INTERNATIONAL STANDARD

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Gyromagnetic materials intended for application at microwave frequencies – Measuring methods for properties

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

GYROMAGNETIC MATERIALS INTENDED FOR APPLICATION AT MICROWAVE FREQUENCIES – MEASURING METHODS FOR PROPERTIES

FOREWORD

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International Standard IEC 60556 has been prepared by IEC technical committee 51: Magnetic components and ferrite materials.

This second edition cancels and replaces the first edition, published in 1982, its amendment 1 (1997) and amendment 2 (2004). This edition constitutes a technical revision.

This second edition is a consolidation of the first edition and its amendments 1 and 2. It includes editorial improvements as well as improvements to the figures.

This standard is to be read in conjunction with IEC 60392.

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

FDIS	Report on voting
51/850/FDIS	51/859/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.

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- withdrawn;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.

GYROMAGNETIC MATERIALS INTENDED FOR APPLICATION AT MICROWAVE FREQUENCIES – MEASURING METHODS FOR PROPERTIES

1 Scope

This International Standard describes methods of measuring the properties used to specify polycrystalline microwave ferrites in accordance with IEC 60392 and for general use in ferrite technology. These measuring methods are intended for the investigation of materials, generally referred to as ferrites, for application at microwave frequencies.

Single crystals and thin films generally fall outside the scope of this standard.

NOTE 1 For the purposes of this standard, the words "ferrite" and "microwave" are used in a broad sense:

– by "ferrites" is meant not only magneto-dielectric chemical components having a spinel crystal structure, but also materials with garnet and hexagonal structures;

– the "microwave" region is taken to include wavelengths approximately between 1 m and 1 mm, the main interest being concentrated on the region 0,3 m to 10 mm.

NOTE 2 Examples of components employing microwave ferrites are non-reciprocal devices such as circulators, isolators and non-reciprocal phase-shifters. These constitute the major field of application, but the materials may be used in reciprocal devices as well, for example, modulators and (reciprocal) phase-shifters. Other applications include gyromagnetic filters, limiters and more sophisticated devices, such as parametric amplifiers.

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 amendment) applies.

IEC 60050-221, *International Electrotechnical Vocabulary (IEV) – Part 221: Magnetic materials components*

IEC 60205:2006, *Calculation of the effective parameters of magnetic piece parts*

IEC 60392:1972, *Guide for the drafting of specifications for microwave ferrites*