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INTERNATIONAL STANDARD

colour inside

This full version of IEC 60704-2-10:2024 includes the content of the references made to IEC 60704-1:2021

Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 2-10: Particular requirements for ranges, ovens, steam ovens, grills and microwave ovens

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2-10: Particular requirements for ranges, ovens, steam ovens, grills and microwave ovens

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). 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. 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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IEC 60704-2-10:2024 EXV includes the content of IEC 60704-2-10:2024, and the references made to IEC 60704-1:2021.

The specific content of IEC 60704-2-10:2024 is displayed on a blue background.

IEC 60704-2-10 has been prepared by subcommittee 59K: Performance of household and similar electrical cooking appliances, of IEC technical committee 59: Performance of household and similar electrical appliances. It is an International Standard.

This third edition cancels and replaces the second edition published in 2011. This edition constitutes a technical revision.

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

a) alignment with the fourth edition of IEC 60704-1:2021;
b) alignment with IEC 60350-1:2023 regarding the definitions and settings;
c) introduction of the measurement of the steam function;
d) revision of settings and test parameters.

The text of this International Standard is based on the following documents:

Draft	Report on voting
59K/396/FDIS	59K/398/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

This document is intended to be used in conjunction with IEC 60704-1:2021, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 1: General requirements*.

The relevant text of IEC 60704-1:2021 as amended by this publication establishes the test code ranges, ovens, steam ovens, grills and microwave ovens.

This document supplements or modifies the corresponding clauses in IEC 60704-1:2021. When a particular subclause of IEC 60704-1:2021 is not mentioned in this document, that subclause is applicable as far as reasonable. Where this document states "addition", "modification" or "replacement", the relevant requirements, test specifications or explanatory matter in IEC 60704-1:2021 are to be adapted accordingly.

Subclauses, tables and figures that are numbered starting from 101 are additional to those in IEC 60704-1:2021. Additional annexes are lettered AA, BB, etc.

Unless notes are in a new subclause or involve notes in IEC 60704-1:2021, they are numbered starting from 101, including those in a replaced clause or subclause.

In this standard, the following print types are used:

- terms defined in Clause 3: bold type.

A list of all 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.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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INTRODUCTION to IEC 60704-1:2021

Although the noise emitted by household appliances does not generally present a hazard to the hearing of the operator and other exposed persons, the need for standardization 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 also the principles should be applicable to the majority of appliances in general use.

Generally, the determination of noise levels is only part of a comprehensive testing procedure covering many aspects of the properties and performances of the appliance. It is therefore important that the requirements for noise measurements (such as test environment, instrumentation, and amount of labour involved) be kept at a modest level.

The results of noise measurements are used for many purposes, for example for noise declaration, as well as for comparing the noise emitted by a specific appliance to the noise emitted by other appliances of the same family. In other cases, the results are taken as a basis for engineering action in the development stages of new pieces 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 test code. The acoustic measuring methods are based on those described in ISO 3743-1:2010, ISO 3743-2:2018 and ISO 3744:2010.

The adoption of these methods permits the use of hemi-anechoic rooms, special reverberation test rooms and hard-walled test rooms. The result of the measurements is the sound power level of the appliance. Within the measuring uncertainty specific to these methods, the results from the determination under free field conditions over a reflecting plane are equal to those obtained in reverberant fields.

The use of intensity methods as described in ISO 9614-1:1993, ISO 9614-2:1996, and ISO 9614-3:2002 is applicable under special conditions, which are described in specific parts of the IEC 60704-2 series.

This test code is concerned with airborne noise only. In some cases, structure-borne noise, for example transmitted to the adjoining room, can be of importance.

INTRODUCTION to IEC 60704-2-10:2024

The measuring conditions specified in this document 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 ranges, ovens, steam ovens, grills and microwave ovens.

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 household 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 2-10: Particular requirements for ranges, ovens, steam ovens, grills and microwave ovens

1 Scope

This part of IEC 60704 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 conditions similar to those found in households, for example in inns, coffee houses, tea rooms, hotels, barber or hairdresser shops, launderettes, etc., if not otherwise specified in the IEC 60704-2 series.

This document does not apply to

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

For determining and verifying noise emission values declared in product specifications, see IEC 60704-3:2019.

These particular requirements apply to ranges, ovens, steam ovens, **grills** and microwave ovens for household and similar use.

This document does not apply to hobs.

This document does not apply to appliances or parts of appliances that use gas energy.

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60350-1:2023, *Household electric cooking appliances – Part 1: Ranges, ovens, steam ovens and grills – Methods for measuring performance*

IEC 60704-2 (all parts), *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise*

IEC 60704-3:2019, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 3: Procedure for determining and verifying declared noise emission values*

IEC 60705:–[1], *Household microwave ovens – Methods for measuring performance*

IEC 61260-1:2014, *Electroacoustics – Octave-band and fractional-octave-band filters – Part 1: Specifications*

IEC 61672-1:2013, *Electroacoustics – Sound level meters – Part 1: Specifications*

ISO 3743-1:2010, *Acoustics – Determination of sound power levels of noise sources – Engineering methods for small, movable sources in reverberant fields – Part 1: Comparison method for hard-walled test rooms*

ISO 3743-2:2018, *Acoustics – Determination of sound power levels of noise sources using sound pressure – Engineering methods for small, movable sources in reverberant fields – Part 2: Methods for special reverberation test rooms*

ISO 3744:2010, *Acoustics – Determination of sound power levels of noise sources using sound pressure – Engineering method in an essentially free field over a reflecting plane*

ISO 9614-1:1993, *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 1: Measurement at discrete points*

ISO 9614-2:1996, *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning*

ISO 9614-3:2002, *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 3: Precision method for measurement by scanning*

ISO 6926:2016, *Acoustics – Requirements for the performance and calibration of reference sound sources used for the determination of sound power levels*

ISO 12001:1996, *Acoustics – Noise emitted by machinery and equipment – Rules for the drafting and presentation of a noise test code*

[1] Under preparation. Stage at the time of publication: IEC FDIS 60705:2024.

IEC 60704-2-10

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Household and similar electrical appliances – Test code for the determination of airborne acoustical noise –
Part 2-10: Particular requirements for ranges, ovens, steam ovens, grills and microwave ovens

Appareils électrodomestiques et analogues – Code d'essai pour la détermination du bruit aérien –
Partie 2-10: Exigences particulières pour les cuisinières, les fours, les fours à vapeur, les grils et les fours à micro-ondes



IEC 60704-2-10:2024-09(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTRODUCTION

The measuring conditions specified in this document 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 ranges, ovens, steam ovens, grills and microwave ovens.

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 household 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 2-10: Particular requirements for ranges, ovens, steam ovens, grills and microwave ovens

1 Scope

Addition:

These particular requirements apply to ranges, ovens, steam ovens, **grills** and microwave ovens for household and similar use.

This document does not apply to hobs.

This document does not apply to appliances or parts of appliances that use gas energy.

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

2 Normative references

Addition:

IEC 60350-1:2023, *Household electric cooking appliances – Part 1: Ranges, ovens, steam ovens and grills – Methods for measuring performance*

IEC 60705:–[1], *Household microwave ovens – Methods for measuring performance*

[1] Under preparation. Stage at the time of publication: IEC FDIS 60705:2024.

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – CODE D'ESSAI POUR LA DÉTERMINATION DU BRUIT AÉRIEN –

Partie 2-10: Exigences particulières pour les cuisinières, les fours, les fours à vapeur, les grils et les fours à micro-ondes

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L'IEC 60704-2-10 a été établie par le sous-comité 59K: Aptitude à la fonction des appareils électrodomestiques et similaires de cuisson électrique, du comité d'études 59 de l'IEC: Aptitude à la fonction des appareils électrodomestiques et analogues. Il s'agit d'une Norme internationale.

Cette troisième édition annule et remplace la deuxième édition parue en 2011. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) alignement sur la quatrième édition de l'IEC 60704-1:2021;
b) alignement sur l'IEC 60350-1:2023 en ce qui concerne les définitions et les réglages;
c) introduction du mesurage de la fonction de vapeur;
d) révision des réglages et des paramètres d'essai.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
59K/396/FDIS	59K/398/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications.

Le présent document est destiné à être utilisé conjointement avec l'IEC 60704-1:2021, *Appareils électrodomestiques et analogues – Code d'essai pour la détermination du bruit aérien – Partie 1: Exigences générales*.

Le texte correspondant de l'IEC 60704-1:2021 modifié par la présente publication établit le code d'essai pour les cuisinières, fours, fours à vapeur, grills et fours à micro-ondes.

Le présent document complète ou modifie les articles correspondants de l'IEC 60704-1:2021. Lorsqu'un paragraphe particulier de l'IEC 60704-1:2021 n'est pas mentionné dans le présent document, ce paragraphe s'applique pour autant que cela soit raisonnable. Lorsque le présent document mentionne "addition", "modification" ou "remplacement", les exigences, modalités d'essai ou commentaires correspondants de l'IEC 60704-1:2021 doivent être adaptés en conséquence.

Les paragraphes, tableaux et figures qui s'ajoutent à ceux de l'IEC 60704-1:2021 sont numérotés à partir de 101. Les annexes complémentaires sont désignées AA, BB, etc.

À l'exception de celles qui sont dans un nouveau paragraphe ou de celles qui concernent des notes de l'IEC 60704-1:2021, les notes sont numérotées à partir de 101, y compris celles des articles ou paragraphes qui sont remplacés.

Dans la présente norme, les caractères d'imprimerie suivants sont utilisés:

- termes définis à l'Article 3: caractères gras.

Une liste de toutes les parties de la série IEC 60704, publiées sous le titre général *Appareils électrodomestiques et analogues – Code d'essai pour la détermination du bruit aérien*, se trouve sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. À cette date, le document sera

- reconduit,
- supprimé, ou
- révisé.

INTRODUCTION

Les conditions de mesure spécifiées dans le présent document donnent une exactitude suffisante pour déterminer le bruit émis et comparer les résultats des mesurages réalisés par différents laboratoires, tout en s'approchant autant que possible de l'utilisation pratique des cuisinières, fours, fours à vapeur, grils et fours à micro-ondes.

Il est recommandé de considérer la détermination des niveaux de bruit comme faisant partie d'une procédure d'essai globale qui couvre de nombreux aspects des propriétés et de l'aptitude à la fonction des appareils domestiques.

NOTE Comme indiqué dans l'introduction de l'IEC 60704-1, le présent code d'essai concerne uniquement le bruit aérien.

APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – CODE D'ESSAI POUR LA DÉTERMINATION DU BRUIT AÉRIEN –

Partie 2-10: Exigences particulières pour les cuisinières, les fours, les fours à vapeur, les grils et les fours à micro-ondes

1 Domaine d'application

Addition:

Les présentes exigences particulières s'appliquent aux cuisinières, fours, fours à vapeur, **grils** et fours à micro-ondes pour usages domestiques et analogues.

Le présent document ne s’applique pas aux tables de cuisson.

Le présent document ne s’applique pas aux appareils ou parties d’appareils qui fonctionnent au gaz.

Les exigences relatives à la déclaration des valeurs d'émission sonore n’entrent pas dans le domaine d'application du présent document.

2 Références normatives

Addition:

IEC 60350-1:2023, *Appareils de cuisson électrodomestiques – Partie 1: Cuisinières, fours, fours à vapeur et grils – Méthodes de mesure de l'aptitude à la fonction*

IEC 60705:–[1], *Fours à micro-ondes à usage domestique - Méthodes de mesure de l'aptitude à la fonction*

[1] En cours d’élaboration. Stade au moment de la publication: IEC FDIS 60705:2024.