Irish Standard
I.S. EN 62431:2008

Reflectivity of electromagnetic wave absorbers in millimetre wave frequency - Measurement methods (IEC 62431:2008 (EQV))

I.S. EN 62431:2008

Incorporating amendments/corrigenda issued since publication:

This document replaces:	*This document is based on:* EN 62431:2008	*Published:* 4 December, 2008

This document was published under the authority of the NSAI and comes into effect on:

12 January, 2010

ICS number:
19.080
17.020
29.120.10

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I.S. EN 62431:2008

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62431

December 2008

ICS 19.080; 17.020; 29.120.10

English version

Reflectivity of electromagnetic wave absorbers in millimetre wave frequency - Measurement methods

(IEC 62431:2008)

Réflectivité des absorbeurs d'ondes électromagnétiques dans la plage des fréquences millimétriques - Méthodes de mesure
(CEI 62431:2008)

Verfahren zur Messung des Reflexionsvermögens von Absorbern für elektromagnetische Wellen im Millimeterwellen-Frequenzbereich
(IEC 62431:2008)

This European Standard was approved by CENELEC on 2008-11-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

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Ref. No. EN 62431:2008 E

Foreword

The text of document 46F/65/CDV, future edition 1 of IEC 62431, prepared by SC 46F, R.F. and microwave passive components, of IEC TC 46, Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories, was submitted to the IEC-CENELEC Parallel Unique Acceptance Procedure and was approved by CENELEC as EN 62431 on 2008-11-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2009-08-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2011-11-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 62431:2008 was approved by CENELEC as a European Standard without any modification.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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 amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
ISO/IEC 17025	- [1)]	General requirements for the competence of testing and calibration laboratories	EN ISO/IEC 17025	2005 [2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

REFLECTIVITY OF ELECTROMAGNETIC WAVE ABSORBERS IN MILLIMETRE WAVE FREQUENCY – MEASUREMENT METHODS

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 62431 has been prepared by subcommittee SC46F: RF and microwave passive components, of IEC technical committee 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories.

IEC 62431 replaces and cancels IEC/PAS 62431 with corrections of obvious errors as noted in 46F/29A/RVN.

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

CDV	Report on voting
46F/65/CDV	46F/72/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.

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.

REFLECTIVITY OF ELECTROMAGNETIC WAVE ABSORBERS IN MILLIMETRE WAVE FREQUENCY – MEASUREMENT METHODS

1 Scope

This International Standard specifies the measurement methods for the reflectivity of electromagnetic wave absorbers (EMA) for the normal incident, oblique incident and each polarized wave in the millimetre-wave range. In addition, these methods are also equally effective for the reflectivity measurement of other materials:

– measurement frequency range: 30 GHz to 300 GHz;
– reflectivity: 0 dB to –50 dB;
– incident angle: 0° to 80°.

NOTE This standard is applicable not only to those EMA which are widely used as counter-measures against communication faults, radio interference etc. , but also to those used in an anechoic chamber in some cases. EMAs may be any kind of material, and may have any arbitrary shape, configuration, or layered structure as pointed out below.

Material: Conductive material, dielectric material, magnetic material.

Shape: planar-, pyramidal-, wedge-type, or other specific shapes.

Layer structure: single layer, multi layers, or graded-index material.

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 amendments) applies.

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms, definitions and acronyms

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

3.1 Terms and definitions

3.1.1
ambient level
the value of radiation power or noise which exists when no measurement is being carried out at the experiment site

3.1.2
associated equipment
an apparatus or product connected for convenience or operation of the equipment

3.1.3
beam diameter
the diameter where the electric field strength decreases by 3 dB from the centre of the focused beam