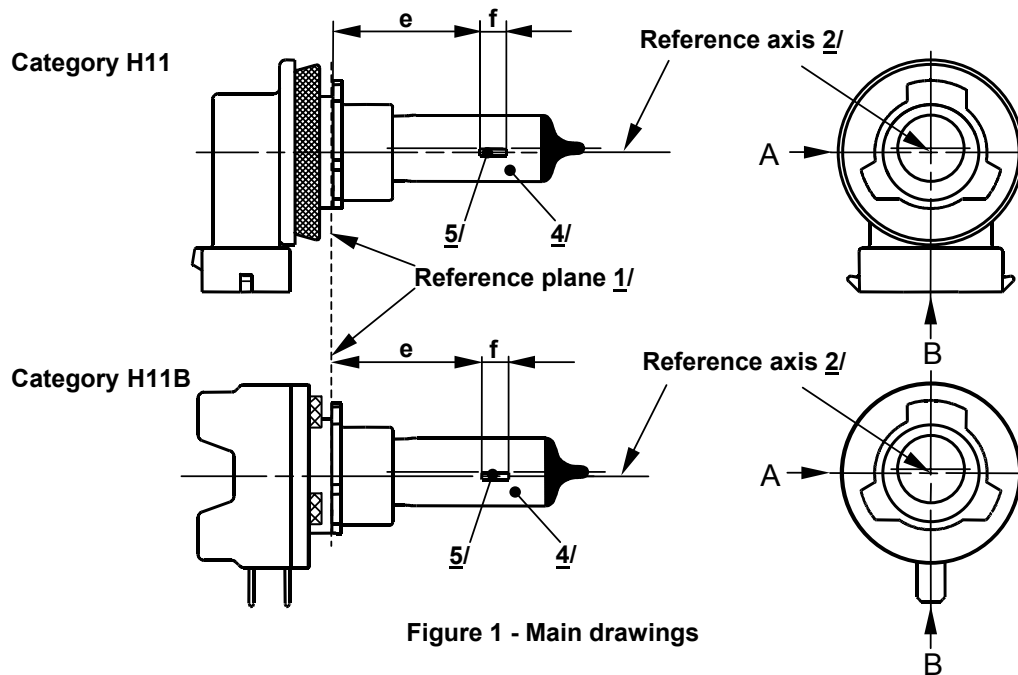


Figure 1 - Main drawings

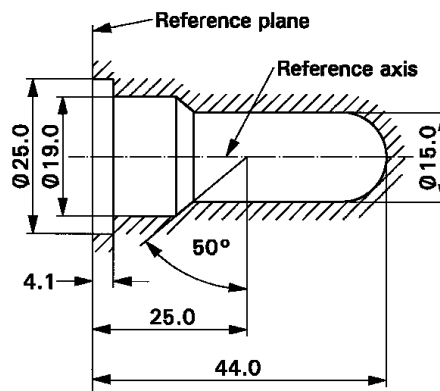
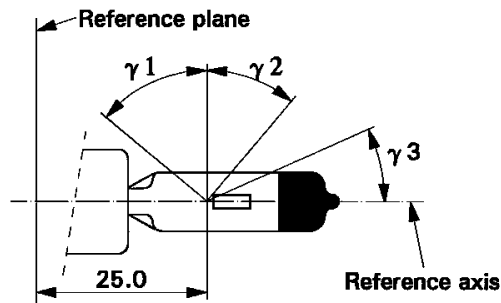


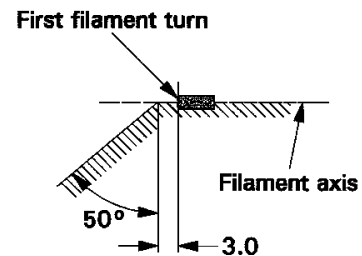
Figure 2 - Maximum lamp outline 3/

- 1/ The reference plane is the plane formed by the underside of the bevelled lead-in flange of the cap.
- 2/ The reference axis is perpendicular to the reference plane and passing through the centre of the 19 mm cap diameter.
- 3/ Glass bulb and supports shall not exceed the envelope as indicated in figure 2. The envelope is concentric to the reference axis.
- 4/ The light emitted shall be white or selective yellow.
- 5/ Notes concerning the filament diameter.
- No actual diameter restrictions apply but the objective for future developments is to have $d_{max.} = 1.4$ mm.
 - For the same manufacturer, the design diameter of standard (étalon) filament lamp and filament lamp of normal production shall be the same.



View B

Figure 3
Distortion free area 6/ and black top 7/



View A

Figure 4
Metal free zone 8/

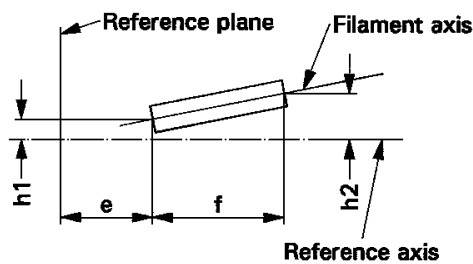
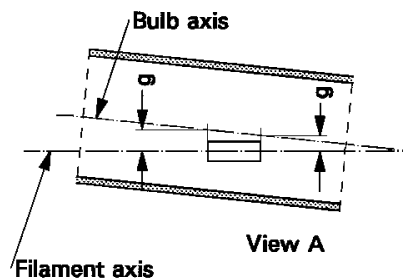


Figure 5

Permissible offset of filament axis 9/
(for standard filament lamps only)



View A

Figure 6
Bulb eccentricity 10/

- 6/ Glass bulb shall be optically distortion free within the angles γ_1 and γ_2 . This requirement applies to the whole bulb circumference within the angles γ_1 and γ_2 .
- 7/ The obscuration shall extend at least to angle γ_3 and shall extend at least to the cylindrical part of the bulb on the whole bulb top circumference.
- 8/ The internal design of the lamp shall be such that stray light images and reflections are only located above the filament itself seen from the horizontal direction. (View A as indicated in figure 1 on sheet H11/1). No metal parts other than filament turns shall be located in the shaded area as seen in figure 4.
- 9/ The offset of the filament with respect to the reference axis is measured only in viewing directions A and B as shown in figure 1 on sheet H11/1. The points to be measured are those where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.
- 10/ Eccentricity of bulb axis with respect to filament axis measured in two planes parallel to the reference plane where the projection of the outside of the end turns nearest to or furthest from the reference plane crosses the filament axis.

CATEGORIES H11 AND H11B

Sheet H11/3

Dimensions in mm	Filaments lamps of normal production		Standard filament lamp	
	12 V	24 V	12 V	
e <u>11/</u>	25.0	<u>12/</u>	25.0 ± 0.1	
f <u>11/</u>	4.5	5.3 <u>12/</u>	4.5 ± 0.1	
g	0.5 min.		u.c.	
h1	0	<u>12/</u>	0 ± 0.1	
h2	0	<u>12/</u>	0 ± 0.15	
γ1	50° min.		50° min.	
γ2	40° min.		40° min.	
γ3	30° min.		30° min.	
Cap:	H11: PGJ19-2 H11B: PGJY19-2	in accordance with IEC Publication 60061 (sheet 7004-110-2) in accordance with IEC Publication 60061 (sheet 7004-...)		
ELECTRICAL AND PHOTOMETRIC CHARACTERISTICS				
Rated values	Volts	12	24	12
	Watts	55	70	55
Test voltage	Volts	13.2	28.0	13.2
Objective values	Watts	62 max.	80 max.	62 max.
	Luminous flux	1350 ± 10 %	1600 ± 10 %	
Reference luminous flux: 1000 lm at approximately 12 V				

11/ The ends of the filament are defined as the points where, when the viewing direction is View A as shown in figure 1 on sheet H11/1, the projection of the outside of the end turns crosses the filament axis.

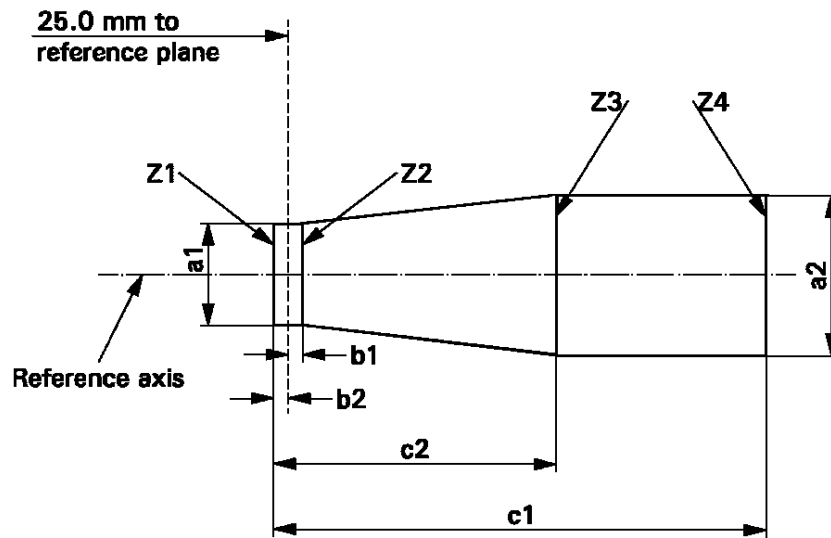
12/ To be checked by means of a "Box System"; sheet H11/4.

CATEGORIES H11 AND H11B

Sheet H11/4

Screen projection requirements

This test is used to determine, by checking whether the filament is correctly positioned relative to the reference axis and reference plane, whether a filament complies with the requirements.



	a1	a2	b1	b2	c1	c2
12 V	$d + 0.3$	$d + 0.5$	0.2		5.0	4.0
24 V	$d + 0.6$	$d + 1.0$	0.25		6.3	4.6

d = diameter of filament

The filament position is checked solely in directions A and B as shown on sheet H11/1, figure 1.

The filament shall lie entirely within the limits shown.

The ends of the filament as defined on sheet H11/3, note 11/, shall lie between lines Z1 and Z2 and between Z3 and Z4

* * *

B. JUSTIFICATION

The proposed draft amendments concern a replacement of sheets, updates of references to IEC cap sheets and minor editorial corrections.

Replacement of sheets:

The evaluation of the suitability of (existing) light sources for Adaptive Frontlighting Systems (AFS) was assigned the specific Task Force of Working Party "Brussels 1952" (GTB WG Light Sources). A first outcome was a proposal for a so-called "one-touch" base design of H8, H9 and H11. "One-touch" means mechanical and electrical fixation at the same time. The length of the cap is as short as possible. The proposal was relayed to IEC because it did concern an additional version of the cap while the characteristics of the light source were not changed. Proposed designations are H8B, H9B and H11B.

At the same time it is proposed to withdraw the so-called "longneck" versions H8A, H9A and H11A.

Cap sheets in detail:

- H7: addition of min "y"-value;
- H13(A): harmonisation with NHTSA filing;
- H14: number of the sheet was granted;
- HS5: number of the sheet was granted;
- P21/4W: IEC initiative; re-organisation of sheets;
- P(S)(R)(Y)19W: fine-tuning dimensions;
- P(S)(R)(Y)24W: fine-tuning dimensions;
- PY21W: IEC initiative; re-organisation of sheets;
- RY10W: IEC initiative; re-organisation of sheets.

Details of editorial corrections:

- Paragraph 3.9.4: New sentence should start with capital "t".
- Sheet W21/5W/1 the reference to the cap sheet, in the number "--" was missing.
- Sheet WY5W/1: was integrated into sheet W5W/1.
- Sheet WY21W/1: colour of bulb changed by colour of light;
- Annex 4: drawing of filament shape #3 is not complying the indicated requirements to the dimensions: $b \leq 3h$ and $k < 2h$. Although drawing is only to indicate the essential dimensions, it appeared misleading in laboratory practice;

GTB WG Light Sources also reviewed this proposal.
