
Postopek preskušanja za ugotavljanje zvočnega hrupa v zraku, ki ga oddajajo gospodinjski in podobni električni aparati - 1. del: Splošne zahteve (IEC 704-1:1982)

Test code for the determination of airborne acoustical noise emitted by household and similar electrical appliances - Part 1: General requirements (IEC 704-1:1982)

Prüfvorschrift für die Bestimmung der Luftschallemission von elektrischen Geräten für den Hausgebrauch und ähnliche Zwecke- Teil 1: Allgemeine Anforderungen (IEC 704-1:1982)

Code d'essai pour la détermination du bruit aérien émis par les appareils électrodomestiques et analogues - Partie 1: Règles générales (CEI 704-1:1982)

Ta slovenski standard je istoveten z: EN 60704-1:1994

ICS:

17.140.20	Emisija hrupa naprav in opreme	Noise emitted by machines and equipment
97.030	Električni aparati za dom na splošno	Domestic electrical appliances in general

SIST EN 60704-1:2004**en**

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EUROPEAN STANDARD

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October 1994

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Supersedes HD 423.1 S1:1982

Descriptors: Domestic electrical appliances, noise from appliances,
measurement, requirements, definitions

ENGLISH VERSION

Test code for the determination of airborne
acoustical noise emitted by household and similar
electrical appliances

Part 1: General requirements

(IEC 704-1:1982)

Code d'essai pour la
détermination du bruit aérien
émis par les appareils
électrodomestiques et analogues

Première partie: Règles
générales

(CEI 704-1:1982)

Prüfvorschrift für die
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Luftschallemission von
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Hausgebrauch und ähnliche
Zwecke

Teil 1: Allgemeine Anforderungen
(IEC 704-1:1982)

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This European Standard exists in three official versions (English, French, German).
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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

At the request of CENELEC Technical Committee TC 59X, Consumer information related to household electrical appliances, HD 423.1 S1:1982 (IEC 704-1:1982) was submitted to the CENELEC voting procedure for conversion into a European Standard.

The text of the International Standard was approved by CENELEC as EN 60704-1 on 5 July 1994.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1995-07-15
- latest date of withdrawal of conflicting national standards (dow) -

Annexes designated "normative" are part of the body of the standard. Annexes designated "informative" are given only for information. In this standard, annex A is informative and annex ZA is normative.

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ENDORSEMENT NOTICE

The text of the International Standard IEC 704-1:1982 was approved by CENELEC as a European Standard without any modification.

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

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

IEC Publication	Date	Title	EN/HD	Date
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50(8)	1960	International Electrotechnical Vocabulary (IEV) Chapter 8: Electro-acoustics	-	-
225	1966	Octave, half-octave and third-octave band filters intended for the analysis of sounds and vibrations	-	-
651	1979	Sound level meters	EN 60651	1994

Other publications quoted:

<https://standards.iteh.ai/catalog/standards/sist/d0a1ecd4-2d9a-41ef-a447-fdd7968bb728/sist-en-60704-1-2004>

ISO 2204	1979	Acoustics - Guide to international standards on the measurement of airborne acoustical noise and evaluation of its effects on human beings		
ISO 3741	1975	Acoustics - Determination of sound power levels of noise sources - Precision methods for broad-band sources in reverberation rooms		
ISO 3742	1975	Acoustics - Determination of sound power levels of noise sources - Precision methods for discrete-frequency and narrow-band sources in reverberation rooms		
ISO 3743	1976	Acoustics - Determination of sound power levels of noise sources - Engineering methods for special reverberation test rooms		
ISO 3744	1981	Acoustics - Determination of sound power levels of noise sources - Engineering methods of free-field conditions over a reflecting plane		
ISO 3745	1977	Acoustics - Determination of sound power levels of noise sources - Precision methods for anechoic and semi-anechoic rooms		
ISO 6926	1990	Acoustics - Determination of sound power levels of noise sources - Requirements for the performance and calibration of reference sound sources		

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IEC STANDARD

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1982

**Code d'essai pour la détermination du bruit aérien
émis par les appareils électrodomestiques et analogues**

Première partie: Règles générales

(standards.iteh.ai)

**Test code for the determination of airborne acoustical noise
emitted by household and similar electrical appliances**

Part 1: General requirements

Mots clés: appareils électrodomestiques;
bruit des appareils;
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définitions.

Key words: domestic electrical
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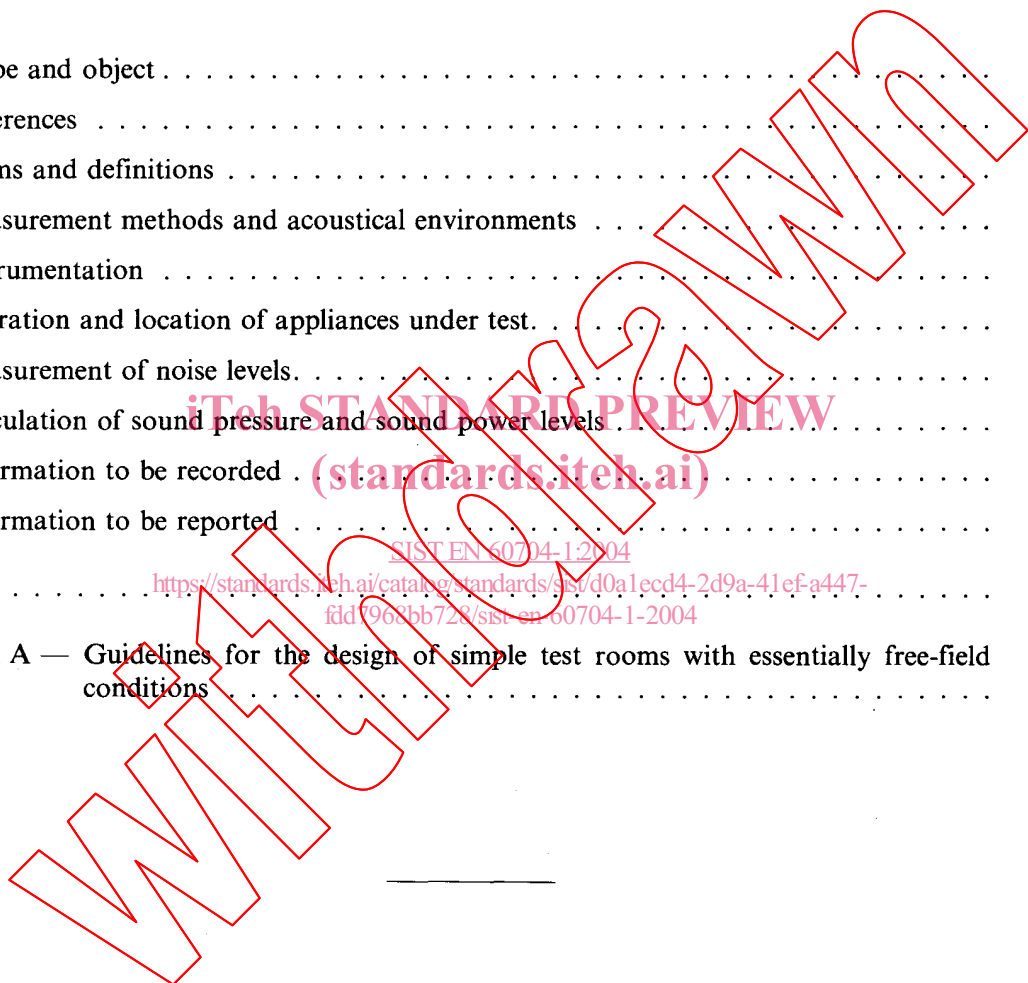
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**TEST CODE FOR THE DETERMINATION OF AIRBORNE
ACOUSTICAL NOISE EMITTED BY HOUSEHOLD
AND SIMILAR ELECTRICAL APPLIANCES**

Part 1: General requirements

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

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PREFACE

This standard has been prepared by IEC Technical Committee No. 59: Performance of Household Electrical Appliances.

Drafts were discussed at the meetings held in Paris in 1974, in Nice in 1976 and in Budapest in 1978. As a result of this last meeting, a draft, Document 59(Central Office)11, was submitted to the National Committees for approval under the Six Months' Rule in April 1980.

The National Committees of the following countries voted explicitly in favour of publication:

Australia	France	South Africa (Republic of)
Austria	Germany	Sweden
Belgium	Israel	Switzerland
Czechoslovakia	Italy	Turkey
Denmark	Netherlands	United Kingdom
Egypt	New Zealand	United States of America
Finland	Norway	

During the meeting in Budapest it was decided to adopt for this test code a format similar to that of IEC Publication 335: Safety of Household and Similar Electrical Appliances.

This standard is divided into two parts:

Part 1: General Requirements, comprising clauses of a general character.

Part 2: Particular Requirements, dealing with particular types of appliances. The clauses of these particular requirements supplement or modify the corresponding clauses in Part 1. Where the text of Part 2 indicates an "addition" or a "replacement" of the relevant requirement, test specification or explanation of Part 1, these changes are made to the relevant text of Part 1, which then becomes part of the test code. Where no change is necessary, the words "This clause of Part 1 applies" are used in Part 2.

The Part 1: General Requirements, only applies where there is a Part 2 for a particular type of appliance. However, Part 1 may be used, so far as is reasonable, for appliances not mentioned in Part 2 sections and for appliances designed on new principles.

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

Part 1: General requirements

INTRODUCTION

Although the noise levels produced by household appliances do not generally present a hazard to the hearing of the operator or other exposed persons, the need for standardized procedures for the determination of the noise emitted has been recognized for a long time. Such procedures should be specified not only for special types of appliances, but the principles should be applicable to the majority of appliances in general use.

The potential users of such methods will be manufacturers of household appliances, testing laboratories, labelling organizations, and consumers' unions. Generally, the determination of noise levels is only part of a comprehensive testing procedure covering many aspects of the properties and performance of the appliance. It is therefore important that the requirements for noise measurements (e.g., test environment, instrumentation, and amount of labour involved) should be kept at a modest level.

In most cases, the results of noise measurements will be used for noise level indication purposes (e.g., for noise labelling), i.e. the results will be utilized for comparing the noise emitted by a specific appliance with the noise emitted by other appliances of the same family. In other cases, the results will be taken as basis for engineering action, for example, in the development stages of a new piece of equipment or in deciding on means for sound insulation. For all purposes, it is important to specify procedures with known accuracy so that the results of measurements taken by different laboratories can be compared.

These conditions have, as far as possible, been taken into account in the preparation of this code. The acoustic measuring methods are based on those described in ISO Standard 3743 "Acoustics — Determination of sound power levels of noise sources — Engineering methods for special reverberation test rooms" and ISO 3744 "Acoustics — Determination of sound power levels of noise sources — Engineering methods for free-field conditions over a reflecting plane".

The adoption of these methods permits the use of anechoic (or more correctly, semi-anechoic) chambers and specially adapted reverberant rooms. The result of the measurements is the sound power level of the appliance. Within the measuring uncertainty specific of these methods, the results from determination under free-field conditions over a reflecting plane are equal to those obtained in a special reverberant test room.

It should be emphasized that this code is concerned with airborne noise only. In some cases, structure-borne noise, for example transmitted to the adjoining room, may be of importance.

1. Scope and object

1.1 Scope

This standard applies to electric appliances (including their accessories or components) for household and similar use, supplied from mains or from batteries.

By similar use is understood the use in similar conditions as in households, for example in inns, coffee-houses, tea-rooms, hotels, barber or hairdresser shops, launderettes, etc., if not otherwise specified in Part 2.

This standard does not apply to:

- appliances, equipment or machines designed exclusively for industrial or professional purposes;
- appliances which are integrated parts of a building or its installations such as equipment for air conditioning, heating and ventilating (except household fans, cooker hoods and free standing heating appliances), oil burners for central heating, pumps for water supply and for sewage systems;
- separate motors or generators;
- appliances for outdoor use.

1.2 Object

This standard is concerned with objective methods of engineering accuracy (engineering method, grade 2 according to ISO 2204) for determining sound power levels L_w , expressed in decibels (dB) with reference to a sound power of 1 picowatt (1 pW), of airborne acoustical noise within the specified frequency range of interest, including the octave bands between 125 and 8 000 hertz (Hz) (this interval being, for practical reasons, narrower than the frequency range of audible sound), and for prescribed operating conditions of the appliance to be measured.

The following sound power levels are used:

- A-weighted sound power level, L_{WA} , and
- octave band sound power levels, L_{WOct} .

In general, the described methods are specified for appliances operated with no operator present. Only for the (rare) cases where an appliance can only be operated by an operator, or must be fed by an operator, shall a standard test operator be present, as specified in the relevant Part 2.

The uncertainties of measurements according to this standard tend to result, for A-weighted sound power levels, in standard deviations generally not exceeding approximately 2 dB, provided that the noise spectrum does not contain pronounced discrete frequencies; if it does, the magnitude of the uncertainties will be larger. The mentioned standard deviations reflect the cumulative effects of all causes of measurement uncertainties, excluding variations in the noise level of the appliance from test to test.

The noise values obtained under the described conditions of this standard will not necessarily correspond with the noise experienced under the operational conditions of practical use (see Sub-clause 6.4.1).

For quality control during production, etc., simplified methods may be appropriate. For noise control purposes (for example, development of quieter appliances, insulation of equipment, etc.) other measurement methods employing, for example, narrow-band frequency analysis will usually have to be applied. These methods are not covered by this standard.

Not included in this standard are methods for determining sound power levels with precision accuracy (precision method, grade 1 according to ISO 2204) specified for example in ISO Standards 3741, 3742 and 3745; they may, however, be applied if the appropriate instrumentation and test environment is available.

2. References

- ISO 2204-1979: Acoustics — Guide to international standards on the measurement of airborne acoustical noise and evaluation of its effects on human beings.
- ISO 3741-1975: Acoustics — Determination of sound power levels of noise sources — Precision methods for broad-band sources in reverberation rooms.
- ISO 3742-1975: Acoustics — Determination of sound power levels of noise sources — Precision methods for discrete-frequency and narrow-band sources in reverberation rooms.
- ISO 3743-1976: Acoustics — Determination of sound power levels of noise sources — Engineering methods for special reverberation test rooms.
- ISO 3744-1981: Acoustics — Determination of sound power levels of noise sources — Engineering methods for free-field conditions over a reflecting plane.
- ISO 3745-1977: Acoustics — Determination of sound power levels of noise sources — Precision methods for anechoic and semi-anechoic rooms.
- ISO 6926 (in preparation): Acoustics — Characteristics and methods of calibration of reference sound sources.
- IEC Publication 50(08): International Electrotechnical Vocabulary — Electro-acoustics.
- IEC Publication 225: Octave, Half-octave and Third-octave Band filters Intended for the analysis of Sounds and Vibrations.
- IEC Publication 651: Sound Level Meters.

3. Terms and definitions

3.1 *Terms and definitions pertinent to determination of sound power levels*

These may be found in ISO Standards 3743 and 3744.

3.2 *Direct method*

Method in which the sound power level is calculated from the measured sound pressure levels produced by the source to be tested, as follows:

- in free-field conditions: the sound pressure levels are averaged on the measurement surface and in time, the sound power level is calculated from the area of the measurement surface;
- in reverberant field conditions: the sound pressure levels are averaged in space and time, the sound power level is calculated from the volume and the reverberation time or the total absorption of the test room.