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1958 Agreement:
Proposal for amendments to the Consolidated Resolution on the common specifications of light source categories (R.E.5)

Proposal for amendment 3 to the Consolidated Resolution on the common specifications of light source categories (R.E.5)

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 eightieth session (ECE/TRANS/WP.29/GRE/80, paras. 17 and 22). It is based on ECE/TRANS/WP.29/GRE/2018/40 and ECE/TRANS/WP.29/GRE/2018/48. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee AC.1 for consideration at their March 2019 sessions. This amendment constitutes a package and should enter into force on the same date with draft Supplement 9 to the original version of UN Regulation No. 128 (LED light sources) (ECE/TRANS/WP.29/2019/19).

* In accordance with the programme of work of the Inland Transport Committee for 2018–2019 (ECE/TRANS/274, para. 123 and ECE/TRANS/2018/21/Add.1, cluster 3.1), 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

Amendment 3 to the Consolidated Resolution on the common specifications of light source categories (R.E.5)

The Status table, insert a new row at the bottom to read:

"…

[4]	[2019-03-xx]	[177]	[ECE/TRANS/WP.29/2019/29]	• Introduction of a new LED substitute light source category PY21W/LED as a package with Supplement 9 to UN Regulation No.128 • Amendment to light source categories LR4 as a package with Supplement 9 to UN Regulation No.128

…"

Insert a new paragraph 2.1.1.3.1.., to read:

"2.1.1.3.1. "*LED substitute light source*" means a LED light source of a category which has a counterpart light source category producing light by another light generating technology. "

Paragraph 3.3., at the end insert new tables for Group 3 and Group 4, to read:

"

Group 3				
RESERVED				

Group 4		
LED substitute light source categories[1] only for use in lamps approved with filament light source(s) of its counterpart light source category		
Category	*Counterpart filament light source category*	*Sheet number(s)*
PY21W/LED	PY21W	PY21W/LED/1 to 4

[1] Not for use in conformity of production control of lamps.

Annex 3,

List of sheets for LED light sources and their sequence, amend to read:

"

Sheet number(s)
L1/1 to 5
LR1/1 to 5
LW2/1 to 5
Lx3/1 to 6
LR4/1 to 5
Lx5/1 to 6
PY21W/LED/1 to 4

"

Sheet LR4/2, table, add footnote 10 and amend to read:

"

Electrical and photometric characteristics [5]					
Rated values		*Minor function*	*Major function*	*Minor function*	*Major function*
	Volts	12		12	
	Watts	0.75	3	0.75	3
Objective Values [6]	Watts (at 13.5 V DC)	1.0 max.	3.5 max.	1.0 max.	3.5 max.
	Luminous flux (in lm at 13.5 V DC)	6 ± 20%	80 ± 20% [7]	6 ± 10% [10]	80 ± 10% [8]
	Luminous flux (in lm at 9 V DC)	1.5 min.	19 min.		

1 The reference plane is the plane defined by the contact points of the cap-holder fit.
2 The reference axis is perpendicular to the reference plane and passing through the centre of the Bayonet core.
3 Light emitting area: to be checked by means of the box system in Figure 2.
4 A minimum free air space of 5mm around the LED light source shall be respected for convection.
5 The emitted light shall be red.
6 After continuous operation for 30 minutes at 23 ± 2.5° C.
7 The measured value shall be in between 100 per cent and 70 per cent of the value measured after 1 minute.
8 The measured value shall be in between 85 per cent and 75 per cent of the value measured after 1 minute.
9 Light centre length.
10 The measured value shall be in between 100 per cent and 80 per cent of the value measured after 1 minute."

After sheet Lx5/6, insert new sheets PY21W/LED/1 to 4, to read:
(see the following pages; one page per sheet).

" **Category PY21W/LED** **Sheet PY21W/LED/1**

The drawings are intended only to illustrate the essential dimensions (in mm) of the LED light source.

Figure 1
Main drawing

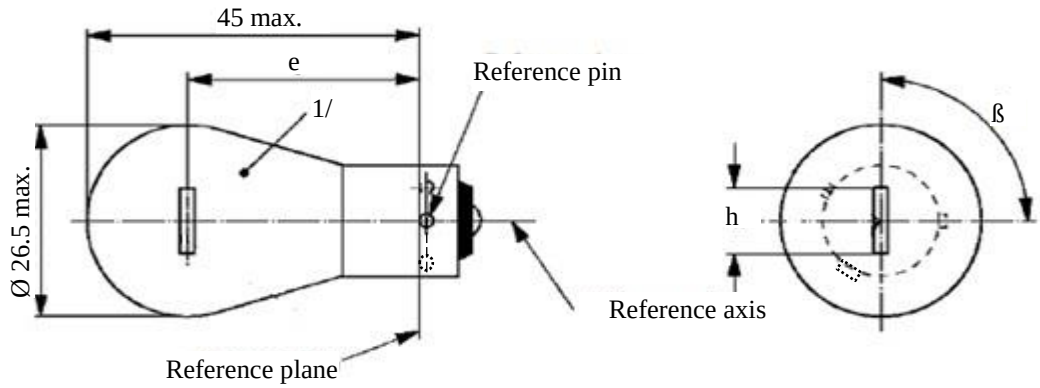


Table 1
Essential electrical and photometric characteristics of LED light sources

Dimensions in mm		*LED light sources of normal production*			*Standard LED light source*
		min.	*nom.*	*max.*	*nom.*
e			31.8 2/		31.8 2/
h			9.0 2/		9.0 2/
β		75°	90°	105°	90°±10°
Cap [BAU15s-3(110°)] in accordance with IEC Publication 60061 (sheet 7004-[19A-1])					
Electrical5/ and photometric characteristics					
Rated values	Volts	12		24	12
	Watts	7 3/			7 3/
Test voltage	Volts	13.5		28.0	13.5
Objective values	Watts	9 max. 3/		10 max. 3/	9 max. 3/
	Electrical current (in mA at 9-16V DC)	150 min. 750 max.			
	Luminous flux3/, 4/ (in lm at 13.5 V DC)	280 ± 20 %			280 ± 10 %
	Luminous flux3/ (in lm at 9 V DC)	56 min.			56 min.

1 The light emitted from the LED light source shall be amber.
2 To be checked by means of a "Box-System"; sheet PY21W/LED/2.
3 Operated in flashing mode for 30 minutes (frequency = 1.5 Hz, duty cycle 50 per cent ON, 50 per cent OFF) and measured in the ON-state of flashing mode after 30 minutes of operation.
4 The value measured at elevated ambient temperature of 80°C shall be at least 65% of this value.
5 In case of a failure of any of the light emitting elements, the LED light source shall either still comply to the requirements concerning luminous flux and luminous intensity distribution or stop emitting light whereby/in the latter case the electrical current draw, when operated between 12 V and 14 V, shall be less than 50 mA.

Category PY21W/LED **Sheet PY21W/LED/2**

Screen projection requirements

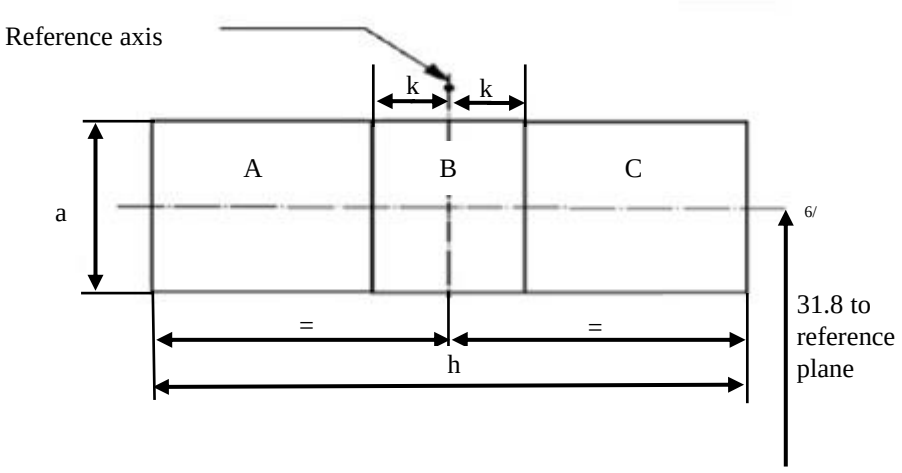
The following test is intended to define the requirements for the apparent light emitting area of the LED light source and to determine whether the light emitting area is correctly positioned relative to the reference axis and reference plane in order to check compliance with the requirements.

The position of the light emitting area is checked by means of a box system defined by the projections when viewing along direction $\gamma = 0°$ (top view), $\gamma = \pm 45°$ (inclined view) and $\gamma = \pm 90°$ (front and rear view) in the plane C_0 (C, γ as defined in Figure 3).

The proportion of the total luminous flux emitted into these viewing directions from the area(s) as defined in figure 2:

- A, B and C together shall be 80 per cent or more;
- B shall be 25 per cent or more;
- A and C shall each be 15 per cent or more.

Figure 2
Box definition of the light emitting area with dimensions as specified in table 2



The lateral position of the light emitting area needs to be centred in the plane containing the reference axis and being perpendicular to the plane containing the reference axis and the reference pin.

Table 2
Dimensions of the box system in figure 2

Dimensions in mm	*a*	*h*	*k*
Top view ($\gamma = 0°$)	5.0	9.0	1.0
Inclined view ($\gamma = \pm 45°$)	7.0		
Front / Rear view ($\gamma = \pm 90°$)	5.0		

6 This dot and dash line applies to front and rear view only.

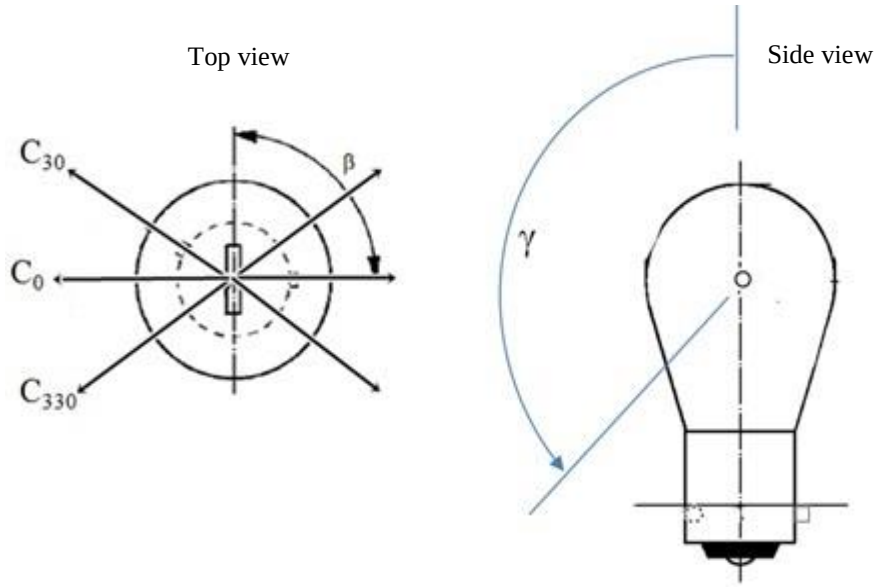
Normalized luminous intensity distribution

The following test is intended to determine the normalized luminous intensity distribution of the light source in the planes containing the reference axis as described in figure 3. The intersection of the reference axis and the edge of the box is used as the coordinate system origin.

The light source is mounted on a flat plate with the corresponding mounting lug features. The plate is mounted to the goniometer table by a bracket, so that the reference axis of the light source lines up with one of the rotating axis of the goniometer.

Luminous intensity data is recorded with a standard photo-goniometer. The measurement distance should be chosen appropriately, to make sure that the detector is located in the far field of the light distribution.

Figure 3
Setup to measure the luminous intensity distribution (Definition of C-Planes and angle γ)



The measurements shall be performed in C-planes, which contain the reference axis of the light source. The C-planes shall be C_0, C_{30} and C_{330}. The test points for each plane and multiple polar angles γ are specified in Table 3.

The measured luminous intensity values, normalised to the measured luminous flux of the individual light source under test, shall be converted to normalised luminous intensity values of a 1000 lm light source. These data shall comply with the tolerance band as defined in Table 3.

C-planes: See CIE publication 70-1987: "The measurement of absolute luminous intensity distributions".

Category PY21W/LED **Sheet PY21W/LED/4**

Table 3
Test point values of normalized intensity in the planes C_0, C_{30}, C_{330}

	LED light source of normal production		*Standard LED light source*	
γ	*Minimum intensity in cd /1000 lm*	*Maximum intensity in cd/1000 lm*	*Minimum intensity in cd /1000 lm*	*Maximum intensity in cd/1000 lm*
-150°	60	140	80	120
-125°	60	140	80	120
-100°	60	140	80	120
-75°	60	140	80	120
-50°	60	140	80	120
-25°	60	140	80	120
0°	60	140	80	120
25°	60	140	80	120
50°	60	140	80	120
75°	60	140	80	120
100°	60	140	80	120
125°	60	140	80	120
150°	60	140	80	120

The luminous intensity distribution as described in table 3 shall be “substantially uniform”, i.e. in between two adjacent grid points the relative luminous intensity requirement is calculated by linear interpolation using the two adjacent grid points.

"