IEC 60437

Edition 3.0 2023-12
COMMENTED VERSION

INTERNATIONAL STANDARD

colour inside

Radio interference test on high-voltage insulators

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.080.10

ISBN 978-2-8322-8062-1

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RADIO INTERFERENCE TEST ON HIGH-VOLTAGE INSULATORS

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This commented version (CMV) of the official standard IEC 60437:2023 edition 3.0 allows the user to identify the changes made to the previous IEC 60437:1997 edition 2.0. Furthermore, comments from IEC TC 36 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 60437 has been prepared by IEC technical committee 36: Insulators. It is an International Standard.

This third edition cancels and replaces the second edition published in 1997. This edition constitutes a technical revision.

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

a) Composite station post and composite hollow core station post insulators have been included;
b) All paragraphs of Samples test were actualized;
c) Sample test fast procedure was introduced.

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

Draft	Report on voting
36/585/FDIS	36/591/RVD

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.

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INTRODUCTION

The first edition of IEC 60437 presented the available information on a radio interference test on high-voltage insulators as a technical report. This allowed further experience in conducting the test and the interpretation of results to be gained.

The second edition incorporated that experience in the form of an International Standard, which gave the recommended procedures for a radio interference test on high-voltage insulators.

This third edition incorporates clarification of test arrangements and the number of insulators to be tested for composite station posts, composite hollow core station posts and hybrid insulators. This edition also incorporates clarification on the fast method for the sample test.

RADIO INTERFERENCE TEST ON HIGH-VOLTAGE INSULATORS

1 Scope

This International Standard specifies the procedure for a radio interference (RI) test carried out in a laboratory on clean and dry insulators at a frequency of 0,5 MHz or 1 MHz or, alternatively, at other frequencies between 0,5 MHz and 2 MHz.

This document applies to insulators for use on AC or DC overhead power lines and overhead traction lines with a nominal voltage greater than 1 000 V. 1

In service the RI characteristics of an insulator may be modified by the ambient conditions, particularly rainfall and other moisture, and by pollution. It is not considered feasible to specify reproducible test conditions to simulate a range of ambient conditions. Hence only tests on clean and dry insulators are specified in this document.

NOTE The effects of insulator surface conditions, including pollution, are presented in ~~Amendment 1 of~~ CISPR 18-2:2017, clause 6.3.

2 Normative references 2

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(471):1984, *International Electrotechnical Vocabulary (IEV) – Chapter 471: Insulators*~~

IEC 60060-1:~~1989~~2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60137:~~1995~~2017, *Insulated bushings for alternating voltages above 1 000 V*

IEC 60168:1994, *Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1 000 V*
IEC 60168:1994/AMD1:1997
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IEC 60383-1:~~1993~~2023, *Insulators for overhead lines with a nominal voltage above 1 000 V – Part 1: Ceramic or glass insulator units for a.c. systems – Definitions, test methods and acceptance criteria*

IEC 60383-2:1993, *Insulators for overhead lines with a nominal voltage above 1 000 V – Part 2: Insulator strings and insulator sets for a.c. systems – Definitions, test methods and acceptance criteria*

IEC 61109:2008, *Insulators for overhead lines – Composite suspension and tension insulators for a.c. systems with a nominal voltage greater than 1 000 V – Definitions, test methods and acceptance criteria*

IEC 61462:2007, *Composite hollow insulators – Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1 000 V – Definitions, test methods, acceptance criteria and design recommendations*

IEC 61952:2008, *Insulators for overhead lines – Composite line post insulators for A.C. systems with a nominal voltage greater than 1 000 V – Definitions, test methods and acceptance criteria*

IEC 62231:2006, *Composite station post insulators for substations with a.c. voltages greater than 1 000 V up to 245 kV – Definitions, test methods and acceptance criteria*

~~CISPR 16-1:1993, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1: Radio disturbance and immunity measuring apparatus*~~

CISPR 16-1-1:2019, *Specification for radio disturbance and immunity measuring apparatus and methods – Part 1-1: Radio disturbance and immunity measuring apparatus – Measuring apparatus*

CISPR 18-2:~~1986~~2017, *Radio interference characteristics of overhead power lines and high-voltage equipment – Part 2: Methods of measurement and procedure for determining limits* ~~Amendment 1 (1993)~~

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Radio interference test on high-voltage insulators

Essai de perturbations radioélectriques des isolateurs pour haute tension

IEC 60437:2023-12(en-fr)

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ESSAI DE PERTURBATIONS RADIOÉLECTRIQUES DES ISOLATEURS POUR HAUTE TENSION

AVANT-PROPOS

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L'IEC 60437 a été établie par le comité d'études 36 de l'IEC: Isolateurs. Il s'agit d'une Norme internationale.

Cette troisième édition annule et remplace la deuxième édition parue en 1997. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) Introduction des supports isolants composites et des supports isolants composites creux;
b) Actualisation de tous les alinéas portant sur les essais individuels;
c) Introduction d'une procédure rapide d'essai individuel.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
36/585/FDIS	36/591/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Le présent document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications.

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INTRODUCTION

La première édition de l'IEC 60437 présentait les informations disponibles sur l'essai de perturbations radioélectriques des isolateurs pour haute tension sous la forme d'un rapport technique. Cela a permis d'acquérir plus d'expérience dans la conduite de l'essai et d'interpréter les résultats à obtenir.

La deuxième édition incorporait l'expérience acquise sous la forme d'une Norme internationale, qui a donné les procédures recommandées pour un essai de perturbations radioélectriques des isolateurs pour haute tension.

La présente troisième édition incorpore une clarification des dispositions et le nombre d'isolateurs à soumettre à l'essai pour les supports isolants composites, composites creux et hybrides. Cette édition incorpore aussi une clarification de la méthode rapide pour l'essai individuel.

ESSAI DE PERTURBATIONS RADIOÉLECTRIQUES DES ISOLATEURS POUR HAUTE TENSION

1 Domaine d'application

La présente Norme internationale spécifie la procédure pour un essai de perturbations radioélectriques effectué en laboratoire sur des isolateurs propres et secs à une fréquence de 0,5 MHz ou 1 MHz ou, en variante, à d'autres fréquences comprises entre 0,5 MHz et 2 MHz.

Le présent document s'applique aux isolateurs destinés à des lignes aériennes en courant alternatif ou continu et des lignes aériennes de traction de tension nominale supérieure à 1 000 V.

En service, les caractéristiques des perturbations radioélectriques d'un isolateur peuvent être modifiées par les conditions ambiantes, particulièrement par la pluie, l'humidité due à d'autres influences et par la pollution. On considère qu'il est impossible de spécifier en pratique des conditions d'essai reproductibles afin de simuler une gamme de conditions ambiantes. En conséquence, seuls des essais sur des isolateurs propres et secs sont spécifiés dans le présent document.

NOTE Les effets des conditions de surface de l'isolateur, y compris la pollution, sont présentés dans la CISPR 18-2:2017, paragraphe 6.3.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60060-1:2010, *Technique des essais à haute tension – Partie 1: Définitions et exigences générales*

IEC 60137:2017, *Traversées isolées pour tensions alternatives supérieures à 1 000 V*

IEC 60168:1994, *Essais des supports isolants d'intérieur et d'extérieur, en matière céramique ou en verre, destinés à des installations de tension nominale supérieure à 1 000 V*
IEC 60168:1994/AMD1:1997
IEC 60168:1994/AMD2:2000

IEC 60383-1:2023, *Isolateurs pour lignes aériennes de tension nominale supérieure à 1 000 V – Partie 1: Éléments d'isolateurs en matière céramique ou en verre pour systèmes à courant alternatif – Définitions, méthodes d'essai et critères d'acceptation*

IEC 60383-2:1993, *Isolateurs pour lignes aériennes de tension nominale supérieure à 1 000 V – Partie 2: Chaînes d'isolateurs et chaînes d'isolateurs équipées pour systèmes à courant alternatif – Définitions, méthodes d'essai et critères d'acceptation*

IEC 61109:2008, *Isolateurs pour lignes aériennes – Isolateurs composites de suspension et d'ancrage destinés aux systèmes à courant alternatif de tension nominale supérieure à 1 000 V – Définitions, méthodes d'essai et critères d'acceptation*

IEC 61462:2007, *Isolateurs composites creux – Isolateurs avec ou sans pression interne pour utilisation dans des appareillages électriques de tensions nominales supérieures à 1 000 V – Définitions, méthodes d'essais, critères d'acceptation et recommandations de conception*

IEC 61952:2008, *Isolateurs pour lignes aériennes – Isolateurs composites rigides à socle pour systèmes à courant alternatif de tension nominale supérieure à 1 000 V – Définitions, méthodes d'essai et critères d'acceptation*

IEC 62231:2006, *Isolateurs supports composites rigides à socle destinés aux postes à courant alternatif de tensions supérieures à 1 000 V jusqu'à 245 kV – Définitions, méthodes d'essai et critères d'acceptation*

CISPR 16-1-1:2019, *Spécifications des méthodes et des appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques – Partie 1-1: Appareils de mesure des perturbations radioélectriques et de l'immunité aux perturbations radioélectriques – Appareils de mesure*

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