IEC 60704-2-1

Edition 3.0 2014-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Household and similar electrical appliances – Test code for the determination of airborne acoustical noise –
Part 2-1: Particular requirements for vacuum cleaners

Appareils électrodomestiques et analogues – Code d'essai pour la détermination du bruit aérien –
Partie 2-1: Exigences particulières pour les aspirateurs

IEC 60704-2-1:2014-05(en-fr)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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

Part 2-1: Particular requirements for vacuum cleaners

FOREWORD

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International Standard IEC 60704-2-1 has been prepared by subcommittee 59F: Floor treatment appliances, of IEC technical committee 59: Performance of household and similar electrical appliances.

This third edition cancels and replaces the second edition published in 2000. This edition constitutes a technical revision.

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

a) introduction of a measuring method on hard floors;
b) inclusion of values for measurement uncertainty;
c) inclusion of values for standard deviation for declaration and verification;

d) update of the definition of the standard test carpet.

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

FDIS	Report on voting
59F/255/FDIS	59F/259/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 Part 2-1 is intended to be used in conjunction with IEC 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 IEC 60704-1.

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

This Part 2-1 supplements or modifies the corresponding clauses in IEC 60704-1. When a particular subclause of Part 1 is not mentioned in this Part 2-1, 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.

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, 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.

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

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

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

INTRODUCTION

The measuring conditions specified in this part of IEC 60704 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 vacuum cleaners.

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 vacuum cleaners.

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 2-1: Particular requirements for vacuum cleaners

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 electrical vacuum cleaners (including their accessories and their component parts) for household use in or under conditions similar to those in households.

This part of IEC 60704 applies as it is to electrical vacuum cleaners operating in dry conditions. Some additions and modifications for vacuum cleaners operating in wet conditions are under consideration. How to test robotic vacuum cleaners is under consideration for a future edition.

This part of IEC 60704 does not apply to vacuum cleaners for industrial or professional purposes.

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 vacuum cleaners.

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 appliance under test fulfils the requirements specified in ISO 3743-1 and ISO 3743-2.

1.2 Object

Addition:

This part of IEC 60704 describes the determination of the noise emission of vacuum cleaners under normal operating conditions on carpet and hard floor according to 4.6 of IEC 60312-1:2010.

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

NOTE 102 If a boost position is incorporated, this is not taken into account.

NOTE 103 A boost position is a setting of a control for occasional use which results in a higher temporary fan speed.

1.3 Measurement uncertainty

Replacement:

For vacuum cleaners designed for cleaning carpets the estimated values of standard deviations of sound power levels determined according to this part of IEC 60704 are provided in Table 101:

Table 101 – Standard deviations of sound power levels determined on carpets

Standard deviation (dB)	
σ_r (repeatability)	σ_R (reproducibility)
0,3	0,8

For vacuum cleaners designed for cleaning hard floors the estimated values of standard deviations of sound power levels determined according to this part of IEC 60704 are provided in Table 102:

Table 102 – Standard deviations of sound power levels determined on hard floors

Standard deviation (dB)	
σ_r (repeatability)	σ_R (reproducibility)
0,2	0,6

Addition:

1.101 Standard deviation for declaration and verification

For the purpose of determining and verifying declared noise emission values for vacuum cleaners designed for cleaning carpets according to IEC 60704-3, the following values provided in Table 103 apply:

Table 103 – Standard deviations for declaration and verification for vacuum cleaners for carpets

Standard deviation (dB)		
σ_P (production)	σ_t (total)	σ_M (reference)
0,5 to 1,0	0,9 to 1,3	1,5

For the purpose of determining and verifying declared noise emission values for vacuum cleaners designed for cleaning hard floors according to IEC 60704-3, the following values provided in Table 104 apply:

Table 104 – Standard deviations for declaration and verification hard floors

Standard deviation (dB)		
σ_P (production)	σ_t (total)	σ_M (reference)
0,5 to 1,0	0,8 to 1,2	1,5

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

IEC 60312-1:2010, *Vacuum cleaners for household use – Part 1: Dry vacuum cleaners – Methods for measuring the performance*

3 Terms and definitions

This clause of Part 1 is applicable except as follows:

Addition:

3.101
cleaning head
plain nozzle or a brush attached to a connecting tube, or a power nozzle, separate or part of the cleaner housing, and the part of a vacuum cleaner which is applied to the surface to be cleaned

[SOURCE: IEC 60312-1:2010, 3.3]

3.102
nozzle
active nozzle
cleaning head provided with a driven agitation device to assist dirt removal

Note 1 to entry: The agitation device may be driven by an incorporated electric motor (motorized nozzle), an incorporated turbine powered by the air flow (air turbine nozzle) or an incorporated friction or gear mechanism actuated by moving the cleaning head over the surface to be cleaned (mechanical nozzle).

[SOURCE: IEC 60312-1:2010, 3.4]

3.103
standard Wilton test carpet
Wilton type carpet according to the typical specification provided in Table 105 used for testing