SLOVENSKI STANDARD
SIST EN 60901:2001/A6:2019

01-september-2019

Fluorescenčne sijalke z enim vznožkom - Specifikacije lastnosti - Dopolnilo A6 (IEC 60901:1996/A6:2014)

Single-capped fluorescent lamps - Performance specifications (IEC 60901:1996/A6:2014)

Einseitig gesockelte Leuchtstofflampen - Anforderungen an die Arbeitsweise (IEC 60901:1996/A6:2014)

Lampes à fluorescence à culot unique - Prescriptions de performances (IEC 60901:1996/A6:2014)

Ta slovenski standard je istoveten z: **EN 60901:1996/A6:2017**

ICS:

29.140.30	Fluorescenčne sijalke. Sijalke	Fluorescent lamps. Discharge lamps

SIST EN 60901:2001/A6:2019 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60901:1996/A6

September 2017

ICS 29.140.30

English Version

Single-capped fluorescent lamps - Performance specifications (IEC 60901:1996/A6:2014 , modified)

Lampes à fluorescence à culot unique - Prescriptions de performances (IEC 60901:1996/A6:2014 , modifiée)

Einseitig gesockelte Leuchtstofflampen - Anforderungen an die Arbeitsweise (IEC 60901:1996/A6:2014 , modifiziert)

This amendment A6 modifies the European Standard EN 60901:1996; it was approved by CENELEC on 2017-08-16. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This amendment exists 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

Ref. No. EN 60901:1996/A6:2017 E

European foreword

The text of document 34A/1801/FDIS, future edition 1 of IEC 60901:1996/A6:2014, prepared by IEC/SC 34A "Lamps" of IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60901:1996/A6:2017.

A draft amendment, which covers common modifications to IEC 60901:1996/A6:2014, was prepared by CLC/TC 34A, "Lamps" and approved by CENELEC.

The following dates are fixed:

– latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2018-08-16
– latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2020-08-16

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60901:1996/A6:2014 are prefixed “Z”.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

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

For the relationship with EU Directive(s) see informative Annexes ZZ, which are an integral part of this document.

This standard provides test methods related to parameters as prescribed by EC Regulation 245/2009, and EU Regulation 874/2012 while conformity assessment (sampling, conformity procedures as well as limits) for market surveillance are specified in the text of the above Regulations.

Endorsement notice

The text of the International Standard IEC 60901:1996/A6:2014 was approved by CENELEC as a European Standard with agreed common modifications.

CONTENTS **Add** the following annexes:

Annex ZA (normative) Normative references to international publications with their corresponding European publications

Annex ZZA (informative) Relationship between this European Standard and the requirements of Commission Regulation (EC) No 245/2009

Annex ZZB (informative) Relationship between this European Standard and the requirements of Commission Regulation (EU) No 874/2012

1.2.Z1 **Add** the following subclause before 1.3

1.2.Z1 Overall statement

Where a Commission Regulation specifies limits for parameters these limits shall be used instead of the limits specified in this standard.

3.Z1 After 1.4.12 **add** new definitions 1.4.Z1 up to 1.4..Z3:

1.4.Z1
efficacy
'luminous efficacy of a source', 'light source efficacy' or 'lamp efficacy' (η_{source})
quotient of the luminous flux emitted (Φ) by the power consumed by the source (P_{source}). $\eta_{source} = \Phi / P_{source}$. Unit: lm/W

Note 1 to entry: The power dissipated by auxiliary equipment such as ballasts is not included in the power consumed by the source.

[SOURCE: Regulation 245/2009 Annex II, 1.a)]

1.4.Z2
lamp lumen maintenance factor (LLMF)
ratio of the luminous flux emitted by the lamp at a given time in its life to the initial luminous flux

[SOURCE: Regulation 245/2009 Annex II, 1.b)]

1.4.Z3
lamp survival factor (LSF)
fraction of the total number of lamps which continue to operate at a given time under defined conditions and switching frequency

[SOURCE: Regulation 245/2009 Annex II, 1.c)]

1.5.7 Before the text in 1.5.7, **add** a new header 1.5.7.Z1

1.5.7.Z1 General

After 1.5.7.Z1 **add** new subclauses 1.5.7.Z2 and 1.5.7.Z3

1.5.7.Z2 Chromaticity, correlated colour temperature and colour rendering index

The chromaticity coordinates and correlated colour temperature of an individual lamp shall be calculated according to CIE 15 from a measurement made under the conditions of Annex B.

The colour rendering index of an individual lamp shall be calculated according to CIE 13.3 from a measurement made under the conditions of Annex B.

1.5.7.Z3 Efficacy

The efficacy of an individual lamp shall be calculated from a measurement of luminous flux and power according to the conditions of Annex B.

1.5.8 **Replace** 1.5.8 with new subclauses 1.5.8.Z1 and 1.5.8. Z2

1.5.8.Z1 Lamp lumen maintenance factor

The lamp lumen maintenance factor of an individual lamp shall be calculated from measurements of its luminous flux made at appropriate times according to the conditions of Annex B. Lamp operation between these measurements shall be as prescribed in Annex C.

1.5.8.Z2 Lamp survival

The survival of an individual lamp shall be determined by operating lamps under the conditions prescribed in Annex C until the lamp fails to remain alight or delivers low light output (in case of doubt, low light output refers to noticeably less than 50 % of rated light output).

1.5.Z1 After 1.5.10 **add** a new subclause 1.5.Z1

1.5.Z1 Mercury content

The average mercury content shall be measured in accordance with the CV AAS method as described in EN 62321-4. Lamp sample preparation shall be in accordance with EN 62554.

Photometric characteristics shall be measured in accordance with EN 13032-1. For determination of the centre beam intensity of reflector lamps, EN 61341 shall be used.

Bibliography After 1.7 **Add**

Biblography

COMMISSION REGULATION (EC) No 245/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps, and repealing Directive 2000/55/EC of the European Parliament and of the Council

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

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
		Light and lighting – Measurement and presentation of photometric data of lamps and luminaires – Part 1: Measurement and file format	EN 13032-1 A1	2004 2012
IEC 60050-845	1987	International Electrotechnical Vocabulary – Chapter 845: Lighting	-	-
IEC 60061-1	1969	Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps	EN 60061-1	1993
IEC 60081	1997	Double-capped fluorescent lamps – Performance specifications	EN 60081	1998
IEC 60155	1993	Luminaires – Part 1: General requirements and tests	EN 60155	1995
IEC 60598-1	1996	Luminaires – General requirements and tests	EN 60598-1	1997
IEC 60921	1988	Ballasts for tubular fluorescent lamps – Performance requirements	EN 60921	1991
IEC 60927	1996	Auxiliaries for lamps – Starting devices (other than glow starters) – Performance requirements	EN 60927	1996
IEC 60929	1990	AC supplied electronic ballasts for tubular fluorescent lamps – Performance requirements	EN 60929	1992
IEC 61199	1993	Single-capped fluorescent lamps – Safety specifications	EN 61199	1994
IEC/TS 61231	1999	International lamp coding system (ILCOS)	-	
IEC 62321-4	-	Determination of certain substances in electrotechnical products - Part 4: Mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS	EN 62321-4	-
IEC 62554	-	Sample preparation for measurement of mercury level in fluorescent lamps	EN 62554	-

Annex ZZA
(informative)

Relationship between this European Standard and the eco-design requirements of Commission Regulation (EC) No 245/2009 aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/495 to provide one voluntary means of conforming to the ecodesign requirements of Commission Regulation (EC) No 245/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps, and repealing Directive 2000/55/EC of the European Parliament and of the Council [2009 OJ L76].

Once this standard is cited in the Official Journal of the European Union under that Commission Regulation, compliance with the clauses of this standard given in Table ZZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding ecodesign requirements of that Regulation and associated EFTA regulations.

Table ZZA.1 – Correspondence between this European Standard and Commission Regulation (EC) No 245/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps, and repealing Directive 2000/55/EC of the European Parliament and of the Council [2009 OJ L76] and Commission's standardization request M/495

Ecodesign requirement of Regulation (EC) No 245/2009 [2009 OJ L76]	Clause(s) / subclause(s) of this EN	Remarks / Notes
Annex III, article 1.1 and article 1.3(a)	Annex B	Lamp power
Annex III, article 1.1 and article 1.3(b)	Annex B	Luminous flux
Annex III, Table 12 and article 1.3(e)	Clause 1.5.8.Z2	Lamp survival factor (LSF)
Annex III, Table 11 and article 1.3(d)	Clause 1.5.8.Z1	Lamp lumen maintenance factor (LLMF)
Annex I, articles 1(a) and 1(f)	Clause 1.5.7.Z2	Chromaticity coordinates (x, y)
Annex III, Table 6, article 1.2 and article 1.3(g)	Clause 1.5.7.Z2	Colour rendering index (CRI)
Annex III, Table 6 and article 1.3(h)	Clause 1.5.7.Z2	Correlated colour temperature (CCT)
Annex I, articles 1(f)	Clause 1.5.2	Caps
Annex III article 1.3(f)	Clause 1.5.Z1	Mercury content

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the products falling within the scope of this standard.

Annex ZZB
(informative)

Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 874/2012 aimed to be covered

This European Standard has been prepared under a Commission's standardisation request M/495 to provide one voluntary means of conforming to the energy labelling requirements of Commission Delegated Regulation (EU) No 874/2012 of 12 July 2012 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of electrical lamps and luminaires [2012 OJ L258].

Once this standard is cited in the Official Journal of the European Union under that Commission Regulation, compliance with the clauses of this standard given in Table ZZC.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding energy labelling requirements of that Regulation and associated EFTA regulations.

Table ZZB.1 – Correspondence between this European Standard and Commission Regulation (EU) No 874/2012 of 12 July 2012 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of electrical lamps and luminaires [2012 OJ L258] and Commission's standardisation request M/495

Energy labelling requirement of Regulation (EU) No 874/2012 [2012 OJ L258]	Clause(s) / subclause(s) of this EN	Remarks / Notes
Article 1	Annex B	Applicable parameter according to Article 1 luminous flux
Annex VII	Annex B	Lamp power
Annex VII	Annex B	Luminous flux

WARNING 1: Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2: Other Union legislation may be applicable to the products falling within the scope of this standard.

IEC 60901

Edition 2.0 2014-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 6
AMENDEMENT 6

Single-capped fluorescent lamps – Performance specifications

Lampes à fluorescence à culot unique – Prescriptions de performances

INTERNATIONAL
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COMMISSION

COMMISSION
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CODE PRIX XD

ICS 29.140.30

ISBN 978-2-8322-1992-8

FOREWORD

This amendment has been prepared by subcommittee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment.

The text of this amendment is based on the following documents:

FDIS	Report on voting
34A/1801/FDIS	34A/1825/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INSTRUCTIONS POUR L'INSERTION DES NOUVELLES PAGES ET FEUILLES DE CARACTÉRISTIQUES DANS LA PUBLICATION 60901

1. Retirer la page B-5 et insérer la nouvelle page B-5.
2. Insérer les nouvelles pages D-3 et D-5.
3. Remplacer les feuilles de caractéristiques :

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INSTRUCTIONS FOR THE INSERTION OF NEW PAGES AND DATA SHEETS IN PUBLICATION 60901

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B.2.2 Lamps for operation on a.c. mains frequencies

The voltage at the cathode terminals shall be adjusted to the value of the test voltage given on the relevant lamp data sheet, and the current shall be measured. From these, after deduction of the consumption of the voltmeter, the cathode resistance shall be determined.

B.2.3 Lamps for operation on high frequencies

The current flowing through the cathode shall be adjusted to the value of the test current given on the relevant lamp data sheet, and the voltage drop over the cathode shall be measured. From these the cathode resistance shall be calculated.

To determine the resistance of the lead wires, take 5 lamps of the type to be measured. Crack off the end of the tubes carefully. Using a shorting link, short out the coil by clipping to the coil clamps. Drive a current of 100 mA through the leads. Measure the voltage at the normally used measurement point and calculate the lead resistance. The resulting value of the mean lead resistance may be used for any further measurements with lamps of the same mount construction.