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Mönsterkort – Provning av material för mönsterkort, mönsterkort och kretskort – Del 5-4: Provning av material och kretskort – Vägledning beträffande kretskort

*Test methods for electrical materials, printed boards and other interconnection structures and assemblies –
Part 5-1: General test methods for materials and assemblies –
Guidance for printed board assemblies*

Som svensk standard gäller europastandarden EN 61189-5-1:2016. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61189-5-1:2016.

Nationellt förord

Europastandarden EN 61189-5-1:2016

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61189-5-1, First edition, 2016 - Test methods for electrical materials, printed boards and other interconnection structures and assemblies - Part 5-1: General test methods for materials and assemblies - Guidance for printed board assemblies**

utarbetad inom International Electrotechnical Commission, IEC.

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English Version

Test methods for electrical materials, printed boards and other
interconnection structures and assemblies - Part 5-1: General
test methods for materials and assemblies - Guidance for printed
board assemblies
(IEC 61189-5-1:2016)

Méthodes d'essai pour les matériaux électriques, les cartes
imprimées et autres structures d'interconnexion et
ensembles - Partie 5-1: Méthodes d'essai générales pour
les matériaux et assemblages - Lignes directrices pour les
assemblages de cartes à circuit imprimé
(IEC 61189-5-1:2016)

Prüfverfahren für Elektromaterialien, Leiterplatten und
andere Verbindungsstrukturen und Baugruppen - Teil 5-1:
Allgemeine Prüfverfahren für Materialien und Baugruppen -
Leitfaden für Baugruppen von Leiterplatten
(IEC 61189-5-1:2016)

This European Standard was approved by CENELEC on 2016-08-09. 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.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 91/1273/CDV, future edition 1 of IEC 61189-5-1, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61189-5-1:2016.

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) 2017-05-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-08-09

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Endorsement notice

The text of the International Standard IEC 61189-5-1:2016 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 (series)	NOTE	Harmonized as EN 60068 (series).
IEC 60068-1:2013	NOTE	Harmonized as EN 60068-1:2014.
IEC 60068-2-20	NOTE	Harmonized as EN 60068-2-20.
IEC 60068-2-58:2015	NOTE	Harmonized as EN 60068-2-58:2015.
IEC 61189-1	NOTE	Harmonized as EN 61189-1.
IEC 61189-5 (series)	NOTE	Harmonized as EN 61189-5 (series).
IEC 61189-5	NOTE	Harmonized as EN 61189-5.
IEC 61189-5-1:2016	NOTE	Harmonized as EN 61189-5-1:2016.
IEC 61189-5-2:2015	NOTE	Harmonized as EN 61189-5-2:2015.
IEC 61189-5-3:2015	NOTE	Harmonized as EN 61189-5-3:2015.
IEC 61189-5-4:2015	NOTE	Harmonized as EN 61189-5-4:2015.
IEC 61189-6	NOTE	Harmonized as EN 61189-6.
IEC 61190-1-1	NOTE	Harmonized as EN 61190-1-1.
IEC 61190-1-2	NOTE	Harmonized as EN 61190-1-2.
IEC 61190-1-3	NOTE	Harmonized as EN 61190-1-3.

IEC 61249-2-7	NOTE	Harmonized as EN 61249-2-7.
IEC 62137:2004	NOTE	Harmonized as EN 62137:2004.
ISO 9001	NOTE	Harmonized as EN ISO 9001.
ISO 9455-1	NOTE	Harmonized as EN 29455-1.
ISO 9455-2	NOTE	Harmonized as EN 29455-2.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**TEST METHODS FOR ELECTRICAL MATERIALS,
PRINTED BOARDS AND OTHER INTERCONNECTION
STRUCTURES AND ASSEMBLIES –**

**Part 5-1: General test methods for materials and assemblies –
Guidance for printed board 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 61189-5-1 has been prepared by IEC technical committee 91: Electronics assembly technology.

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

CDV	Report on voting
91/1273/CDV	91/1354/RVC

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.

A list of all parts in the IEC 61189 series, published under the general title *Test methods for electrical materials, printed boards and other interconnection structures and assemblies*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

INTRODUCTION

IEC 61189 relates to test methods for printed boards and printed board assemblies, as well as related materials or component robustness, irrespective of their method of manufacture.

The standard is divided into separate parts, covering information for the designer and the test methodology engineer or technician. Each part has a specific focus. Methods are grouped according to their application and numbered sequentially as they are developed and released.

In some instances test methods developed by other technical committees (for example, TC 104) have been reproduced from existing IEC standards in order to provide the reader with a comprehensive set of test methods. When this situation occurs, it will be noted on the specific test method. If the test method is reproduced with minor revisions, those paragraphs that are different are identified.

This part of IEC 61189 contains test methods for evaluating printed board assemblies as well as materials used in the manufacture of electronic assemblies. The methods are self-contained, with sufficient detail and description so as to achieve uniformity and reproducibility in the procedures and test methodologies.

It was decided by TC 91 that the contents of IEC 61189-5 and IEC 61189-6 be merged into a series of documents in the following way:

IEC 61189-5-1, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 5-1: General test methods for materials and assemblies – Guidance for printed board assemblies*

IEC 61189-5-2:2015, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 5-2: General test methods for materials and assemblies – Soldering flux for printed board assemblies*

IEC 61189-5-3:2015, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 5-3: General test methods for materials and assemblies – Soldering paste for printed board assemblies*

IEC 61189-5-4:2015, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 5-4: General test methods for materials and assemblies – Solder alloys and fluxed and non-fluxed solid wire for printed board assemblies*

IEC 61189-5-501:—, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 5-501: General test methods for materials and assemblies – Surface insulation resistance (SIR) testing of solder fluxes¹*

IEC 61189-5-502:—, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 5-502: General test methods for materials and assemblies – SIR testing of assemblies¹*

IEC 61189-5-503:—, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 5-503: General test methods for materials and assemblies – Conductive Anodic Filaments (CAF) testing of circuit boards¹*

IEC 61189-5-504:—, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 5-504: General test methods for materials and assemblies – Process ionic contamination testing¹*

¹ Under consideration.

The tests shown in this standard are grouped according to the following principles:

P: preparation/conditioning methods

V: visual test methods

D: dimensional test methods

C: chemical test methods

M: mechanical test methods

E: electrical test methods

N: environmental test methods

X: miscellaneous test methods including process control tests for the assembly process

To facilitate reference to the tests, to retain consistency of presentation and to provide for future expansion, each test is identified by a number (assigned sequentially) added to the prefix (group code) letter showing the group to which the test method belongs.

The test method numbers have no significance with respect to an eventual test sequence. This responsibility rests with the relevant specification that calls for the method being performed. The relevant specification, in most instances, also describes pass/fail criteria.

The letter and number combinations are for reference purposes to be used by the relevant specification. Thus, "5-2C01" represents the first chemical test method described in IEC 61189-5-2.

In short, in this example, 5-2 is the number of the part of IEC 61189, C is the group of methods, and 01 is the test number.

A list of all test methods included in the above-mentioned documents, is given in Annex A. This annex will be reissued whenever new tests are introduced.

TEST METHODS FOR ELECTRICAL MATERIALS, PRINTED BOARDS AND OTHER INTERCONNECTION STRUCTURES AND ASSEMBLIES –

Part 5-1: General test methods for materials and assemblies – Guidance for printed board assemblies

1 Scope

This part of IEC 61189 is a catalogue of test methods representing methodologies and procedures that can be applied to test printed board assemblies.

This part of IEC 61189 contains the types of content of the IEC 61189-5 series, as well as guidance documents and handbooks for printed board assemblies.

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.

There are no normative references in this document.