

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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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms, definitions and symbols.....	8
3.1 Terms and definitions.....	8
3.2 Symbols.....	12
4 General requirements for measurements at high excitation level	13
4.1 General statements.....	13
4.1.1 Relation to practice.....	13
4.1.2 Core effective parameters and material properties.....	13
4.1.3 Reproducibility of the magnetic state	13
4.2 Measuring coil	13
4.2.1 General	13
4.2.2 Number of turns.....	14
4.2.3 Single winding and double winding	14
4.3 Mounting of cores consisting of more than one part	15
4.4 Measuring equipment.....	15
5 Specimens.....	18
6 Measuring procedures	18
6.1 General procedure	18
6.2 Measuring method for the effective amplitude permeability	19
6.2.1 Purpose.....	19
6.2.2 Principle of the measurement	19
6.2.3 Circuit and equipment	19
6.2.4 Measuring procedure	19
6.2.5 Calculation	20
6.3 Measuring methods for the power loss	20
6.3.1 Purpose.....	20
6.3.2 Methods and principles of the measurements	20
7 Information to be stated.....	23
8 Test report.....	24
Annex A (informative) Basic circuits and related equipment for the measurement of amplitude permeability	25
Annex B (informative) Root-mean-square method for the measurement of power loss – Example of a circuit and related procedure	27
B.1 Method of measurement	27
B.2 Measuring coil	27
B.3 Measuring equipment.....	28
B.4 Measuring procedure	28
B.5 Pulse measurement and accuracy.....	29
Annex C (informative) Multiplying methods for the measurement of power loss – Basic circuits and related measurement procedures	30
C.1 Basic circuits	30
C.2 Requirements	31
C.3 Measuring coil	31

C.4	Accuracy	31
C.5	V-A-W (volt-ampere-watt) meter method	32
C.6	Impedance analyzer method	32
C.7	Digitizing method	32
C.8	Vector spectrum method	33
C.9	Cross-power method	33
Annex D (informative) Reflection method for the measurement of power loss – Basic circuit and related measurement procedures		34
D.1	Basic circuit	34
D.2	Requirements	34
D.3	Measuring coil	34
D.4	Measuring procedure and accuracy	35
Annex E (informative) Calorimetric measurement methods for the measurement of power loss		36
E.1	Basic circuit	36
E.2	Requirements	37
E.3	Measuring coil	37
E.4	Accuracy	37
E.5	Measurements at thermal equilibrium	37
E.5.1	General	37
E.5.2	Measurement across calibrated thermal resistance	37
E.5.3	Measurement by matching the temperature rise in the core and resistor	38
E.6	Measurements at non-thermal equilibrium	38
Annex F (normative) Magnetic properties under pulse condition		39
F.1	Object	39
F.2	Measurement methods	39
F.3	Principle of the methods	39
F.4	Specimens	39
F.5	Measuring coil	39
F.6	Measuring equipment	40
F.7	Measuring procedure	41
F.7.1	General	41
F.7.2	Measurement of pulse inductance factor and magnetizing current	42
F.7.3	Measurement of the non-linearity of the magnetizing current	43
F.8	Calculation	44
Annex G (informative) Examples of circuits for pulse measurements		46
Bibliography		47
Figure 1 – Pulse excitation without biasing field		10
Figure 2 – Pulse excitation with biasing field		10
Figure A.1 – Basic circuits for the measurement of amplitude permeability		26
Figure B.1 – Example of a measuring circuit for the RMS method		27
Figure C.1 – Basic circuits for multiplying methods		31
Figure D.1 – Basic circuit		34
Figure E.1 – Basic circuit and related measurement procedures – Measurement set-up		36
Figure F.1 – Voltage pulse parameters		42
Figure F.2 – Typical measuring waveforms		43

Figure F.3 – Non-linearity of magnetizing current.....44

Figure G.1 – Measurement without bias and with single pulses.....46

Figure G.2 – Measurement with bias and with repeated pulses46

Table 1 – Some multiplying methods and related domains of excitation waveforms,
acquisition, processing21

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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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,
- withdrawn,
- replaced by a revised edition, or
- amended.

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

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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 application.

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.

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