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## Elektriska hushållsapparater och liknande bruksföremål – Provningsmetod för bestämning av luftburet buller – Del 2-3: Särskilda fordringar på diskmaskiner

*Household and similar electrical appliances –  
Test code for the determination of airborne acoustical noise –  
Part 2-3: Particular requirements for dishwashers*

Som svensk standard gäller europastandarden EN 60704-2-3:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60704-2-3:2019.

### Nationellt förord

Europastandarden EN 60704-2-3:2019

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60704-2-3, Third edition, 2017 - Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 2-3: Particular requirements for dishwashers**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 60704-1, utgåva 3, 2010.

Tidigare fastställd svensk standard SS-EN 60704-2-3, utgåva 2, 2002 och SS-EN 60704-2-3/A1, utgåva 1, 2005, gäller ej fr o m 2022-07-19.

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Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

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SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

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Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

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English Version

Household and similar electrical appliances - Test code for the  
determination of airborne acoustical noise - Part 2-3: Particular  
requirements for dishwashers  
(IEC 60704-2-3:2017)

Appareils électrodomestiques et analogues - Code d'essai  
pour la détermination du bruit aérien - Partie 2-3: Règles  
particulières pour les lave-vaisselle  
(IEC 60704-2-3:2017)

Elektrische Geräte für den Hausgebrauch und ähnliche  
Zwecke - Prüfvorschrift für die Bestimmung der  
Luftschallemission - Teil 2-3: Besondere Anforderungen für  
Geschirrspülmaschinen  
(IEC 60704-2-3:2017)

This European Standard was approved by CENELEC on 2017-05-15. 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, Norway, Poland, Portugal, Republic of North Macedonia, 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 59A/212/FDIS, future edition 3 of IEC 60704-2-3, prepared by SC 59A "Electric dishwashers" of IEC/TC 59 "Performance of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60704-2-3:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-01-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-07-19

This document supersedes EN 60704-2-3:2002.

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 60704-2-3:2017 was approved by CENELEC as a European Standard without any modification.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60436 (mod)	2015	Electric dishwashers for household use - Methods for measuring the performance	prEN 60436	2018
ISO 3743-1	2010	Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for small movable sources in reverberant fields - Part 1: Comparison method for a hard-walled test room	EN ISO 3743-1	2010
ISO 3744	2010	Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane	EN ISO 3744	2010

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – TEST CODE  
FOR THE DETERMINATION OF AIRBORNE ACOUSTICAL NOISE –****Part 2-3: Particular requirements for dishwashers**

## 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 60704-2-3 has been prepared by subcommittee 59A: Electric dishwashers, of IEC technical committee 59: Performance of household and similar electrical appliances.

This third edition cancels and replaces the second edition published in 2001 and Amendment 1:2005. This edition constitutes a technical revision.

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

- a) it doesn't contain the description of an appropriate test enclosure because the test enclosure has been incorporated in IEC 60704-1:2010, Annex B;
- b) the values of standard deviations of sound power levels determined according to this part are given in Clause 1;

- c) to prevent an appliance being programmed to recognize the test cycles, and reacting specifically to them, in this new edition an artificial soil is used in addition to the unsoiled load and the rinse aid container has to be filled. This artificial soil successive may build up a film on the load. Therefore, detergent also has to be used. An initial test has shown that no foam is to be expected.

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

FDIS	Report on voting
59A/212/FDIS	59A/214/RVD

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 Part 2-3 is intended to be used in conjunction with the third edition (2010) of IEC 60704-1, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 1: General requirements*.

NOTE When "Part 1" is mentioned in this standard, it refers to IEC 60704-1.

The relevant text of Part 1 as amended by this standard establishes the test code for dishwashers.

This Part 2-3 supplements or modifies the corresponding clauses in IEC 60704-1, so as to establish the test code for dishwashers. When a particular subclause of Part 1 is not mentioned in this Part 2-3, that subclause is applicable as far as reasonable. Where this standard states "addition", "modification" or "replacement", the relevant requirements, test specifications or explanatory matter in Part 1 should be adapted accordingly.

Subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1.

Unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause.

Additional annexes are lettered AA, BB, etc.

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.



## INTRODUCTION

The measuring conditions specified in this Part 2-3 provide for sufficient accuracy in determining the noise emitted and comparing the results of measurements taken by different laboratories, whilst simulating as far as possible the practical use of dishwashers.

It is recommended to consider the determination of noise levels as part of a comprehensive testing procedure covering many aspects of properties and performance of household dishwashers.

NOTE As stated in the Introduction to IEC 60704-1:2010, this test code concerns airborne noise only.

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

## Part 2-3: Particular requirements for dishwashers

### 1 Scope

This clause of Part 1 is applicable except as follows.

#### 1.1 Scope

##### 1.1.1 General

*Addition:*

These particular requirements apply to single unit electric dishwashers for household and similar use, with or without automatic programme control, for cold and/or warm water supply, for detachable or permanent connection to water supply or sewage systems, intended for placing on the floor against a wall, for building-in or placing under a counter, a kitchen worktop or under a sink, for wall-mounting or on a counter.

##### 1.1.2 Types of noise

*Replacement:*

The methods specified in ISO 3743-1, ISO 3743-2 and ISO 3744 can be used for measuring noise emitted by electric dishwashers.

##### 1.1.3 Size of source

*Replacement:*

The method specified in ISO 3744 is applicable to noise sources of any size. When applying ISO 3743-1 and ISO 3743-2, care should be taken that the maximum size of the appliance under test fulfils the requirements specified in 1.2 of ISO 3743-1:2010 and 1.3 of ISO 3743-2:1994.

### 1.2 Object

*Addition:*

Requirements for the declaration of noise emission values are not within the scope of this document.

NOTE 101 For determining and verifying noise emission values declared in product specifications, see IEC 60704-3.

### 1.3 Measurement uncertainty

*Replacement:*

The estimated values of standard deviations of sound power levels determined according to this document are given in Table 101:

**Table 101 – Standard deviations of sound power levels**

Standard deviation (dB)	
$\sigma_r$ (repeatability)	$\sigma_R$ (reproducibility)
0,5	0,8

*Addition:*

### 1.101 Standard deviation for declaration and verification

For the purpose of determining and verifying declared noise emission values according to IEC 60704-3, the values in Table 102 apply:

**Table 102 – Standard deviations for declaration and verification**

Standard deviation (dB)		
$\sigma_P$ (production)	$\sigma_t$ (total)	$\sigma_M$ (reference)
1,0 to 1,5	1,3 to 1,7	2,0

## 2 Normative references

This clause of Part 1 is applicable except as follows:

*Replacement:*

ISO 3743-1:2010, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for small movable sources in reverberant fields – Part 1: Comparison method for a hard-walled test room*

ISO 3744:2010, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane*

*Addition:*

IEC 60436:2015, *Electric dishwashers for household use – Methods for measuring the performance*