



BSI Standards Publication

Household and similar electrical appliances — Safety

Part 2-25: Particular requirements for microwave ovens,
including combination microwave ovens

National foreword

This British Standard is the UK implementation of EN IEC 60335-2-25:2021+A11:2021. It is derived from IEC 60335-2-25:2020. It supersedes BS EN 60335-2-25:2012+A2:2016, which will be withdrawn on 27 September 2024.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A11 is indicated by A11 A11.

The UK participation in its preparation was entrusted to Technical Committee CPL/61/7, Safety of electrical appliances - Heated appliance group.

A list of organizations represented on this committee can be obtained on request to its committee manager.

This publication has been prepared under a mandate given to the European Standards Organizations by the European Commission and the European Free Trade Association. It is intended to support requirements of the EU legislation detailed in the European Foreword. A European Annex, usually Annex ZA or ZZ, describes how this publication relates to that EU legislation.

For the Great Britain market (England, Scotland and Wales), if UK Government has designated this publication for conformity with UKCA marking (or similar) legislation, it may contain an additional National Annex. Where such a National Annex exists, it shows the correlation between this publication and the relevant UK legislation. If there is no National Annex of this kind, the relevant Annex ZA or ZZ or ZZA in the body of the European text will indicate the relationship to UK regulation applicable in Great Britain. References to EU legislation may need to be read in accordance with the UK designation and the applicable UK law. Further information on designated standards can be found at www.bsigroup.com/standardsandregulation.

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© The British Standards Institution 2022
Published by BSI Standards Limited 2022

ISBN 978 0 580 95958 5

ICS 13.120; 97.040.20

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2022.

Amendments/corrigenda issued since publication

Date	Text affected
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English Version

**Household and similar electrical appliances - Safety - Part 2-25:
Particular requirements for microwave ovens, including
combination microwave ovens
(IEC 60335-2-25:2020)**

Appareils électrodomestiques et analogues - Sécurité -
Partie 2-25: Exigences particulières pour les fours à micro-
ondes, y compris les fours à micro-ondes combinés
(IEC 60335-2-25:2020)

Sicherheit elektrischer Geräte für den Hausgebrauch und
ähnliche Zwecke - Teil 2-25: Besondere Anforderungen für
Mikrowellenkochgeräte und kombinierte
Mikrowellenkochgeräte
(IEC 60335-2-25:2020)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document EN IEC 60335-2-25:2021 consists of the text of IEC 60335-2-25:2020 prepared by IEC/TC 61 "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-09-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-09-27

This document supersedes EN 60335-2-25:2012 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document is read in conjunction with EN IEC 60335-2-25:2021/A11:2021.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directives see informative Annex ZZA, which is an integral part of EN IEC 60335-2-25:2021/A11:2021

Endorsement notice

The text of the International Standard IEC 60335-2-25:2020 was approved by CENELEC as a European Standard.

European foreword to amendment A11

This document (EN IEC 60335-2-25:2021/A11:2021) has been prepared by CLC/TC 61 "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-09-27
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2024-09-27

This document is read in conjunction with EN IEC 60335-2-25:2021.

The numbering system for European clauses, subclauses, notes, tables, figures and annexes that are additional to those in the IEC standard are prefixed with the letter "Z".

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive see informative Annex ZZA, which is an integral part of this document.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-25: Particular requirements for microwave ovens,
including combination microwave ovens**

FOREWORD

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International Standard IEC 60335-2-25 has been prepared by subcommittee 61B: Safety of microwave ovens for household and commercial use, of IEC technical committee 61: Safety of household and similar electrical appliances.

This seventh edition cancels and replaces the sixth edition published in 2010, Amendment 1:2014 and Amendment 2:2015. This edition constitutes a technical revision.

This edition includes the following significant changes with respect to the sixth edition:

- 11.7 and 19.13 are improved in clarity;
- in 19.102, a note is converted into normative text;
- 19.101 is improved with an alternative measurement method;
- 22.121 is improved with requirements for simultaneous activation of heating elements and motors;
- 15.2, 15.101, 21, 22.102, 22.112, 22.119, 22.120, 24.101 and 27.1 are improved in clarity;

- Annex A has editorial improvements and feasible limits of deviations.

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

CDV	RVC
61B/611/CDV	61B/626/RVC
61B/615/CDV	61B/627/RVC
61B/621/CDV	61B/628/RVC
61B/622/CDV	61B/629/RVC
61B/623/CDV	61B/630/RVC

Full information on the voting for the approval of this International 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 2.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fifth edition (2010) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Particular requirements for microwave ovens, including combination microwave ovens.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- 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;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

The committee has decided that the contents of this document 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.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations can need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

The following differences exist in the countries indicated below.

- 5.3: Microwave leakage is not to exceed 10 W/m² during the initial test (Japan and USA).
- 6.1: **Microwave ovens** may be **class 0I** if the **rated voltage** does not exceed more than 150 V (Japan).
- 7.12: Specific instructions exist pertaining to using and servicing **microwave ovens** with respect to the risk of exposure to microwave energy (USA).
- 7.12: It is prohibited to place the appliance in a cabinet with a door (Japan).
- Clause 18: The test is carried out on two appliances (USA).
- 19.11.2: The input voltage variation is not applied (USA).
- 19.13: Microwave leakage is measured only at the end of each test (USA).
- 21.102: The applied force is 222 N (USA).
- 21.105: Microwave leakage is not to exceed 50 W/m² (Japan and USA).
- 22.111: Microwave leakage is measured only at the end of the test (USA).
- 22.112: Microwave leakage is not to exceed 50 W/m² (Japan and USA).
- 22.115: All access to the **cavity** has to be prevented (USA).

IMPORTANT – The "colour inside" logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features which impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

 With this European Amendment A11, the standard EN 60335-2-25:2012+A1:2015+A2:2016 is superseded.

This European Amendment A11 supplements or modifies the corresponding clauses of the standards below:

- EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019 (Part 1)
- EN IEC 60335-2-25:2021 (Part 2) 

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-25: Particular requirements for microwave ovens, including combination microwave ovens

1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of **microwave ovens** for household and similar use, their **rated voltage** being not more than 250 V.

This standard also deals with **combination microwave ovens**, for which Annex AA is applicable.

This standard also deals with **microwave ovens** intended to be used on board ships, for which Annex BB is applicable.

 As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in household and similar environments.

However, in general, it does not take into account:

- **children** playing with the appliance;
- the **use of the appliance** by **very young children**;
- the **use of the appliance** by **young children** without supervision.

It is recognized that **very vulnerable people** may have needs beyond the level addressed in this European Standard.

NOTE Z101 Examples of appliance for household environment are appliances for typical housekeeping functions used in the household environment that may also be used by non-expert users for typical housekeeping functions:

- in shops and other similar working environments;
- in farm houses;
- by clients in hotels, motels and other residential type environments;
- in bed and breakfast type environments.

NOTE Z102 Household environments include the dwelling and its associated buildings, the garden, etc. 

NOTE 101 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
- in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 102 This standard does not apply to

- commercial **microwave ovens** (IEC 60335-2-90);
- industrial microwave heating equipment (IEC 60519-6);
- appliances for medical purposes (IEC 60601);
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60068-2-6, *Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-52, *Environmental testing – Part 2-52: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)*

IEC 60335-2-5:2012, *Household and similar electrical appliances – Safety – Part 2-5: Particular requirements for dishwashers*

IEC 60335-2-6:2014, *Household and similar electrical appliances – Safety – Part 2-6: Particular requirements for stationary cooking ranges, hobs, ovens and similar appliances*

IEC 60335-2-9, *Household and similar electrical appliances – Safety – Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1.7 Addition:

NOTE 101 The **rated frequency** is the input frequency.

3.1.9 *Replacement:*

normal operation

operation of the appliance with 1 000 g ± 50 g of potable water at an initial temperature of 20 °C ± 2 °C in a cylindrical borosilicate glass vessel having a maximum thickness of 3 mm and an outside diameter of approximately 190 mm. The vessel is placed on the centre of the **shelf**

3.101

microwave oven

appliance using electromagnetic energy in one or several of the ISM frequency bands¹ between 300 MHz and 30 GHz, for heating food and beverages in a **cavity**

3.102

combination microwave oven

microwave oven in which heat is also provided in the **cavity** by simultaneous or consecutive operation of resistive heating elements

Note 1 to entry: The resistive heating elements are used to provide radiant heat, convection heat or steam.

3.103

cavity

space enclosed by the inner walls and the door in which the load is placed

¹ ISM frequency bands are the electromagnetic frequencies established by the ITU and reproduced in CISPR 11.

3.104

shelf

horizontal support in the **cavity** on which the load is placed

3.105

door interlock

device or system that prevents the operation of the magnetron, unless the oven door is closed

3.106

monitored door interlock

door interlock system that incorporates a supervision device

3.107

temperature-sensing probe

device that is inserted into the food to measure its temperature and is a part of an oven control

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.2 Addition:

NOTE 101 An additional sample can be required for the test of 19.104.

NOTE 102 Six samples of the interlocks are required for the test of 24.1.4.

5.3 Modification:

Instead of carrying out the tests in the order of clauses, the following sequence of clauses and subclauses applies: Clause 32, 22.113, 22.108, 22.115, 22.116, Clause 7 to 17, Clause 20, Clause 21 (except 21.101 to 21.105), Clause 18, Clause 19 (except 19.104), Clause 22 (except 22.108, 22.113, 22.115 and 22.116), Clause 23 to 31, 21.101 to 21.105 and 19.104.

5.101 Microwave ovens are tested as motor-operated appliances.

5.102 Class III temperature-sensing probes are only subjected to the tests of 22.112.

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 Modification:

Microwave ovens shall be **class I** or **class II**.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 Addition: