

INTERNATIONAL STANDARD

IEC 60704-2-3

Second edition
2001-12

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

**Part 2-3:
Particular requirements for dishwashers**

*Appareils électrodomestiques et analogues –
Code d'essai pour la détermination du bruit aérien –*

*Partie 2-3:
Règles particulières pour les lave-vaisselle*

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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 IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 electrical appliances.

This second edition cancels and replaces the first edition published in 1987 and constitutes a technical revision.

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

FDIS	Report on voting
59A/103/FDIS	59A/106/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

This Part 2-3 is intended to be used in conjunction with IEC 60704-1, 2nd edition 1997: *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 1: General requirements.*

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

This Part 2-3 supplements or modifies the corresponding clauses in IEC 60704-1:1997. When a particular subclause of Part 1 is not mentioned in this Part 2, 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 or figures, which are additional to those in Part 1 are numbered starting from 101. Additional annexes are lettered AA, BB, etc.

The committee has decided that the contents of this publication will remain unchanged until 2003. At this date, the publication will be

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- withdrawn;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

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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.

To avoid unsteadiness caused by foaming, the tests are carried out with unsoiled loads and without detergents or rinsing aids.

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 dishwashers.

Compared to the first edition (1987) of this Part 2, the second edition additionally considers the noise of water supply, drainage, pre-wash and intermediate rinse. Therefore the operating conditions during these operations shall be observed carefully.

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

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

Part 2-3: Particular requirements for dishwashers

1 Scope and object

This clause of Part 1 is applicable except as follows:

1.1 Scope

1.1.1 General

Replacement:

These particular requirements apply to single-unit electric dishwashers for household and similar use, with or without automatic programme control, for cold and/or hot 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.

Limitations for the use of this test code are given in 1.1.1 of IEC 60704-1.

1.1.2 Types of noise

Replacement:

ISO 3743-1, ISO 3743-2 and ISO 3744 can be used for measuring noise emitted by dishwashers.

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 dishwasher under test fulfils the requirements specified in 1.3 of ISO 3743-1 and ISO 3743-2.

1.2 Object

Addition:

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

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

2 Normative references

This clause of Part 1 is applicable

NOTE See bibliography at the end of the text.

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.4 operational cycle

Addition:

The operational cycle of a dishwasher begins with the start of the cycle by the operator and ends when the programme indicator reaches the end position

Addition:

3.101 rated capacity

the total number of place settings together with the serving pieces stated by the manufacturer, which can be washed and dried when loaded in accordance with the manufacturer's instructions

3.102 place setting and serving pieces

tableware and pieces as defined in the dishwashers performance standard.

NOTE See annex A of IEC 60436, Ed.3.1

3.103 standard test load for noise measurements

the whole number of complete place settings plus the corresponding serving pieces, which together comprise the manufacturer's rated capacity

3.104 standard test programme for noise measurements

the programme recommended by the manufacturer for normal use, using normal tableware, excluding cooking utensils. If no recommendation is available, the programme indicated by the instructions for use for the most difficult soil for normally soiled tableware, excluding cooking utensils, shall be used

3.105 drying

the operational period during which the load is dried. Drying begins when the washing pump has stopped after final rinse and ends with the end of the operational cycle

4 Measurement methods and acoustical environments

This clause of Part 1 is applicable except as follows.

4.2 Direct method

Addition:

NOTE 101 If pure tone components are present in the noise emitted, proper precautions should be taken as specified in ISO 3743-2.

¹ In preparation.

4.3 Comparison method

Addition:

NOTE 101 If pure tone components are present in the noise emitted, proper precautions should be taken as specified in ISO 3743-1 and ISO 3743-2.

5 Instrumentation

This clause of Part 1 is applicable.

6 Operation and location of appliances under test

This clause of Part 1 is applicable except as follows:

6.1 Equipping and pre-conditioning of appliances

6.1.3

Replacement:

Prior to commencing measurements, the inner surfaces of the appliance and filters shall be clean and the salt container, if included, shall be filled with water. Then the appliance shall be operated for at least two programme cycles as specified in 3.104, with or without load.

6.1.4 Not applicable.

6.2 Supply of electric energy and of water or gas

6.2.2 Not applicable.

6.2.3 Not applicable

6.2.4

Replacement:

Dishwashers designed for either cold or hot water supply shall be supplied with cold water.

The water hardness may be neglected.

For noise measurements the static water pressure during filling shall be (240 ± 50) kPa, if not contradictory to the manufacturer's instructions. The temperature of cold water shall be (15 ± 5) °C and the temperature of hot water shall be (55 ± 5) °C.

NOTE When, in some countries, the water supply pressure/temperature differs from the water supply pressure/temperature of the country concerned, measurements carried out at rated pressure/temperature may be misleading for the consumer. In this case, additional measurements may be necessary. If the test pressure/temperature differs from the rated pressure/temperature, this should be reported.

6.4 Loading and operating of appliances during tests

6.4.2

Replacement:

The test load shall be dry and at room temperature when the test programme starts.

The appliance under test shall be at room temperature when the test programme starts.