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General lighting – Light emitting diode (LED) products and related equipment – Terms and definitions

Éclairage général – Produits à diode électroluminescente (LED) et équipements associés – Termes et définitions

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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GENERAL LIGHTING – LIGHT EMITTING DIODE (LED) PRODUCTS AND RELATED EQUIPMENT – TERMS AND DEFINITIONS

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This Consolidated version of IEC 62504 bears the edition number 1.1. It consists of the first edition (2014-06) [documents 34/200/FDIS and 34/205/RVD] and its amendment 1 (2018-03) [documents 34/476A/FDIS and 34/490/RVD]. The technical content is identical to the base edition and its amendment.

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 62504 has been prepared by IEC technical committee 34: Lamps and related equipment in collaboration with representatives from CIE.

The significant changes with respect to IEC TS 62504 are as follows:

a) Terms from the International Electrotechnical Vocabulary that have not been modified are deleted.
b) Alignment with the CIE has been done.
c) An introduction has been added

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

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site 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- withdrawn,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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

0.1 Principles of this International Standard

This document is based on IEC TS 62504:2011, General Lighting – LEDs and LED modules – Terms and definitions, which was under the responsibility of SC 34A but this revision as International Standard IEC 62504 transfers responsibility to TC 34.

The objective of this introduction is to help the reader to understand which terms are included and to have an understanding of the LED product overview.

Compared with IEC TS 62504, the main changes are as follows.

0.2 Terms to include

General lighting terms in IEC 60050-845:1987, International Electrotechnical Vocabulary that have not been modified will not be included in this standard.

Alignment with CIE is done. IEC will be the reference for products and related equipment and CIE for lighting terminology. Alignment with ANSI RP16-10, Chapter 18 was also considered.

The terms included are as far as possible used in LED standards and manufacturers' literature.,

Process to update IEC 60050-845:1987, the International Electrotechnical Vocabulary for definitions that will be considered as relevant is underway in IEC TC34.

0.3 Alphabetic sequence

In order to find the term in a logical sequence, we have grouped similar terms of a product, example:

LED lamp

– integrated LED lamp ,

– non-integrated LED lamp .

For each term, reference is made to the relevant standard if appropriate.

0.4 LED product tree:

The sequence from the first component, the LED die up to the LED luminaire is drawn.

The term LED does not represent a product, so no technical data can be linked to the term LED.

GENERAL LIGHTING – LIGHT EMITTING DIODE (LED) PRODUCTS AND RELATED EQUIPMENT – TERMS AND DEFINITIONS

1 Scope

This International Standard IEC 62504 is of assistance in the common understanding of terms and definitions, relevant for general lighting with LED technology. The terms included are those already available in IEC LED standards or used in manufacturers' literature.

This standard provides descriptive terms (like “LED light sources”) and measurable terms when modified from IEC 60050-845 (like “colour rendering index”).

NOTE Annex A gives overviews of LED package design and systems composed of LED light sources and controlgear.

2 Normative references

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.

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>).

CIE Technical Report 127:2007, *Measurement of LEDs*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-845, with the exception of those modified below, and the following apply.

3.1
ageing
preconditioning period of the LED light source before initial values are taken

3.2
angular subtense
α
angle subtended by an apparent source as viewed from a point in space

Note 1 to entry: Angular subtense is expressed in radians (rad).

Note 2 to entry: The angle extension is determined by the observation distance, but at no distance smaller than the minimum distance of accommodation of the eye.

Note 3 to entry: The location and angular subtense of the apparent source depends on the viewing position in the beam.

Note 4 to entry: The angular subtense of an apparent source is only applicable in the wavelength range from 380 nm to1 400 nm.

Note 5 to entry: IEC TR 62778 gives additional information with regards to beam divergence.