SVENSK STANDARD SS-EN IEC 60068-2-82

Fastställd	Utgåva	Sida	Ansvarig kommitté
2020-02-19	2	1 (1+34)	SEK Elektro-tekniska rådet

Miljötålighetsprovning –
Del 2-82: Provningsmetoder –
Tx: Tenntrådar på komponenter och delar i elektronikenheter

Environmental testing –
Part 2-82: Tests –
Test Xw1: Whisker test methods for components and parts used in electronic assemblies

Som svensk standard gäller europastandarden EN IEC 60068-2-82:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60068-2-82:2019.

Nationellt förord

Europastandarden EN IEC 60068-2-82:2019

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60068-2-82, Second edition, 2019 - Environmental testing - Part 2-82: Tests - Test Xw1: Whisker test methods for components and parts used in electronic assemblies**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60068-2-82, utgåva 1, 2008, gäller ej fr o m 2022-06-18.

ICS 19.040.00

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Standarder underlättar utvecklingen och höjer elsäkerheten

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

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

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Stora delar av arbetet sker internationellt

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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 60068-2-82

July 2019

ICS 19.040

Supersedes EN 60068-2-82:2007

English Version

Environmental testing - Part 2-82: Tests - Test Xw1: Whisker test methods for components and parts used in electronic assemblies (IEC 60068-2-82:2019)

Essais d'environnement - Partie 2-82: Essais - Essai Xw1: Méthodes de vérification des trichites pour les composants et les pièces utilisés dans les ensembles électroniques (IEC 60068-2-82:2019)

Umgebungseinflüsse - Teil 2-82: Prüfungen - Prüfung XW1: Whisker-Prüfverfahren für Bauelemente und Teile in elektronischen Baugruppen (IEC 60068-2-82:2019)

This European Standard was approved by CENELEC on 2019-06-18. 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, 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.

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 60068-2-82:2019 E

SEK Svensk Elstandard

SS-EN IEC 60068-2-82, utg 2:2020

European foreword

The text of document 91/1562/FDIS, future edition 2 of IEC 60068-2-82, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60068-2-82:2019.

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)	2020-03-18
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2022-06-18

This document supersedes EN 60068-2-82:2007.

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 60068-2-82:2019 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 61191-1	NOTE	Harmonized as EN IEC 61191-1
IEC 61249-2-7	NOTE	Harmonized as EN 61249-2-7
IEC 61249-2-22	NOTE	Harmonized as EN 61249-2-22
IEC 61249-2-35	NOTE	Harmonized as EN 61249-2-35

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.

Publication	Year	Title	EN/HD	Year
IEC 60068-1	2013	Environmental testing - Part 1: General and guidance	EN 60068-1	2014
IEC 60068-2-14	2009	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009
IEC 60068-2-20	-	Environmental testing - Part 2-20: Tests - Test T: Test methods for solderability and resistance to soldering heat of devices with leads	EN 60068-2-20	-
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 60068-2-67	-	Environmental testing - Part 2-67: Tests - Test Cy: Damp heat, steady state, accelerated test primarily intended for components	EN 60068-2-67	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60512-16-21	2012	Connectors for electronic equipment - Tests and measurements - Part 16-21: Mechanical tests on contacts and terminations - Test 16u: Whisker test via the application of external mechanical stresses	EN 60512-16-21	2012
IEC 61192-3	2002	Workmanship requirements for soldered electronic assemblies - Part 3: Through-hole mount assemblies	EN 61192-3	2003

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ENVIRONMENTAL TESTING –

Part 2-82: Tests – Test Xw_1: Whisker test methods for components and parts used in electronic assemblies

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 60068-2-82 has been prepared by IEC technical committee 91: Electronics assembly technology.

This second edition cancels and replaces the first edition published in 2007. This edition constitutes a technical revision.

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

– extension of the scope of the test standard from electronic to electromechanic components and press-fit pins, which are used for assembly and interconnect technology;
– significant reduction of the testing effort by a knowledge-based selection of test conditions i.e. tests not relevant for a given materials system can be omitted (see Annex D);
– harmonization with JESD 201A by omission of severities M, N for temperature cycling tests;

– highly reduced test duration (1 000 h instead of 4 000 h) for damp-heat test by introducing test condition at elevated humidity of 85 % R.H. and a temperature of 85 °C providing increased severity.

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

FDIS	Report on voting
91/1562/FDIS	91/1573/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.

A list of all parts in the IEC 60068 series, published under the general title *Environmental testing*, can be found on the IEC website.

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.

ENVIRONMENTAL TESTING –

Part 2-82: Tests – Test Xw_1: Whisker test methods for components and parts used in electronic assemblies

1 Scope

This part of IEC 60068 specifies tests for the whiskering propensity of surface finishes of electric or electronic components and mechanical parts such as punched/stamped parts (for example, jumpers, electrostatic discharge protection shields, mechanical fixations, press-fit pins and other mechanical parts used in electronic assemblies) representing the finished stage, with tin or tin-alloy finish. Changes of the physical dimensions of mould compounds, plastics and the like during the required test flow are not considered or assessed. The test methods have been developed by using a knowledge-based approach.

This document can also be used at sub-suppliers, like plating shops, stamping shops or other service providers to ensure a consistent surface quality within the supply chain.

These test methods are employed with defined acceptance criteria by a relevant component or application specification.

The tests described in this document are applicable for initial qualification, for periodic monitoring in accordance with Clause 7, and for changes of technology or manufacturing processes of existing surfaces in accordance with Clause 9.

The mating area of connectors is not covered by this test method. IEC 60512-16-21 applies for the mating areas of connectors.

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 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

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 60068-2-67, *Environmental testing – Part 2-67: Tests – Test Cy: Damp heat, steady state, accelerated test primarily intended for components*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 61192-3:2002, *Workmanship requirements for soldered electronic assemblies – Part 3: Through-hole mount assemblies*[1]

IEC 60512-16-21:2012, *Connectors for electronic equipment – Tests and measurements – Part 16-21: Mechanical tests on contacts and terminations – Test 16u: Whisker test via the application of external mechanical stresses*

[1] Withdrawn publication.