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**BS EN 60704-2-4:2012**



BSI Standards Publication

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

Part 2-4: Particular requirements for washing machines and spin extractors

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This British Standard is the UK implementation of EN 60704-2-4:2012. It was derived by CENELEC from IEC 60704-2-4:2011. It supersedes BS EN 60704-2-4:2001, which will be withdrawn on 13 April 2015.

The CENELEC common modifications have been implemented at the appropriate places in the text and are indicated by tags (e.g. ③ ④).

The UK participation in its preparation was entrusted by Technical Committee CPL/59, Performance of household electrical appliances, to Subcommittee CPL/59/1, Dishwashers and washing machines.

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.

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

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#### **Amendments issued since publication**

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NORME EUROPÉENNE  
EUROPÄISCHE NORM

June 2012

ICS 17.140.20; 97.060

Supersedes EN 60704-2-4:2001

English version

**Household and similar electrical appliances -  
Test code for the determination of airborne acoustical noise -  
Part 2-4: Particular requirements for washing machines and spin  
extractors  
(IEC 60704-2-4:2011, modified)**

Appareils électrodomestiques et  
analogues -  
Code d'essai pour la détermination du  
bruit aérien -  
Partie 2-4: Exigences particulières pour  
les machines à laver le linge et les  
essoreuses centrifuges  
(CEI 60704-2-4:2011, modifiée)

Elektrische Geräte für den Hausgebrauch  
und ähnliche Zwecke -  
Prüfvorschrift für die Bestimmung der  
Luftschallemission -  
Teil 2-4: Besondere Anforderungen an  
Waschmaschinen und Wäscheschleudern  
(IEC 60704-2-4:2011, modifiziert)

This European Standard was approved by CENELEC on 2012-04-13. 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, 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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

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## Foreword

The text of document 59D/379/CDV, future edition 3 of IEC 60704-2-4, prepared by IEC/SC 59D, "Home laundry appliances", of IEC TC 59, "Performance of household electrical appliances", was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60704-2-4:2012.

A draft amendment, which covers common modifications to IEC 60704-2-4 (59D/379/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<br>by publication of an identical national standard or by endorsement | (dop) | 2013-04-13 |
| – latest date by which the national standards conflicting with this document have to be withdrawn  | (dow) | 2015-04-13 |

This document supersedes EN 60704-2-4:2001.

EN 60704-2-4:2012 includes the following significant technical changes with respect to EN 60704-2-4:2001:

- measurement uncertainty and standard deviations are taken into account,
- definitions of standard test load and standard test program are modified,
- test enclosure was replaced by common test enclosure defined in Part 1,
- information to be reported is modified.

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.

EN 60704-2-4 is intended to be used in conjunction with EN 60704-1:2010, *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 EN 60704-1.

The relevant text of Part 1 as amended by this publication establishes the test code for washing machines and spin extractors.

EN 60704-2-4 supplements or modifies the corresponding clauses in EN 60704-1. When a particular subclause of Part 1 is not mentioned in EN 60704-2-4, 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 additional to those in Part 1 are numbered starting from 101. Additional annexes are lettered AA, BB, etc.

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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.

### **Endorsement notice**

The text of the International Standard IEC 60704-2-4:2011 was approved by CENELEC as a European Standard with agreed common modifications.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

*Addition to EN 60704-1:2010:*

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

## COMMON MODIFICATIONS

### 6 Operation and location of appliance under test

#### 6.101 Standard test programme for noise measurements

*Replace this clause by the following:*

The standard test programme for noise measurements is the standard 60 °C cotton programme for normally soiled load provided by the manufacturer in the instruction manual.

If this programme is not available, then the most efficient 60 °C cotton programme for normally soiled load without pre-wash according to the manufacturer's instructions shall be used. Other special options shall be deselected.

Highest available spin speed is to be chosen.

The standard test programme for noise measurements is carried out without detergent.

#### 6.102.1 General

*Replace this clause by the following:*

The standard test load for noise measurements of washing machines consist of conditioned cotton test load at a weight close to, but in any case not more than, the rated capacity.

To minimize the influence of changes in the characteristics of the cotton test load items with increasing age, the standard test load shall consist of cotton test load items which are well distributed in age to give an average age of the standard test load between 30 and 50 runs of the standard test programme. The number of items or average age shall not be adjusted during a test series.

The average age of the standard test load is calculated as follows:

$$\bar{A} = \frac{1}{\sum n_i} \times \sum n_i \times a_i$$

where

$a_i$  is the age of a single cotton test load item as the number of test runs after pre-treatment as defined in 6.102.2;

$n_i$  is the number of cotton test load items of the same age;

$\bar{A}$  is the average age of the standard test load expressed as the number of test runs.

Cotton test load items shall undergo normalisation as defined in 6.102.3 at least after have been used 10 runs of the standard test programme.

No test load item shall be used for more than 80 runs of the standard test programme, excluding pre-treatment runs prior to initial use and normalisation runs.

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## Annex ZA (normative)

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

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

*Addition to EN 60704-1:2010 :*

<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 + AC	2011
+ corr. September	2011			2011

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## CONTENTS

INTRODUCTION.....	5
1 Scope and object.....	6
1.1 Scope.....	6
1.2 Object .....	6
1.3 Measurement uncertainty .....	6
1.101 Standard deviation for declaration and verification .....	7
2 Normative references .....	7
3 Terms and definitions .....	7
4 Measurement methods and acoustical environments .....	8
4.2 Direct method.....	8
4.3 Comparison method .....	9
5 Instrumentation .....	9
5.3 Instrumentation for measuring operating conditions.....	9
6 Operation and location of appliances under test .....	9
6.1 Equipping and pre-conditioning of appliances.....	9
6.2 Supply of electric energy and of water or gas .....	9
6.4 Loading and operating of appliances during tests .....	10
6.5 Location and mounting of appliances.....	10
6.101 Standard test programme for noise measurements.....	10
6.102 Standard test load for noise measurements.....	10
7 Measurement of sound power levels.....	12
7.1 Microphone array, measurement surface and RSS location for essentially free-field conditions over reflecting plane(s) .....	12
7.4 Measurements.....	12
8 Calculation of sound pressure and sound power levels.....	12
8.101 Final result .....	12
9 Information to be recorded.....	13
9.2 Description of appliance under test .....	13
9.7 Electric supply, water supply, etc. ....	13
9.9 Operation of the appliance under test.....	13
9.12 Measured data .....	13
10 Information to be reported .....	13
10.3 Test conditions for the appliance .....	13
10.4 Acoustical data.....	14
Annexes .....	15
Annex A (normative) .....	15
Bibliography.....	16
Table 101 – Standard deviations of sound power levels for washing machines .....	7
Table 102 – Standard deviations of sound power levels for spin extractors .....	7
Table 103 – Standard deviations for declaration and verification for washing machines .....	7
Table 104 – Standard deviations for declaration and verification for spin extractors .....	7