Transformers and inductors for use in electronic and telecommunication equipment — Measuring methods and test procedures
National foreword

This British Standard is the UK implementation of EN IEC 61007:2020. It is identical to IEC 61007:2020. It supersedes BS EN 61007:1997, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/51, Transformers, inductors, magnetic components and ferrite materials.

A list of organizations represented on this committee can be obtained on request to its committee manager.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 539 01985 8

ICS 29.100.10; 29.180

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2020.

Amendments/corrigenda issued since publication

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Transformers and inductors for use in electronic and telecommunication equipment - Measuring methods and test procedures

(IEC 61007:2020)
The text of document 51/1319/CDV, future edition 3 of IEC 61007, prepared by IEC/TC 51 "Magnetic components, ferrite and magnetic powder materials" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61007:2020.

The following dates are fixed:

• latest date by which the document has to be implemented at national (dop) 2021-05-24 level by publication of an identical national standard or by endorsement
• latest date by which the national standards conflicting with the (dow) 2023-08-24 document have to be withdrawn

This document supersedes EN 61007:1997 and all of its amendments and corrigenda (if any).

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 61007:2020 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 61000-2-2 NOTE Harmonized as EN 61000-2-2
IEC 61000-3-12 NOTE Harmonized as EN 61000-3-12
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.

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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 61007 has been prepared by IEC technical committee 51: Magnetic components, ferrite and magnetic powder materials.

This third edition cancels and replaces the second edition published in 1994. This edition constitutes a technical revision.

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

a) scope: the application of the scope of IEC 61007 was extended;

b) Clause 2: added new references and updated the references;

c) Clause 3: new definitions were added in 3.3, and in 3.7 the voltage-time product was redefined;
d) test procedures were updated:
   1) addition of test method:
      AC resistance (in 4.4.1.2); short-circuit power test (in 4.4.3.4); efficiency (in 4.4.3.5);
      phase unbalance (in 4.4.5.7); amplitude unbalance (radio frequency) (in 4.4.5.8);
      transformation ratio by impedance (in 4.4.7.1); coefficient of coupling (in 4.4.7.2);
      cross-talk (in 4.4.10);
   2) modification of test method:
      Insulation resistance (an error range of the testing voltage, in 4.4.2.3);
   3) deletion of test method:
      Effective resistance;

e) environmental test procedures: new references were added;

f) Annexes A to G were added.

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

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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.
1 Scope

This document describes a number of tests for use in determining the significant parameters and performance characteristics of transformers and inductors for use in electronics and telecommunication equipment. These test methods are designed primarily for transformers and inductors used in all types of electronics applications that can be involved in any specification for such components. Even though these tests can be useful to the other types of transformers used in power distribution applications in utilities, industry, and others, the tests discussed in this document can supplement or complement the tests but are not intended to replace the tests in standards for transformers. Some of the tests described are intended for qualifying a product for a specific application, while others are test practices used for manufacturing and customer acceptance testing. The test methods described here include those parameters most commonly used in the electronics transformer and inductor industry: electric strength, resistance, power loss, inductance, impedance, balance, transformation ratio and many others used less frequently.

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 (all parts), International Electrotechnical Vocabulary (IEV) (available at www.electropedia.org)

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

IEC 60068-2-1, Environmental testing – Part 2-1: Tests – Tests A: Cold

IEC 60068-2-2, Environmental testing – Part 2-2: Tests – Tests 8: Dry heat

IEC 60068-2-6, Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)

IEC 60068-2-7, Basic environmental testing procedures – Part 2-7: Tests – Test Ga and guidance: Acceleration, steady state


IEC 60068-2-13, Basic environmental testing procedures – Part 2-13: Tests – Test M: Low air pressure

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

IEC 60068-2-17, Basic environmental testing procedure – Part 2-17: Tests – Test Q: Sealing

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