SLOVENSKI STANDARD

SIST EN 60068-2-54:2006

december 2006

Okoljski preskusi - 2-54. del: Preskusi - Preskus Ta: Preskušanje spajkljivosti elektronskih komponent z metodo za določanje omočljivosti (IEC 60068-2-54:2006)

Environmental testing - Part 2-54: Tests - Test Ta: Solderability testing of electronic components by the wetting balance method (IEC 60068-2-54:2006)

ICS 19.040; 31.190

Referenčna številka
SIST EN 60068-2-54:2006(en)

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60068-2-54

August 2006

ICS 19.040; 31.020

Supersedes HD 323.2.54 S1:1987

English version

Environmental testing
Part 2-54: Tests -
Test Ta: Solderability testing of electronic components by the wetting balance method
(IEC 60068-2-54:2006)

Essais d'environnement
Partie 2-54 : Essais -
Essai Ta : Essai de brasabilité des composants électroniques par la méthode de la balance de mouillage
(CEI 60068-2-54:2006)

Umweltprüfungen
Teil 2-54: Prüfungen -
Prüfung Ta: Prüfung der Lötbarkeit elektronischer Bauelemente mit der Benetzungswaage
(IEC 60068-2-54:2006)

This European Standard was approved by CENELEC on 2006-07-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 60068-2-54:2006 E

Foreword

The text of document 91/576/FDIS, future edition 2 of IEC 60068-2-54, prepared by IEC TC 91, Electronics assembly technology, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60068-2-54 on 2006-07-01.

This European Standard supersedes HD 323.2.54 S1:1987.

The major technical changes with regard to HD 323.2.54 S1:1987 concern:

– the addition of lead free solder alloy (see Clause 7, Materials);

– reversal of force-time curves to align with EN 60068-2-69 (see Figure 2 and Figure B.1);

– modification to the test requirement for progress of wetting (see Clause 9).

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2007-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60068-2-54:2006 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 60068-2-44	NOTE	Harmonized as EN 60068-2-44:1995 (not modified).
IEC 60068-2-58	NOTE	Harmonized as EN 60068-2-58:2004 (not modified).
IEC 60068-2-69	NOTE	Harmonized as EN 60068-2-69:1996 (not modified).
IEC 61190-1-1	NOTE	Harmonized as EN 61190-1-1:2002 (not modified).
IEC 61190-1-3	NOTE	Harmonized as EN 61190-1-3:2002 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60068-1	1988	Environmental testing Part 1: General and guidance	EN 60068-1[1)]	1994
IEC 60068-2-20	1979	Environmental testing Part 2: Tests - Test T: Soldering	HD 323.2.20 S3 [2)]	1988
IEC 61190-1-3	-[3)]	Attachment materials for electronic assembly Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications	EN 61190-1-3	2002[4)]

[1)] EN 60068-1 includes corrigendum October 1988 + A1:1992 to IEC 60068.

[2)] HD 323.2.20 S3 includes A2:1987 to IEC 60068-2-20.

[3)] Undated reference.

[4)] Valid edition at date of issue.

INTERNATIONAL STANDARD

IEC 60068-2-54

Second edition
2006-04

Environmental testing –

Part 2-54:
Tests – Test Ta: Solderability testing of electronic components by the wetting balance method

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Международная Электротехническая Комиссия

PRICE CODE R

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL TESTING –

Part 2-54: Tests – Test Ta: Solderability testing of electronic components by the wetting balance method

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 60068-2-54 has been prepared by IEC technical committee 91: Electronics assembly technology.

This second edition cancels and replaces the first edition, published in 1985 and constitutes a technical revision.

The major technical changes with regard to the previous edition concern:

– the addition of lead free solder alloy (see Clause 7, Materials);
– reversal of force-time curves to align with IEC 60068-2-69 (see Figure 2 and Figure B.1);
– modification to the test requirement for progress of wetting (see Clause 9).

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

FDIS	Report on voting
91/576/FDIS	91/587/RVD

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

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

IEC 60068 consists of the following parts, under the general title *Environmental testing:*

Part 1: General and guidance

Part 2: Tests

Part 3: Supporting documentation and guidance

Part 4: Information for specification writers - Test summaries

Part 5: Guide to drafting of test methods

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

A bilingual version of this publication may be issued at a later date.

ENVIRONMENTAL TESTING –

Part 2-54: Tests – Test Ta: Solderability testing of electronic components by the wetting balance method

1 Scope

This part of IEC 60068 outlines Test Ta, solder bath wetting balance method applicable for any shape of component terminations to determine the solderability. It is especially suitable for reference testing and for components that cannot be quantitatively tested by other methods. For surface mounting devices (SMD), IEC 60068-2-69 should be applied if it is suitable.

This standard provides the standard procedures for solder alloys containing lead (Pb) and for lead-free solder alloys.

2 Normative references

The following referenced documents are indispensable for the application 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 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-20:1979, *Environmental testing – Part 2: Tests – Test T: Soldering*

IEC 61190-1-3, *Attachment materials for electronic assembly – Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications*

3 Terms and definitions

For the purposes of this document, the terms and definitions, as defined in IEC 60068-1 and IEC 60068-2-20, apply.

4 General description of the test

The specimen is suspended from a sensitive balance (typically a spring system) and immersed edgewise to a set depth in a bath of molten solder at a controlled temperature. The resultant of the vertical forces of buoyancy and surface tension acting upon the immersed specimen is detected by a transducer and converted into a signal which is continuously recorded as a function of time on a high-speed chart recorder. The trace may be compared with that derived from a perfectly wetted specimen of the same nature and dimensions.

Two modes of testing exist:

– The stationary mode, intended to study the solderability of a particular place on the specimen. It is this mode which is standardized in this standard.

– The scanning mode, intended to study the homogeneity of the solderability of an extended region of the surface of the specimen. The standardization of this mode is still under consideration.