

<b>STN</b>	<b>LED puzdrá</b> <b>Dlhodobá predpoveď udržania svetelného a</b> <b>žiarivého toku</b>	<b>STN</b> <b>EN IEC 63013</b>  36 0293
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LED packages - Long-term luminous and radiant flux maintenance projection

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/20

Obsahuje: EN IEC 63013:2019, IEC 63013:2017

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EUROPEAN STANDARD

**EN IEC 63013**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2019

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English Version

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

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

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

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**EN IEC 63013:2019 (E)****European foreword**

The text of document 34A/2008/FDIS, future edition 1 of IEC 63013, prepared by SC 34A "Electric light sources" of IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63013:2019.

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) 2020-05-29
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IEC 62506:2013 NOTE Harmonized as EN 62506:2013 (not modified)

## **Annex ZA** (normative)

### **Normative references to international publications with their corresponding European publications**

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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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62504	-	General lighting - Light emitting diode (LED) products and related equipment - Terms and definitions	EN 62504	-
IES TM-21-11	-	Projecting Long Term Lumen Maintenance of LED Light Sources	-	-
IES LM-80-08	-	IES Approved Method for Measuring Lumen Maintenance of LED Light Sources	-	-
ANSI/IES LM-80-15 -	-	Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules	-	-



**IEC 63013**

Edition 1.0 2017-06

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**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**



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IEC 63013

Edition 1.0 2017-06

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**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**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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International Standard IEC 63013 has been prepared by subcommittee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
34A/2008/FDIS	34A/2015/RVD

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://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.

## INTRODUCTION

One of the benefits of LED lighting is their long lifetime compared to that of many other light source technologies.

However, there is currently no international standard for predicting the long-term luminous flux maintenance of LED packages. This document is intended to close this gap by specifying methods for the long-term luminous flux maintenance projection.

This document is the result of the discussions led by a special expert group within IEC technical committee 34 on this topic.

This expert group had collected a set of luminous flux maintenance measurements of 39 LED package types, each tested at three different temperatures.

Various projection methods were analysed based on this set of test data.

Regarding the selection of models, there was a controversial discussion among the experts and no unanimous agreement could be found.

It was concluded at the meeting in Berlin on 21 January 2014 to choose the TM-21 method as the starting point of the analysis and to have the border function as an alternative in case the TM-21 method was not applicable. It was further concluded that the Arrhenius temperature acceleration should be included in an informative annex.

At the meeting on 26 January 2015 in Washington some further editorial improvements were made and it was agreed to submit this document to IEC as a new project with a view to developing a full international standard.

This new project was approved and all comments received during the enquiry stage were discussed by the project team and resolved. This document incorporates the changes agreed by the project team.

## LED PACKAGES – LONG-TERM LUMINOUS AND RADIANT FLUX MAINTENANCE PROJECTION

### 1 Scope

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

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 can also be used.

These projection methods employ data collected as per ANSI/IES LM-80-15 (LM-80).

The long-term projection is based on the exponential-fit-function procedure of IES TM-21-11 (TM-21), and gives an alternative border function procedure in the case where the exponential-fit-function of IES TM-21-11 is not applicable.

### 2 Normative references

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IEC 62504, *General lighting – Light emitting diode (LED) products and related equipment – Terms and definitions*

IES TM-21-11, *Projecting Long Term Lumen Maintenance of LED Light Sources*

IES LM-80-08 1, *IES Approved Method for Measuring Lumen Maintenance of LED Light Sources*

ANSI/IES LM-80-15, *IES Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules*

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