SVENSK STANDARD SS-EN IEC 60810

Fastställd	Utgåva	Sida	Ansvarig kommitté
2018-06-13	4	1 (1+92)	SEK TK 34

Belysningsmateriel – Lampor för vägfordon – Prestandabeskrivningar

Lamps, light sources and LED packages for road vehicles – Performance requirements

Som svensk standard gäller europastandarden EN IEC 60810:2018. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60810:2018.

Nationellt förord

Europastandarden EN IEC 60810:2018

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60810, Fifth edition, 2017 - Lamps, light sources and LED packages for road vehicles - Performance requirements**

utarbetad inom International Electrotechnical Commission, IEC.

EN från CENELEC som är identiska med motsvarande IEC-standarder och som görs tillgängliga för nationalkommittéerna efter den 1 januari 2018 får en beteckning som inleds med EN IEC istället för som tidigare bara EN.

Tidigare fastställd svensk standard SS-EN 60810, utgåva 3, 2015 och SS-EN 60810/A1, utgåva 1, 2017, gäller ej fr o m 2021-02-09.

ICS 29.140.99

Denna standard är fastställd av SEK Svensk Elstandard,
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Postadress: Box 1284, 164 29 KISTA
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Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

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Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60810

February 2018

ICS 29.140.99

Supersedes EN 60810:2015

English Version

Lamps, light sources and led packages for road vehicles - Performance requirements (IEC 60810:2017)

Lampes, sources lumineuses et led encapsulées pour véhicules routiers - Exigences de performances (IEC 60810:2017)

Lampen für Straßenfahrzeuge - Anforderungen an die Arbeitsweise (IEC 60810:2017)

This European Standard was approved by CENELEC on 2017-10-30. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 European Standard 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: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 60810:2018 E

SEK Svensk Elstandard

European foreword

The text of document 34A/2021/FDIS, future edition 5 of IEC 60810, prepared by 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 IEC 60810:2018.

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) 2018-08-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-02-09

This document supersedes EN 60810:2015.

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.

Endorsement notice

The text of the International Standard IEC 60810:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-20	NOTE Harmonized as EN 60068-2-20
IEC 60068-2-47	NOTE Harmonized as EN 60068-2-47
IEC 60682:1980	NOTE Harmonized as EN 60682:1993
IEC 60809:1995	NOTE Harmonized as EN 60809:1996
IEC 60809:1995/A5:2012	NOTE Harmonized as EN 60809:1996/A5:2012

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 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
IEC 60050-845	-	International Electrotechnical Vocabulary-(IEV) -- Chapter 845: Lighting		-
IEC 60061-1	-	Lamp caps and holders together with gauges for the control of interchangeability and safety -- Part 1: Lamp caps	EN 60061-1	-
IEC 60068-2-14	-	Environmental testing -- Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	-
IEC 60068-2-43	-	Environmental testing -- Part 2-43: Tests - Test Kd: Hydrogen sulphide test for contacts and connections	EN 60068-2-43	-
IEC 60068-2-58	-	Environmental testing - Part 2-58: Tests - Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)	EN 60068-2-58	-
IEC 60068-2-60	-	Environmental testing -- Part 2-60: Tests - Test Ke: Flowing mixed gas corrosion test	EN 60068-2-60	-
IEC 60809	2014	Lamps for road vehicles - Dimensional, electrical and luminous requirements	EN 60809	2015
ISO 7637-2	2011	Road vehicles_- Electrical disturbances-from conduction and coupling_- Part_2: Electrical transient conduction along supply lines only		-
ISO 10605	-	Road vehicles_- Test methods for electrical-disturbances from electrostatic discharge		-
CISPR 25	-	Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers	EN 55025	-
United Nations Vehicle Regulations	1958	Agreement concerning the adoption of uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions		
JESD22-A101C	-	Steady-state temperature humidity bias life-test		-
JESD22-A104E	-	Temperature cycling	-	-

JESD22-A105C	-	Power and temperature cycling	-	-
JESD22-A106B	-	Thermal shock	-	-
JESD22-A108D	-	Temperature, bias, and operating life	-	-
JESD22-A113F	-	Preconditioning of plastic surface mount-devices prior to reliability testing		-
JESD22-A115C	-	Electrostatic discharge (ESD) sensitivity-testing machine model (MM)		-
JESD22-B101B	-	External visual	-	-
JESD22-B103B	-	Vibration, variable frequency	-	-
JESD22-B106D	-	Resistance to solder shock for through--hole mounted devices		-
JESD22-B110B	-	Mechanical shock - Component and-subassembly		-
JESD22-B116	1998	Wire Bond Shear Test Method	-	-
JESD51-50:2012-04-		Overview of methodologies for the thermal-measurement of single- and multi-chip, single- and multi-pn-junction light-emitting diodes (LEDs)		-
JESD51-51:2012-04-		Implementation of the electrical test-method for the measurement of real thermal resistance and impedance of light-emitting diodes with exposed cooling surface		-
JESD51-52:2012-04-		Guidelines for combining CIE 127-2007-total flux measurements with thermal measurements of LEDs with exposed cooling surface		-
JESD51-53:2012-05-		Terms, definitions and units glossary for-LED thermal testing		-
ANSI/IPC/ECA J--STD-002C		Solderability tests for component leads,-terminations, lugs, terminals and wires		-
ANSI/ESDA/JEDEC JS-001	2012	Joint JEDEC/ESDA standard for-electrostatic discharge sensitivity testing human body model (HBM) – component level		-
MIL-STD-883E	2015	Visual Inspection Criteria	-	-
ZVEI	2016	Guideline for Customer Notifications of-Product and/or Process Changes (PCN) of Electronic Components specified for Automotive Applications		-

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LAMPS, LIGHT SOURCES AND LED PACKAGES FOR ROAD VEHICLES – PERFORMANCE REQUIREMENTS

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60810 has been prepared by subcommittee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment.

This fifth edition cancels and replaces the fourth edition published in 2014 and Amendment 1:2017. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) update and clarification of the title and scope;
b) introduction of new LED light sources;
c) introduction of requirements for LED light sources;
d) introduction of guidelines on LED package robustness validation for LED packages.

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

FDIS	Report on voting
34A/2021/FDIS	34A/2033/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.

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.

LAMPS, LIGHT SOURCES AND LED PACKAGES FOR ROAD VEHICLES – PERFORMANCE REQUIREMENTS

1 Scope

This document is applicable to filament lamps, discharge lamps, LED light sources and LED packages to be used in road vehicles, i.e. in headlamps, fog-lamps, signalling lamps and interior lighting. It is especially applicable to those lamps and light sources which are listed in IEC 60809.

It specifies requirements and test methods for the measurement of performance characteristics such as lamp life, luminous flux maintenance, torsion strength, glass bulb strength and resistance to vibration and shock. Moreover, information on temperature limits, maximum lamp outlines and maximum tolerable voltage surges is given as guidance for lighting and electrical equipment design.

For some of the requirements given in this document, reference is made to data given in tables. For lamps not listed in such tables, the relevant data are supplied by the lamp manufacturer or responsible vendor.

The performance requirements are additional to the basic requirements specified in IEC 60809. They are, however, not intended to be used by authorities for legal type-approval purposes.

NOTE 1 In the various vocabularies and standards, different terms are used for "incandescent lamp" (IEC 60050-845:1987, 845-07-04) and "discharge lamp" (IEC 60050-845:1987, 845-07-17). In this document, "filament lamp" and "discharge lamp" are used. However, where only “lamp” is written both types are meant, unless the context clearly shows that it applies to one type only.

NOTE 2 This document does not apply to luminaires.

NOTE 3 In this document, the term LED light source is used, in other standards the term LED lamps can be used to describe similar products.

2 Normative references

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.

IEC 60050-845, *International Electrotechnical Vocabulary – Part 845: Lighting* (available at http://www.electropedia.org)

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 60068-2-14, *Environmental testing – Part 2–14: Tests – Test N: Change of temperature*

IEC 60068-2-43, *Environmental testing – Part 2-43: Tests – Test Kd: Hydrogen sulphide test for contacts and connections*

IEC 60068-2-58, *Environmental testing – Part 2-58: Tests – Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

IEC 60068-2-60, *Environmental testing – Part 2-60: Tests – Test Ke: Flowing mixed gas corrosion test*

IEC 60809:2014, *Lamps for road vehicles – Dimensional, electrical and luminous requirements*

CISPR 25, *Vehicles, boats and internal combustion engines – Radio disturbance characteristics – Limits and methods of measurement for the protection of on-board receivers*

ISO 7637-2:2011, *Road vehicles – Electrical disturbances from conduction and coupling – Part 2: Electrical transient conduction along supply lines only*

ISO 10605, *Road vehicles – Test methods for electrical disturbances from electrostatic discharge*

United Nations Vehicle Regulations – 1958 Agreement, *Agreement concerning the adoption of uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions*
(available at www.unece.org/trans/main/wp29/wp29regs.html)[1]

Addendum 36: Regulation No. 37, *Uniform provisions concerning the approval of filament lamps for use in approved lamp units of power-driven vehicles and of their trailers*

Addendum 47: Regulation No 48, *Uniform provisions concerning the approval of vehicles with regard to the installation of lighting and light-signalling devices*

Addendum 100: Regulation No. 101, *Uniform provisions concerning the approval of passenger cars powered by an internal combustion engine only, or powered by a hybrid electric power train with regard to the measurement of the emission of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range, and of categories M1 and N1 vehicles powered by an electric power train only with regard to the measurement of electric energy consumption and electric range*

Addendum 122: Regulation No. 123, *Uniform provisions concerning the approval of adaptive front-lighting systems (AFS) for motor vehicles*

Addendum 127: Regulation No. 128, *Uniform provisions concerning the approval of light emitting diode (LED) light sources for use in approved lamp units on power-driven*

JESD22-A101C, *Steady-state temperature humidity bias life test*

JESD22-A104E, *Temperature cycling*

JESD22-A105C, *Power and temperature cycling*

JESD22-A106B, *Thermal shock*

JESD22-A108D, *Temperature, bias, and operating life*

JESD22-A113F, *Preconditioning of plastic surface mount devices prior to reliability testing*

JESD22-A115C, *Electrostatic discharge (ESD) sensitivity testing machine model (MM)*

JESD22-B101B, *External visual*

JESD22-B103B, *Vibration, variable frequency*

[1] Also known as The 1958 Agreement. In the text of this document the regulations under this agreement are referred to as, for example, UN Regulation 37 or R37.

JESD22-B110B, *Mechanical shock*

JESD22-B106D, *Resistance to solder shock for through-hole mounted devices*

JESD22-B116:1998, *Wire Bond Shear Test Method*

JESD51-50:2012-04, *Overview of methodologies for the thermal measurement of single- and multi-chip, single- and multi-pnjunction light-emitting diodes (LEDs)*

JESD51-51:2012-04, *Implementation of the electrical test method for the measurement of real thermal resistance and impedance of light-emitting diodes with exposed cooling surface*

JESD51-52:2012-04, *Guidelines for combining CIE 127-2007 total flux measurements with thermal measurements of leds with exposed cooling surface*

JESD51-53:2012-05, *Terms, definitions and units glossary for LED thermal testing*

ANSI/IPC/ECA J-STD-002C, *Solderability tests for component leads, terminations, lugs, terminals and wires*

ANSI/ESDA/JEDEC JS-001-2012, *Joint JEDEC/ESDA standard for electrostatic discharge sensitivity testing human body model (HBM) – component level*

MIL-STD-883E:2015, *Visual Inspection Criteria*

ZVEI "*Guideline for Customer Notifications of Product and/or Process Changes (PCN) of Electronic Components specified for Automotive Applications*" 4th revised Edition, October 2016, Rev. 3