

SLOVENSKI STANDARD
SIST EN IEC 63013:2020/A1:2022**01-februar-2022**

Ohišja svetlečih diod (LED) - Dolgoročni načrt vzdrževanja svetlobnega in sevalnega toka - Dopolnilo A1 (IEC 63013:2017/AMD1:2021)

LED packages - Long-term luminous and radiant flux maintenance projection (IEC 63013:2017/AMD1:2021)

LED-Packages - Langfristige Vorhersage des Lichtstromerhalts und des Erhalts der Strahlungsleistung (IEC 63013:2017/AMD1:2021)

LED encapsulées - Projection à long terme concernant la conservation du flux lumineux et du flux énergétique (IEC 63013:2017/AMD1:2021)

[SIST EN IEC 63013:2020/A1:2022](https://standards.itec.ai/catalog/standards/sist/04cc0bca-996e-435f-8e9b-a8bd54eb5a39/sist-en-iec-63013-2020-a1-2022)
Ta slovenski standard je istoveten z: EN IEC 63013:2019/A1:2021

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ICS:

29.140.99	Drugi standardi v zvezi z žarnicami	Other standards related to lamps
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SIST EN IEC 63013:2020/A1:2022 **en**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 63013:2019/A1

December 2021

ICS 29.140.99

English Version

**LED packages - Long-term luminous and radiant flux
maintenance projection
(IEC 63013:2017/AMD1:2021)**

LED encapsulées - Projection à long terme concernant la
conservation du flux lumineux et du flux énergétique
(IEC 63013:2017/AMD1:2021)

LED-Packages - Langfristige Vorhersage des
Lichtstromerhalts und des Erhalts der Strahlungsleistung
(IEC 63013:2017/AMD1:2021)

This amendment A1 modifies the European Standard EN IEC 63013:2019; it was approved by CENELEC on 2021-11-30. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

<https://standards.cenelec.eu/catalogue/part/63013/2020-a1-2022>



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 63013:2019/A1:2021 (E)**European foreword**

The text of document 34A/2233(F)/CDV, future IEC 63013/AMD1, prepared by SC 34A “Electric light sources” of IEC/TC 34 “Lighting” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63013:2019/A1:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022–08–30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024–11–30

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.

Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice**iTeh STANDARD****PREVIEW**

The text of the International Standard IEC 63013:2017/AMD1:2021 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where 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.

The Annex ZA of EN IEC 63013:2019 applies with the following changes:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
<i>Replace the existing second, third and fourth references with the following two new references:</i>				
ANSI/IES TM-21-19	-	Technical Memorandum: Projecting Long Term Lumen, Photon, and Radiant Flux Maintenance of LED Light Sources	-	-
ANSI/IES LM-80-20	-	Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays, and Modules	-	-

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IEC 63013

Edition 1.0 2021-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

iTeh STANDARD

LED packages – Long-term luminous and radiant flux maintenance projection

LED encapsulées – Projection à long terme concernant la conservation du flux lumineux et du flux énergétique

[SIST EN IEC 63013:2020/A1:2022](https://standards.iteh.ai/catalog/standards/sist/04ccbbca-996e-435f-8e9b-a8bd54eb5a39/sist-en-iec-63013-2020-a1-2022)

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INTERNATIONAL
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COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LED PACKAGES – LONG-TERM LUMINOUS AND
RADIANT FLUX MAINTENANCE PROJECTION****AMENDMENT 1****FOREWORD**

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

Amendment 1 to IEC 63013:2017 has been prepared by subcommittee 34A: Electric light sources, of IEC technical committee 34: Lighting.

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

Draft	Report on voting
34A/2233(F)/CDV	34A/2253/RVC

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

The language used for the development of this Amendment is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available

at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications/.

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

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

1 Scope

Replace the existing paragraphs with the following new paragraphs:

This document is applicable to LED packages for general lighting services and LED packages for horticultural lighting.

It specifies procedures and conditions for measuring the luminous flux maintenance of LED packages. It also provides the procedures and conditions (criteria) of projecting the long-term luminous flux maintenance based on limited luminous flux maintenance test data collected. Within the context of this document, wherever luminous flux measurement data is specified, radiant flux measurement data and photon flux measurement data can also be used.

These projection methods employ data collected as per ANSI/IES LM-80-20 (LM-80).

The long-term projection is based on the exponential-fit-function procedure of ANSI/IES TM-21-19 (TM-21) and gives an alternative border function procedure in the case where the exponential-fit-function of ANSI/IES TM-21-19 is not applicable.

2 Normative references

Replace the existing second, third and fourth references with the following two new references:

ANSI/IES TM-21-19¹, *Technical Memorandum: Projecting Long Term Lumen, Photon, and Radiant Flux Maintenance of LED Light Sources*

ANSI/IES LM-80-20, *Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays, and Modules*

¹ A revision of ANSI/IES TM-21-19, and a new ANSI approved IES calculation tool are under preparation by the Illuminating Engineering Society. Publication of ANSI/IES TM-21-21 and the ANSI/IES TM-21-21 Calculator are expected prior to 2021-12-31.

4 Test method, data collection and sample size

Replace the existing first paragraph with the following new paragraph:

Luminous flux maintenance data shall be collected according to the methods described in ANSI/IES LM-80-20.

Replace the existing third paragraph with the following new paragraph:

Recommendations on sample size are found in ANSI/IES TM-21-19.

5.2.1 Method

Replace the existing first and second paragraphs with the following new paragraphs:

The exponential fit function method (EFF), as described in ANSI/IES TM-21-19, is based on the assumption that after early luminous flux degradation modes are complete, the subsequent test data can be fitted and extrapolated using an exponential curve-fit function, using the formula

$$f(t) = B \exp(-\alpha t) \quad (1)$$

The luminous flux maintenance projection shall be performed according to ANSI/IES TM-21-19, Section 5.

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<https://standards.iteh.ai/catalog/standards/sist/04ccbca-996e-435f-8e9b-a8bd54eb5a39/sist-en-iec-63013-2020-a1-2022>

6 Temperature data interpolation

Replace the existing first paragraph with the following new paragraph:

If temperature interpolation is employed, then it shall be performed according to the Arrhenius formula in ANSI/IES TM-21-19, Section 6.

7 Adjustment of results

Replace the existing paragraph with the following new paragraph:

The results of 5.2 and 5.3 shall be adjusted according to ANSI/IES TM-21-19, 5.2.5.

8 Reporting

Replace the existing paragraph with the following new paragraph:

The report of the luminous flux maintenance projection shall include the following information shown in Table 1. Only L_{70} and L_{xx} values adjusted as per Clause 7 shall be reported, according to the notation in ANSI/IES TM-21-19, 5.2.6.