

Cores made of soft magnetic materials - Measuring
methods - Part 3: Magnetic properties at high
excitation level

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

**Cores made of soft magnetic materials - Measuring methods -
Part 3: Magnetic properties at high excitation level
(IEC 62044-3:2023)**

Noyaux en matériaux magnétiques doux - Méthodes de
mesure - Partie 3: Propriétés magnétiques à niveau élevé
d'excitation
(IEC 62044-3:2023)

Kerne aus weichmagnetischen Materialien - Messverfahren
- Teil 3: Messungen der magnetischen Eigenschaften im
Leistungsbereich
(IEC 62044-3:2023)

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European foreword

The text of document 51/1426/CDV, future edition 2 of IEC 62044-3, 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 62044-3:2023.

The following dates are fixed:

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| IEC 60051-1 | NOTE Approved as EN 60051-1 |
| IEC 60205 | NOTE Approved as EN 60205 |
| IEC 60401-3:2015 | NOTE Approved as EN 60401-3:2016 (not modified) |
| IEC 60404-8-6 | NOTE Approved as EN 60404-8-6 |
| IEC 61332:2016 | NOTE Approved as EN 61332:2017 (not modified) |

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Cores made of soft magnetic materials – Measuring methods –
Part 3: Magnetic properties at high excitation level**

**Noyaux en matériaux magnétiques doux – Méthodes de mesure –
Partie 3: Propriétés magnétiques à niveau élevé d'excitation**



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INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Cores made of soft magnetic materials – Measuring methods –
Part 3: Magnetic properties at high excitation level**

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Partie 3: Propriétés magnétiques à niveau élevé d'excitation**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CORES MADE OF SOFT MAGNETIC MATERIALS –
MEASURING METHODS –****Part 3: Magnetic properties at high excitation level****FOREWORD**

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IEC 62044-3 has been prepared by IEC technical committee 51: Magnetic components, ferrite and magnetic powder materials. It is an International Standard.

This second edition cancels and replaces the first edition published in 2000. This edition constitutes a technical revision.

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

- a) addition of Annex F and Annex G.

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

Draft	Report on voting
51/1426/CDV	51/1439/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62044 series, published under the general title *Cores made of soft magnetic materials – Measuring methods*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
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INTRODUCTION

IEC 62044, under the general title *Cores made of soft magnetic materials – Measuring methods*, includes the following parts:

IEC 62044-1: Generic specification

IEC 62044-2: Magnetic properties at low excitation level

IEC 62044-3: Magnetic properties at high excitation level

CORES MADE OF SOFT MAGNETIC MATERIALS – MEASURING METHODS –

Part 3: Magnetic properties at high excitation level

1 Scope

This part of IEC 62044 specifies measuring methods for power loss and amplitude permeability of magnetic cores forming the closed magnetic circuits intended for use at high excitation levels in inductors, chokes, transformers and similar devices for power electronics applications.

The methods given in this document can cover the measurement of magnetic properties for frequencies ranging practically from direct current to 10 MHz, and even possibly higher, for the calorimetric and reflection methods. The applicability of the individual methods to specific frequency ranges is dependent on the level of accuracy that is to be obtained.

The methods in this document are basically the most suitable for sine-wave excitations. Other periodic waveforms can also be used; however, adequate accuracy can only be obtained if the measuring circuitry and instruments used are able to handle and process the amplitudes and phases of the signals involved within the frequency spectrum corresponding to the given magnetic flux density and field strength waveforms with only slightly degraded accuracy.

NOTE It can be necessary for some magnetically soft metallic materials to follow specific general principles, customary for these materials, related to the preparation of specimens and specified calculations. These principles are formulated in IEC 60404-8-6.

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 62044-1:2002, *Cores made of soft magnetic materials – Measuring methods – Part 1: Generic specification*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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