



BSI Standards Publication

Household and similar electrical appliances - Test code for the determination of airborne acoustical noise

Part 3: Procedure for determining and verifying declared noise emission values

National foreword

This British Standard is the UK implementation of EN 60704-3:2019. It is identical to IEC 60704-3:2019. It supersedes BS EN 60704-3:2006 which is withdrawn.

The CENELEC common modifications have been implemented at the appropriate places in the text. The start and finish of each common modification is indicated in the text by tags **[C]** **[C]**.

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.

© The British Standards Institution 2019
Published by BSI Standards Limited 2019

ISBN 978 0 580 92712 6

ICS 17.140.20; 25.040.40

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

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2019.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

EUROPEAN STANDARD

EN 60704-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2019

ICS 17.120.20; 97.040

Supersedes EN 60704-3:2006 and all of its
amendments and corrigenda (if any)

English Version

Household and similar electrical appliances - Test code for the
determination of airborne acoustical noise - Part 3: Procedure for
determining and verifying declared noise emission values
(IEC 60704-3:2019)

Appareils électrodomestiques et analogues - Code d'essai
pour la détermination du bruit aérien - Partie 3: Méthode de
détermination et de vérification des valeurs déclarées
d'émission sonore
(IEC 60704-3:2019)

Elektrische Geräte für den Hausgebrauch und ähnliche
Zwecke - Prüfvorschrift für die Bestimmung der
Luftschallemission - Teil 3: Verfahren zur Bestimmung und
Nachprüfung angegebener Geräuschemissionswerte
(IEC 60704-3:2019)

This European Standard was approved by CENELEC on 2019-07-02. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 59/675/CDV, future edition 3 of IEC 60704-3, prepared by IEC/TC 59 "Performance of household electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60704-3:2019.

A draft amendment, which covers common modifications to IEC 60704-3 (59/675/CDV), was prepared by CLC/TC 59X "Performance of household and similar electrical appliances" and approved by CENELEC.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-07-02
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2022-07-02

EN 60704-3:2019 supersedes EN 60704-3:2006 and all of its amendments and corrigenda (if any).

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

Endorsement notice

The text of the International Standard IEC 60704-3:2019 was approved by CENELEC as a European Standard with agreed common modifications.

CONTENTS

FOREWORD	3
INTRODUCTION	5
1 Scope	6
2 Normative references	6
3 Terms, definitions and calculations	6
3.1 Terms and definitions	6
3.2 Calculations	11
4 General	12
4.1 Test method	12
4.2 Values and symbols	12
4.3 Reference standard deviation	13
5 Verification of declared noise emission values	13
5.1 Basis of the procedure	13
5.2 Verification procedure	14
6 Determination of noise emission values for declaration	14
6.1 Basis of the procedure	14
6.2 Determination procedure	14
6.3 Presentation of noise emission values	14
Annex A (normative) Noise emission of household appliances – Standard deviations	16
Annex B (informative) Verification of noise emission values – Examples	17
B.1 Example 1	17
B.2 Example 2	17
Annex C (informative) Determination of noise emission values – Examples	18
C.1 Example 1	18
C.2 Example 2	18
C.3 Example 3	19
Bibliography	20
Figure 1 – Quantile of the standardized distribution	13
Table A.1 – Standard deviation	16
Table C.1 – Calculated noise emission values as a function of the total standard deviation σ_t and the probability of acceptance P_a as assumed by the labeller	18

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
TEST CODE FOR THE DETERMINATION OF AIRBORNE
ACOUSTICAL NOISE –****Part 3: Procedure for determining and verifying
declared noise emission values**

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60704-3 has been prepared by IEC technical committee 59: Performance of household electrical appliances.

IEC 60704-1:2010 has served as a basis for the elaboration of this standard.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision. It includes the following significant technical changes with respect to the previous edition:

- a) in Annex A, standard deviations that are now specified for various appliance categories in the parts of IEC 60704-2 have been excluded from Table A.1;
- b) furthermore, this edition makes reference to new standards and is implementing ISO/IEC Directives, Part 2 in a more accurate manner.

Standard deviations specified in part 2 documents of the IEC 60704 series supersede the values given in Table A.1.

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

CDV	Report on voting
59/675/CDV	59/680A/RVC

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This International Standard is to be used in conjunction with IEC 60704-1:2010 and the latest edition of IEC 60704-2 (all parts).

A list of all parts in the IEC 60704 series, published under the general title *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

INTRODUCTION

A comprehensive and correct declaration of noise emission is very helpful to enable the potential buyer to make a good choice between appliances of the same category (serving for the same purpose) of different makes or for different models.

In order to ensure a correct declaration of noise emission values, this part of IEC 60704 describes a simple method for verifying declared values and provides information for determining the noise emission values.

Different countries are implementing different market surveillance strategies. This document is not implementing a mandatory market surveillance strategy.

☒ Requirements on noise are requested in European delegated regulations supplementing Regulation (EU) 2017/1369 and regulations implementing EU Directive on ecodesign (2009/125/EC). Verification of noise is set out in these regulations also. Commission delegated regulation (EU) 2017/254 and Commission regulation (EU) 2016/2282 set out requirements on the use of tolerances in verification procedures. These requirements are different from the statistical approach laid down in standard IEC 60704-3:2019. Therefore, there is an addition to Clause 5.1. For determination purpose Clause 6 provides an option. Caution is to be taken as the statistical approach is not aligned with requirements set out in the EU regulations on verification. ☒

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – TEST CODE FOR THE DETERMINATION OF AIRBORNE ACOUSTICAL NOISE –

Part 3: Procedure for determining and verifying declared noise emission values

1 Scope

This part of IEC 60704 describes procedures for determining and verifying the declared values of the noise emitted by household and similar appliances.

It applies to all categories of household and similar electrical appliances covered by IEC 60704-1 and all parts of IEC 60704-2, which include particular requirements for special categories of appliances.

It applies to appliances being produced in quantity, such as in batches, series or lots, which are manufactured to the same technical specification and characterized by the same declared value of noise emission.

This part of IEC 60704:

- considers the term "declaration" to include all means for providing information on the noise emission values to potential users (consumers) of the appliances; this includes labels, brochures, advertisements, commercial and technical information papers, etc.;
- considers the declaration for appliances manufactured by mass production;
- specifies a simple statistical method for verifying the declared values by investigating a sample of only three appliances.

2 Normative references

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 60704-1:2010, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 1: General requirements*

IEC 60704-2 (all parts), *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 2: Particular requirements*

ISO 3534-1:2006, *Statistics – Vocabulary and symbols – Part 1: Probability and general statistical terms*

ISO 7574-4:1985, *Acoustics – Statistical methods for determining and verifying stated noise emission values of machinery and equipment – Part 4: Methods for stated values for batches of machines*

3 Terms, definitions and calculations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60704-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses: