



SLOVENSKI STANDARD
SIST EN 62612:2014/oprAA:2016
01-april-2016

LED-sijalke za splošno razsvetljavo z vgrajeno predstikalno napravo pri napajalni napetosti nad 50 V - Tehnične zahteve

Self-ballasted LED lamps for general lighting services with supply voltages > 50 V - Performance requirements

LED-Lampen mit eingebautem Vorschaltgerät für Allgemeinbeleuchtung mit Versorgungsspannungen > 50 V - Anforderungen an die Arbeitsweise

Lampes à LED autoballastées pour l'éclairage général avec des tensions d'alimentation > 50 V - Exigences de performances

Ta slovenski standard je istoveten z: EN 62612:2013/prAA:2016

ICS:

29.140.01 Žarnice na splošno Lamps in general

SIST EN 62612:2014/oprAA:2016 en

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
EN 62612:2013

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January 2016

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English Version

Self-ballasted LED lamps for general lighting services with supply voltages > 50 V - Performance requirements

Lampes à LED autballastées pour l'éclairage général avec
des tensions d'alimentation > 50 V - Exigences de
performances

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Allgemeinbeleuchtung mit Versorgungsspannungen > 50 V
- Anforderungen an die Arbeitsweise

This draft amendment prAA, if approved, will modify the European Standard EN 62612:2013; it is submitted to CENELEC members for enquiry.

Deadline for CENELEC: 2016-04-22.

It has been drawn up by CLC/TC 34A.

If this draft becomes an amendment, CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

This draft amendment was established by CENELEC in three official versions (English, French, German).

A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 62612:2013/prAA:2016

1

European foreword

2 This document (EN 62612:2013/prAA:2016) has been prepared by CLC/TC 34A, Lamps.

3

4 This document is currently submitted to the Enquiry.

5

6 The following dates are proposed:

- latest date by which the existence of this document has to be announced at national level (doa) dor + 6 months
- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) dor + 12 months
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) dor + 36 months (to be confirmed or modified when voting)

7

8 Clauses, subclauses, notes, tables, figures and annexes which are additional to those in
9 IEC 62612:2013 and IEC 62612:2013/A1:2015 are prefixed "Z".

10 This document has been prepared under a mandate given to CENELEC by the European Commission
11 and the European Free Trade Association, and supports essential requirements of EU Regulation(s).

12

13 For the relationship with EU Regulation(s) see informative Annex ZZ, which is an integral part of this
14 document.

15

16 This standard provides test methods related to parameters as prescribed by Commission Regulation
17 (EC) 244/2009, Commission Regulation (EU) 1194/2012 and Commission Regulation (EU) 874/2012
18 while conformity assessment (sampling, conformity procedures as well as limits) for market
19 surveillance are specified in the text of the above Regulations.

20

21		
22	CONTENTS	Add the following annexes:
23		Annex ZA (normative) Normative references to international publications with their
24		corresponding European publications
25		Annex ZZA (informative) Relationship between this European Standard and the
26		requirements of Commission Regulation (EC) No 244/2009
27		Annex ZZB (informative) Relationship between this European Standard and the
28		requirements of Commission Regulation (EC) No 1194/2012
29		Annex ZZC (informative) Relationship between this European Standard and the
30		requirements of Commission Regulation (EC) No 874/2012
31		
32	1.0.Z1	Add the following clause before clause 2
33		1.0.Z1 Overall statement
34		Where a Commission Regulation specifies limits for parameters these limits shall be
35		used instead of the limits specified in this standard.
36	3.Z1	After 3.21 add new definitions 3.Z1 up to 3.Z2:
37		3.Z1
38		partial luminous flux (of a light source, within a specified cone angle)
39		total luminous flux emitted from a light source within a specified cone angle α ,
40		determined from the luminous intensity distribution $I(\theta, \varphi)$ of the source:
41		$\Phi_{\alpha} = \int_{\varphi=0}^{2\pi} \int_{\theta=0}^{\alpha/2} I(\theta, \varphi) \sin \theta \, d\theta \, d\varphi$
42		(2)
43		Note 1 to entry: Partial luminous flux is expressed in lumen (lm)
44		Note 2 to entry: $(\theta, \varphi)=(0,0)$ is the direction of the cone axis
45		Note 3 to entry: The cone angle α is the full angle (diameter) of the cone
46		[SOURCE: EN 13032-4, 3.41, modified, – Notes 4 and 5 removed]
47		3.Z2
48		useful luminous flux, Φ_{use}
49		partial luminous flux of a LED lamp falling within the cone used for calculating the LED
50		lamp's energy efficiency according Annex III, point 1.1 of regulation (EU) No
51		1194/2012
52		Note 1 to entry: Useful luminous flux is expressed in lumen (lm)
53		Note 2 to entry: The regulation specifies 90° or 120° cones according to the product characteristics
54		Note 3 to entry: useful luminous flux is similar to partial luminous flux. It is determined with the cone axis
55		coincident with the observed optical beam axis of the light source, the axis about which
56	Z1	After Clause 12 add the following new clauses:
57		Z1 Requirements for directional LED lamps
58		Z1.1 Correlated Colour Temperature

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59 Correlated Colour Temperature of a LED lamp shall be measured in accordance with
60 7.1, Colorimetric Measurements of EN 13032-4.

61 **Z1.2 Useful luminous flux**

62 The useful luminous flux of a directional LED lamp shall be measured according
63 Annex A together with the following:

- 64 - useful luminous flux of a directional LED lamp with a rated beam angle $\geq 90^\circ$ shall
65 be measured in a 120° cone;
- 66 - otherwise the useful luminous flux of a directional LED lamp shall be measured in
67 90° cone.

68 If no rated beam angle is provided the useful luminous flux shall be measured in a 90°
69 cone.

70 **Z1.3 Energy efficiency requirements**

71 The energy efficiency requirements for a directional LED lamps are determined by the
72 Energy Efficiency Index, EEI. The energy efficiency index, EEI is calculated as follows
73 and rounded to two decimal places:

$$74 \quad EEI = P_{cor} / P_{ref} \quad (1)$$

75 Where:

- 76 a) P_{cor} is the measured power of a LED lamp corrected in accordance with Table 1.

77 **Table Z1.1 – Power correction factors**

Scope of the correction	Corrected power (P_{cor})
LEDi lamps	$P_{measured} \times 1,00$

78 NOTE LED lamps within the scope of EN 62612 are considered to be operated on direct mains (LEDi
79 lamps).

- 80 b) P_{ref} is the reference power obtained from the measured useful luminous flux of
81 the same LED lamp, Φ_{use} according clause Z1.3.

82 The LED lamp with a measured useful luminous flux, $\Phi_{use} < 1\,300$ lumen shall
83 apply $P_{ref} = 0,88 \cdot \sqrt{(\Phi_{use})} + 0,049 \cdot \Phi_{use}$, otherwise $P_{ref} = 0,07341 \cdot \Phi_{use}$
84

85 **Z1.4 - Functionality requirements**

86 **Z1.4.1 - Spectral power distribution**

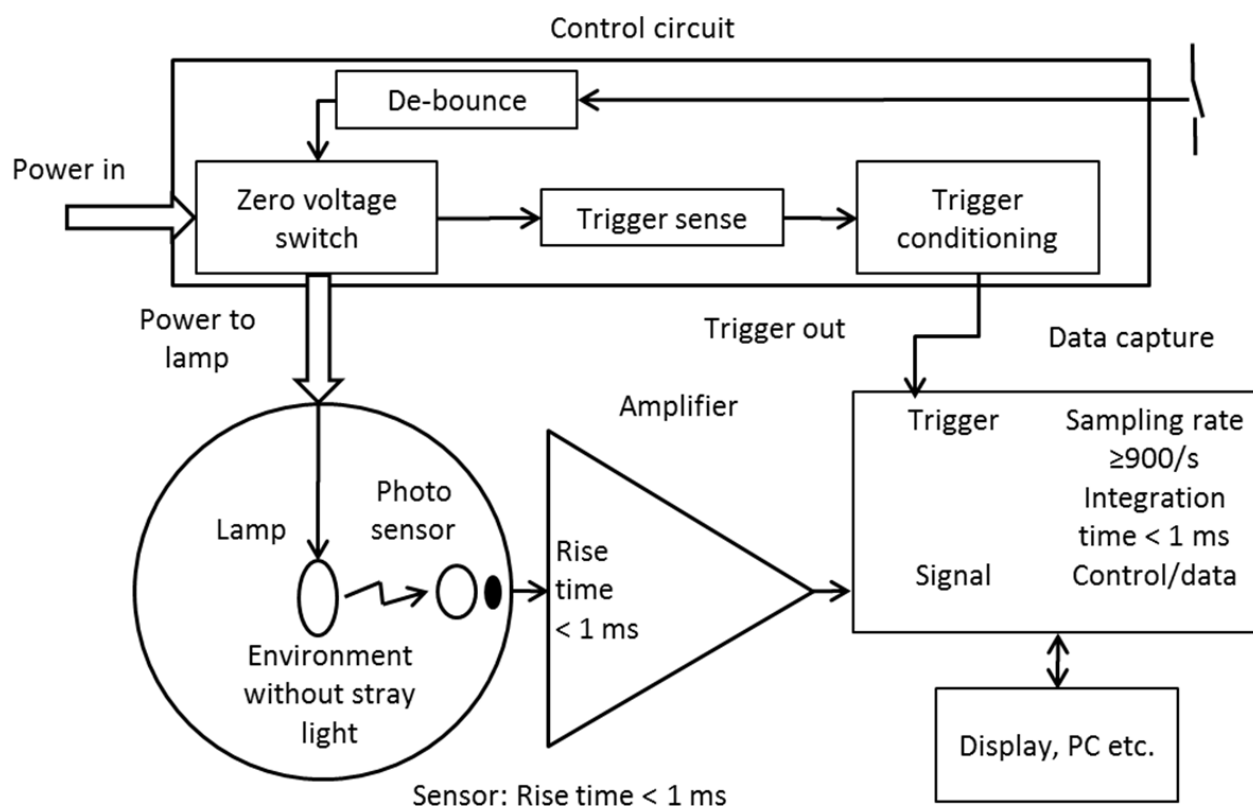
87 The measurement of the spectral power distribution shall be made under the
88 conditions of A.1 and in accordance with CIE 63.

89 **Z1.4.2 Lamp start (starting) time**

90 Starting and warm-up times shall be carried out as follows:

91 A typical test setup and equipment is shown in Figure Z1.1. Alternatively
 92 picoammeters can be used to store sensor values.

93



94

95

Figure Z1.1 – Typical setup for starting time test

96 (1) The test equipment and the measurement device(s) shall be in a state such that
 97 the lamp test can immediately be started.

98 (2) Switch on power to the lamp and triggering equipment as required.

99 (3) Record ambient temperature and relative humidity.

100 (4) Record luminous flux over time.

101 (5) The test shall run until the lamp starts fully and remains alight. If after a reasonable
 102 period the lamp does not start, cease the test.

103 **Secretary remark:** Line 90 up to and including 102 are for information only and will be
 104 replaced by the sentence in 105/106 in the final publication

105 The test for starting and warm-up times shall be carried out in accordance with
 106 EN 60969:201x, B.3.

107 Starting time is determined as the period from the start of the test to when the LED
 108 lamp has fully completed the starting sequence (LED lamp has started and remains
 109 alight).

110 Warm-up time is the time taken from the start of the test to when the LED lamp
 111 achieves the required percentage of its stable luminous flux.

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112 **Z1.4.3 - Colour rendering (R_a)**

113 Measurement of colour rendering indices shall be made in accordance with Annex A.

114 **Z1.4.4 - Colour consistency**

115 The requirements of 10.1 apply.

116 *Compliance:*117 The variation of the chromaticity coordinates values of the LED lamp shall be within
118 colour variation category 6.

119 NOTE Category 6 implies a 6-step MacAdam ellipse centred on the rated colour target.

120 **Z1.4.5 - Power factor**121 LED lamps operating on direct mains shall be in accordance with 8.1 and 8.2. The
122 distortion shall be measured according EN 61000-3-2 and the power factor λ be
123 calculated according to the relation given in D.1.124 NOTE In view of future regulations, EN 62612 defines - the primary metric displacement factor and its
125 associated measurement method and recommended values – instead of the composite power factor metric.
126 Definitions related to power quantities are given in Table 2 of IEC/TR 61000-1-7 currently in preparation.127 **Z2 Requirements for non-directional LED lamps**128 **Z2.1 Lamp efficacy requirements for non-directional LED lamps**129 The requirements of 8.1 and 9.1 apply in combination with the limits in Annex II, article
130 1 of commission regulation (EU) No 244/2009.131 **Z2.2 Functionality requirements for non-directional LED lamps**

132 The requirements of Z1.5 apply.

133 Annex A.1 **Replace** the entire A.1 in EN 62612:2013 and EN 62612:2013/FprA1:2015 by:134 **A.1 General**135 Unless otherwise specified, all measurements shall be made in a draught-free room at
136 a temperature of 25 °C with a tolerance of ± 1 °C, a relative humidity of 65 % maximum
137 and steady state operation of the LED lamp.138 If not exempted by specific clause, lamps shall be operated free burning in a vertical
139 position, cap-up, unless otherwise specified by the manufacturer or responsible
140 vendor.

141 The test voltage shall be the voltage as determined in A.2.4.

142 LED lamps do not require any ageing prior to testing. However, the manufacturer may
143 define an aging period up to 1 000 h.

144 For general conditions of photometric measurements see EN 13032-4.

145 For directional LED lamps the useful luminous flux is obtained by luminous intensity
 146 integration according to EN 13032-4:2015, 6.3 "Partial luminous flux". Alternative
 147 measurement methods may be used if they can be shown to give equivalent results
 148 for the product being tested, if necessary by applying correction factors. However, the
 149 lamp reference measurement position is vertical base-up operated in free air. In case
 150 of doubt a goniophotometry measurement in accordance with EN 13032-4:2015, 6.3
 151 shall be leading.

152 NOTE Useful luminous flux measurements with lamps operating horizontally are often easier to carry out.
 153 Examples of alternative measurement methods are.

- 154 • For small beam angles shine into integrating sphere.
- 155 • Mount lamp on internal surface of integrating sphere.
- 156 • Mount lamp inside integrating sphere with screening (LM-20 technique).
- 157 • Illuminate a surface and measure the illuminance across the surface with a photometer.
- 158 • Illuminate a surface and measure the surface luminance with a luminance camera.
- 159 • Illuminate a translucent screen and measure the surface luminance of the rear side with a luminance
 160 camera.

161 For non-directional LED lamps the total luminous flux shall be measured according to
 162 EN 13032-4. Also the partial luminous flux within a solid angle of π sr of the LED
 163 lamps shall be evaluated to check the non-directionality.

164 Once the non-directionality is verified for one lamp, for lamps of the same type, only
 165 the total luminous flux has to be measured.

166 Luminous intensity distribution shall be measured in accordance with EN 13032-4 and
 167 EN 61341.

168 NOTE EN13032-4 refers to EN 61341 for beam angle evaluation.

169 Chromaticity coordinates of a LED lamps shall be measured in accordance with 7.1,
 170 Colorimetric Measurements of EN 13032-4.

171 Annex A.3 **Delete** the entire A.3.

172 Bibliography **Add** the following documents:

173 COMMISSION REGULATION (EU) No 1194/2012 of 12 December 2012
 174 implementing Directive 2009/125/EC of the European Parliament and of the Council
 175 with regard to ecodesign requirements for directional lamps, light emitting diode lamps
 176 and related equipment

177 COMMISSION REGULATION (EC) No 874/2012 of 12 December 2012
 178 supplementing Directive 2010/30/EU of the European Parliament and of the Council
 179 with regard to energy labelling of electrical lamps and luminaires

180 COMMISSION REGULATION (EC) No 244/2009 of 18 March 2009 implementing
 181 Directive 2009/125/EC of the European Parliament and of the Council with regard to
 182 ecodesign requirements for non-directional household lamps

183