PD CLC/TR 50619:2014

BSI Standards Publication

Guidance on how to conduct Round Robin Tests

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National foreword

This Published Document is the UK implementation of CLC/TR 50619:2014.

The UK participation in its preparation was entrusted to Technical Committee CPL/59, Performance of household electrical appliances.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2014

ISBN 978 0 580 83408 0
ICS 03.120.20; 19.020

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 June 2014.

Amendments/corrigenda issued since publication

Date	Text affected

TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CLC/TR 50619

February 2014

ICS 03.120.20; 19.020

English version

Guidance on how to conduct Round Robin Tests

Guide de conduite des essais Round Robin

Leitfaden zur Durchführung von Ringversuchen

This Technical Report was approved by CENELEC on 2014-01-24.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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. CLC/TR 50619:2014 E

Contents

Page

Foreword

This document (CLC/TR 50619:2014) has been prepared by CLC/TC TC59X "Performance of household and similar electrical appliances".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Introduction

It is the responsibility of each standardisation committee under TC 59X to establish the repeatability and reproducibility of the measurement standards developed.

Results from inter-laboratory comparisons are important for

a) identification of interlaboratory differences;

b) establishment of the effectiveness and comparability of test or measurement methods;

c) validation of uncertainties;

d) evaluation of the performance of laboratories for specific tests or measurements and monitoring laboratories' continuing performance;

e) identification of problems in laboratories and initiation of actions for improvement which, for example, may be related to inadequate test or measurement procedures, effectiveness of staff training and supervision, or calibration of equipment; and

f) education of participating laboratories based on the outcomes of such comparisons.

The need for ongoing confidence in laboratory performance is not only essential for laboratories and their contractors but also for other interested parties, such as regulators, laboratory accreditation bodies and other organisations that specify requirements for laboratories. EN ISO/IEC 17011 requires accreditation bodies to take account of laboratories' participation and performance in proficiency testing.

With this respect round robin testing was widely made in the past by TC59X for development of measurement procedures on purpose of EU regulatory measures on Labeling and Ecodesign. Round robin test results have been widely taken into account in the establishment of regulations, in defining tolerance levels for verification of declared values and/or limits.

This Technical Report is intended to provide a consistent basis for performing round robin testing. It gives guidance to all interested parties to determine the competence among each other. It provides common ground for reliable statistical data (repeatability and reproducibility levels, etc.) as needed for regulation purposes (like for Labeling and Ecodesign).

1 Scope

This Technical Report provides guidance for carrying out round robin tests (RRT) and hence for the determination of levels of repeatability (intra-laboratory variability) and reproducibility (inter-laboratory variability).

This Technical Report can also be used to verify the measurement methods, to improve the measurement method, and to qualify laboratories.

It is not applicable for the determination of production variation for a particular product.

General advice on proficiency testing of laboratories is given in EN 17043. This Technical Report can be used in addition to this document.

NOTE The repeatability and reproducibility levels are important factors for the establishment of uncertainty margins of the measurement methods and for the definition of tolerances levels in verification schemes.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies..

EN ISO/IEC 17043:2010, *Conformity assessment — General requirements for proficiency testing (ISO/IEC 17043)*

IEC/TR 61923, *Household electrical appliances — Method of measuring performance — Assessment of repeatability and reproducibility*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO/IEC 17043:2010 and the following apply.

3.1
contracting body
organisation or individual for which a round robin testing is provided through a contractual arrangement

[SOURCE: EN ISO/IEC 17043:2010, definition 3.3, modified]

3.2
repeatability
precision under repeatability conditions

Note1 to entry: Repeatability includes the variability of the appliance under test.

[SOURCE: ISO 3534-1, definition 3.15]

3.3
reproducibility
precision under reproducibility conditions

Note 1 to entry: Reproducibility includes repeatability

[SOURCE: ISO 3534-1, definition 3.20]

3.4
round robin testing
process in which one or more items is tested according to a specific protocol by a number of different laboratories