

STN	Elektrické spotrebiče pre domácnosť a na podobné účely Skúšobný predpis na stanovenie hluku prenášaného vzduchom Časť 2-16: Osobitné požiadavky na práčky-sušičky	STN EN IEC 60704-2-16 36 1005
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Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 2-16: Particular requirements for washer-dryers

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 11/19

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July 2019

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English Version

Household and similar electrical appliances - Test code for the
determination of airborne acoustical noise - Part 2-16: Particular
requirements for washer-dryers
(IEC 60704-2-16:2019)

Appareils électrodomestiques et analogues - Code d'essai
pour la détermination du bruit aérien - Partie 2-16:
Exigences particulières pour les lavantes-séchantes
(IEC 60704-2-16:2019)

Elektrische Geräte für den Hausgebrauch und ähnliche
Zwecke - Prüfvorschrift für die Bestimmung der
Luftschallemission - Teil 2-16: Besondere Anforderungen
an Waschtrockner
(IEC 60704-2-16:2019)

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Europäisches Komitee für Elektrotechnische Normung

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

EN IEC 60704-2-16:2019 (E)**European foreword**

The text of document 59D/455/CDV, future edition 1 of IEC 60704-2-16, prepared by SC 59D "Performance of household and similar electrical laundry appliances" 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 IEC 60704-2-16:2019.

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) 2020-06-24
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The text of the International Standard IEC 60704-2-16:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60704-2-4	NOTE	Harmonized as EN 60704-2-4
IEC 60704-2-6	NOTE	Harmonized as EN 60704-2-6

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.

This clause of Part 1 is applicable except as follows:

Addition:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60456 (mod)	2010	Clothes washing machines for household use - Methods for measuring the performance	EN 60456	2016
IEC 62512	2012	Electric clothes washer-dryers for household use - Methods for measuring the performance	-	-
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



IEC 60704-2-16

Edition 1.0 2019-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Household and similar electrical appliances – Test code for the determination of airborne acoustical noise –
Part 2-16: Particular requirements for washer-dryers**

**Appareils électrodomestiques et analogues – Code d'essai pour la détermination du bruit aérien –
Partie 2-16: Exigences particulières pour les lavantes-séchantes**



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IEC 60704-2-16

Edition 1.0 2019-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Household and similar electrical appliances – Test code for the determination of airborne acoustical noise –
Part 2-16: Particular requirements for washer-dryers**

**Appareils électrodomestiques et analogues – Code d'essai pour la détermination du bruit aérien –
Partie 2-16: Exigences particulières pour les lavantes-séchantes**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – TEST CODE
FOR THE DETERMINATION OF AIRBORNE ACOUSTICAL NOISE –****Part 2-16: Particular requirements for washer-dryers**

FOREWORD

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International Standard IEC 60704-2-16 has been prepared by subcommittee 59D: Home and similar laundry appliances of IEC technical committee 59: Performance of household and similar electrical appliances.

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

CDV	Report on voting
59D/455/CDV	59D/459/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 Part 2-16 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 60704-1:2010.

The relevant text of Part 1 as amended by this publication establishes the test code for washer-dryers.

This Part 2-16 supplements or modifies the corresponding clauses in IEC 60704-1. When a particular subclause of Part 1 is not mentioned in this Part 2-16, 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 and tables that are additional to those in Part 1 are numbered starting from 101.

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.

A list of all the parts in the IEC 60704 series, 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.

INTRODUCTION

The noise of washer-dryers has been measured up to now by making use of two standards, IEC 60704-2-4 and IEC 60704-2-6. This first edition of IEC 60704-2-16 makes it possible to test the noise of washer-dryers by using one single standard. The following significant technical changes with respect to the separate use of IEC 60704-2-4:2011 and IEC 60704-2-6:2012 have been introduced:

- measurement uncertainty and standard deviations are taken into account,
- definition of periods and cycles, in particular definition of thermal spin period and continuous cycle,
- definitions of standard test programme and standard test load,
- location and mounting,
- information to be reported.

The measuring conditions specified in this document 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 household washer-dryers.

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

NOTE As stated in the introduction to IEC 60704-1, this test code is concerned with airborne noise only.

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

Part 2-16: Particular requirements for washer-dryers

1 Scope and object

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 washer-dryers for household and similar use 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 washer-dryers.

1.1.3 Size of the 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 washer-dryers 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:

For washer-dryers, the estimated values of standard deviations of sound power levels, determined in accordance with this document are as indicated in Table 101 and 102.

**Table 101 – Standard deviations of sound power levels
of washing and spinning final results for washer-dryer**

Standard deviation (dB)	
σ_r (repeatability)	σ_R (reproducibility)
0,6	1,0

Table 102 – Standard deviations of sound power levels of drying final results for washer-dryer

Standard deviation (dB)	
σ_r (repeatability)	σ_R (reproducibility)
0,4	0,8

1.101 Standard deviation for declaration and verification

For the purpose of determining and verifying declared noise emission values for washing and spinning for washer-dryers in accordance with IEC 60704-3, the values indicated in Table 103 apply.

Table 103 – Standard deviations for declaration and verification for washing and spinning final results for washer-dryer

Standard deviation (dB)		
σ_p (production)	σ_t (total)	σ_M (reference)
1,0 to 2,2	1,4 to 2,4	2,5

For the purpose of determining and verifying declared noise emission values for drying for washer-dryers in accordance with IEC 60704-3, the values indicated in Table 104 apply.

Table 104 – Standard deviations for declaration for drying final results for washer-dryer

Standard deviation (dB)		
σ_p (production)	σ_t (total)	σ_M (reference)
0,7 to 1,0	1,1 to 1,3	1,5

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

IEC 62512:2012, *Electric clothes washer-dryers for household use – Methods for measuring the performance*

IEC 60456:2010, *Clothes washing machines for household use – Methods for measuring the performance*

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*

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