

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

Part 2-9: Particular requirements for electric hair care appliances

The European Standard EN 60704-2-9:2003 has the status of a
British Standard

ICS 97.170; 17.140.20

National foreword

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The UK participation in its preparation was entrusted to Technical Committee CPL/59, Performance of household electric appliances, which has the responsibility to:

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 12, an inside back cover and a back cover.

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English version

**Household and similar electrical appliances -
Test code for the determination of airborne acoustical noise
Part 2-9: Particular requirements for electric hair care appliances
(IEC 60704-2-9:2003)**

Appareils électrodomestiques
et analogues -
Code d'essai pour la détermination
du bruit aérien
Partie 2-9: Règles particulières
pour les appareils électriques
destinés aux soins des cheveux
(CEI 60704-2-9:2003)

Elektrische Geräte für den Hausgebrauch
und ähnliche Zwecke -
Prüfvorschrift für die Bestimmung
der Luftschallemission
Teil 2-9: Besondere Anforderungen
an Haarpfleegeräte
(IEC 60704-2-9:2003)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 59/326/FDIS, future edition 1 of IEC 60704-2-9, prepared by IEC TC 59, Performance of household electrical appliances, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60704-2-9 on 2003-09-01.

This Part 2-9 is to be used in conjunction with EN 60704-1:1997, *Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 1: General requirements*.

This Part 2-9 supplements or modifies the corresponding clauses of EN 60704-1. When a particular subclause of Part 1 is not mentioned in this Part 2-9, that subclause applies as far as is reasonable. Where this Part 2-1 states "addition", "modification" or "replacement", the relevant text of Part 1 is to 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 following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2004-06-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2006-09-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex A is normative.

Endorsement notice

The text of the International Standard IEC 60704-2-9:2003 was approved by CENELEC as a European Standard without any modification.

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

IEC 61855 NOTE Harmonized as EN 61855:2003 (not modified).

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INTRODUCTION

The measuring conditions specified in this part 2-9 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 hair care appliances.

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 electric hair care appliances.

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 2-9: Particular requirements for electric hair care appliances

1 Scope and object

This clause of Part 1 is applicable except as follows:

1.1 Scope

1.1.1 General

Replacement:

This part of IEC 60704 applies to electric hand-held hairdryers for household and similar use supplied from mains, which operate with a flow of air.

These particular requirements can also be applied to analogous electrically operated devices such as hairstyling appliances, which produce the airflow by a fan.

Helmet-type hairdryers are excluded from this standard.

This standard does not apply to hair care appliances with radiant heating.

1.1.2 Types of noise

Replacement:

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

1.1.3 Size of the source

Replacement:

The method specified in ISO 3744 is applicable to noise sources of any size (limited only by available test environment). When applying ISO 3743-1 and ISO 3743-2, care should be taken that the maximum size of the electric hair care appliance 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.

1.3 Measurement uncertainty

Replacement:

The estimated values of standard deviations of sound power levels, determined according to this standard, are as follows:

Standard deviation dB	
σ_T (repeatability)	σ_R (reproducibility)
0,4	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 following values apply:

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

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

This clause of Part 1 is applicable except as follows:

Addition:

3.101

hand-held hairdryer

hairdryer which is held by hand during normal permanent use

3.102

hairstyling appliance

appliance for styling and/or curling hairs

NOTE Hair styling appliances may comprise brushes and combs.

3.103

helmet-type hairdryer

hairdryer, in which the drying is performed under a rigid or flexible hood

4 Measurement methods and acoustical environments

This clause of Part 1 is applicable except as follows:

4.2 Direct method

Addition:

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

4.3 Comparison method

Addition:

NOTE 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 except as follows:

5.1 Instrumentation for measuring acoustical data

Addition:

Windscreens should be used if necessary and then corrections for change in the microphones sensitivity shall be added to the observed sound pressure levels.

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

6.1.1

Replacement:

Appliances shall be equipped as for ordinary drying. They shall not be equipped with attachments such as nozzles, concentrators, diffusers, brushes, combs etc. The air intake and especially the inlet filter shall be clean and free of fluff and hairs.

6.1.3

Replacement:

Prior to noise measurements, the appliance equipped in accordance with 6.1.1 shall have been run in for a total period of at least 5 min at the highest speed and temperature setting for normal permanent use. A boost position, if any, shall not be used.

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

6.1.4*Replacement:*

Immediately before each series of noise measurements, the appliance equipped in accordance with 6.1.1, is operated for stabilizing at the highest speed and temperature setting for normal permanent use for at least 2 min. A boost position, if any, shall not be used.

6.2 Supply of electric energy and of water or gas**6.2.1***Modification:*

The voltage tolerance shall be $\pm 0,5$ %.

6.2.2 to 6.2.4 Not applicable.

6.4 Loading and operating of appliances during tests**6.4.2***Replacement:*

The appliance shall be equipped according to 6.1.1.

The noise emission values shall be determined at the highest speed setting of the fan and the highest power setting of the heater for normal permanent use. Attachments shall be removed.

NOTE Other possible speed and power settings (boost position, cold position etc.) can be measured in addition. Additional measurements with accessories may also be made.

The actual settings and configuration during the measurement shall be carefully recorded.

6.4.3 and 6.4.4 Not applicable.

6.5 Location and mounting of appliances*Addition:*

The outlet of the appliance shall be placed in a position which is appropriate for the practical use. Care shall be taken to avoid restriction of the airflow of the hairdryer. This has to be considered at the inlet, the outlet and through the appliance.

The appliance shall be placed so as to prevent additional structure-borne noise. No other pieces than those delivered by the manufacturer shall be used

6.5.2*Addition:*

Hand-held hairdryers and hairstyling appliances shall be positioned in such a way that the longitudinal axis of the appliance is located horizontally at a height of approximately 25 cm above the floor or above the reflecting plane. The handle or grip of the appliance shall be in its normal position, which is usually downwards.

7 Measurement of sound pressure levels

This clause of Part 1 is applicable except as follows.

7.1 Microphone array, measurement surface and RSS location for essentially free-field conditions over reflecting plane(s)

Addition:

During measurements care shall be taken to prevent direct blowing to any microphone.

7.1.3 Not applicable.

7.1.4

Addition:

The longitudinal axis of the appliance shall point in the direction of the y-axis, in order to prevent direct blowing to a microphone.

7.1.5 and 7.1.6 Not applicable.

7.4 Measurements

7.4.1

Addition:

The A-weighted time-averaged sound pressure level shall be measured during at least 30 s.

7.4.4 Not applicable.

8 Calculation of sound pressure and sound power levels

This clause of Part 1 is applicable.

9 Information to be recorded

This clause of Part 1 is applicable except as follows:

9.7 Electric supply, water supply, etc.

9.7.2 to 9.7.4 Not applicable.

9.12 Measurement data

9.12.5 Not applicable.

10 Information to be reported

This clause of Part 1 is applicable except as follows:

10.3 Test conditions for the appliance

10.3.3 to 10.3.5 Not applicable.

10.3.11 Not applicable.

10.4 Acoustical data

10.4.10 Not applicable.

Annexes

The annexes of Part 1 apply with the following exception:

Annex A (normative)

Standard test table

This annex of Part 1 is not applicable.

Bibliography

IEC 61855:2003, *Household electrical hair care appliances – Methods for measuring the performance*

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