



GUIDE 115

GUIDE 115

**Application of uncertainty of measurement to conformity assessment activities
in the electrotechnical sector**

**Application de l'incertitude de mesure aux activités d'évaluation de la
conformité dans le secteur électrotechnique**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	3
INTRODUCTION.....	4
1 Scope.....	5
2 Reference documents.....	5
3 Terms and definitions.....	5
4 Application of uncertainty of measurement principles.....	6
4.1 General.....	6
4.2 Uncertainty of measurement principles.....	7
4.3 Background.....	7
4.4 Uncertainty of measurement principles – Application of procedures.....	8
4.5 Conclusion.....	10
5 Guidance on making uncertainty of measurement calculations including examples of how to perform the calculations.....	10
5.1 General principles.....	10
5.2 Summary of steps when estimating uncertainty.....	11
5.3 Simple example – Estimation of measurement uncertainty for a temperature-rise test with thermocouples.....	14
Annex A (informative) Uncertainty of measurement calculations for product conformity assessment testing – Examples 1 to 6.....	16

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**APPLICATION OF UNCERTAINTY OF MEASUREMENT
TO CONFORMITY ASSESSMENT ACTIVITIES
IN THE ELECTROTECHNICAL SECTOR**

FOREWORD

This first edition of IEC Guide 115 has been prepared in accordance with Annex A of Part 1 of the ISO/IEC Directives by the IECEE/CTL.

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

Approval document	Report on voting
C/1446/DV	C/1457/RV

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

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INTRODUCTION

This Guide has been prepared by the IECEE Committee of Testing Laboratories (CTL) to provide guidance on the practical application of the measurement uncertainty requirements of ISO/IEC 17025 to the electrical safety testing conducted within the IECEE CB Scheme.

The IECEE CB Scheme is a multilateral, international agreement, among over 40 countries and some 60 national certification bodies, for the acceptance of test reports on electrical products tested to IEC standards.

The aim of the CTL is, among other tasks, to define a common understanding of the test methodology with regard to the IEC standards as well as to ensure and continually improve the repeatability and reproducibility of test results among the member laboratories.

The practical approach to measurement uncertainty outlined in this Guide has been adopted for use in the IECEE Schemes, and is also extensively used around the world by testing laboratories engaged in testing electrical products to national safety standards.

This guide is of particular interest to the following IEC Technical Committees which may decide to make use of it if necessary:

TECHNICAL COMMITTEE 13: EQUIPMENT FOR ELECTRICAL ENERGY MEASUREMENT, TARIFF AND LOAD CONTROL

TECHNICAL COMMITTEE 17: SWITCHGEAR AND CONTROL GEAR

TECHNICAL COMMITTEE 18: ELECTRICAL INSTALLATIONS OF SHIPS AND OF MOBILE AND FIXED OFFSHORE UNITS

TECHNICAL COMMITTEE 20: ELECTRIC CABLES

TECHNICAL COMMITTEE 21: SECONDARY CELLS AND BATTERIES

TECHNICAL COMMITTEE 22: POWER ELECTRONIC SYSTEMS AND EQUIPMENT

TECHNICAL COMMITTEE 23: ELECTRICAL ACCESSORIES

TECHNICAL COMMITTEE 32: FUSES

TECHNICAL COMMITTEE 33: POWER CAPACITORS

TECHNICAL COMMITTEE 34: LAMPS AND RELATED EQUIPMENT

TECHNICAL COMMITTEE 35: PRIMARY CELLS AND BATTERIES

TECHNICAL COMMITTEE 38: INSTRUMENT TRANSFORMERS

TECHNICAL COMMITTEE 39: ELECTRONIC TUBES

TECHNICAL COMMITTEE 40: CAPACITORS AND RESISTORS FOR ELECTRONIC EQUIPMENT

TECHNICAL COMMITTEE 47: SEMICONDUCTOR DEVICES

TECHNICAL COMMITTEE 59: PERFORMANCE OF HOUSEHOLD ELECTRICAL APPLIANCES

TECHNICAL COMMITTEE 61: SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES

TECHNICAL COMMITTEE 62: ELECTRICAL EQUIPMENT IN MEDICAL PRACTICE

TECHNICAL COMMITTEE 64: ELECTRICAL INSTALLATIONS AND PROTECTION AGAINST ELECTRIC SHOCK

TECHNICAL COMMITTEE 65: INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL

TECHNICAL COMMITTEE 66: SAFETY OF MEASURING, CONTROL AND LABORATORY EQUIPMENT

TECHNICAL COMMITTEE 76: OPTICAL RADIATION SAFETY AND LASER EQUIPMENT

TECHNICAL COMMITTEE 77: ELECTROMAGNETIC COMPATIBILITY

TECHNICAL COMMITTEE 78: LIVE WORKING

TECHNICAL COMMITTEE 80: MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS

TECHNICAL COMMITTEE 82: SOLAR PHOTOVOLTAIC ENERGY SYSTEMS

APPLICATION OF UNCERTAINTY OF MEASUREMENT TO CONFORMITY ASSESSMENT ACTIVITIES IN THE ELECTROTECHNICAL SECTOR

1 Scope

This Guide presents a practical approach to the application of uncertainty of measurement to conformity assessment activities in the electrotechnical sector. It is specifically conceived for use in IECCE Schemes as well as by testing laboratories engaged in testing electrical products to national safety standards. Clause 4 describes the application of uncertainty of measurements principles. Clause 5 provides guidance on making uncertainty of measurement calculations. Annex A gives some examples relating to uncertainty of measurement calculations for product conformity assessment testing.

2 Reference documents

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

Guide to the expression of uncertainty in measurement (GUM) (1995)
[BIPM, IEC, IFCC, ISO, IUPAC, IUPAP, OIML]

International vocabulary of basic and general terms in metrology (VIM) (1996)
[BIPM, IEC, IFCC, ISO, IUPAC, IUPAP, OIML]

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SOMMAIRE

AVANT-PROPOS.....	27
INTRODUCTION.....	28
1 Domaine d'application	29
2 Documents de référence.....	29
3 Termes et définitions	29
4 Application des principes de l'incertitude de mesure.....	30
4.1 Généralités.....	30
4.2 Principes de l'incertitude de mesure	31
4.3 Contexte	31
4.4 Principes de l'incertitude de mesure – Application des procédures	32
4.5 Conclusion	34
5 Lignes directrices pour la réalisation des calculs de l'incertitude de mesure avec des exemples de calculs.....	34
5.1 Principes généraux.....	34
5.2 Résumé des étapes pour l'estimation d'une incertitude	35
5.3 Exemple simple – Estimation de l'incertitude de mesure pour un essai d'échauffement avec des thermocouples.....	38
Annexe A (informative) Calculs de l'incertitude de mesure pour les essais d'évaluation de la conformité des produits – Exemples 1 à 6.....	40

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

**APPLICATION DE L'INCERTITUDE DE MESURE
AUX ACTIVITÉS D'ÉVALUATION DE LA CONFORMITÉ
DANS LE SECTEUR ÉLECTROTECHNIQUE**

AVANT-PROPOS

Cette première édition du Guide 115 de la CEI a été établie par le CTL de l'IECEE conformément à la procédure donnée à l'Annexe A de la Partie 1 des Directives ISO/CEI.

Le texte de ce Guide est issu des documents suivants:

Document d'approbation	Rapport de vote
C/1446/DV	C/1457/RV

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

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