

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

AMENDMENT 1  
AMENDEMENT 1

**Household and similar electrical appliances – Safety –  
Part 2-90: Particular requirements for commercial microwave ovens**

**Appareils électrodomestiques et analogues – Sécurité –  
Partie 2-90: Règles particulières pour les fours à micro-ondes à usage  
commercial**



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INTERNATIONAL  
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COMMISSION

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ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE  
CODE PRIX

**F**

ICS 97.040.20

ISBN 978-2-88912-075-8

## FOREWORD

This amendment has been prepared by subcommittee 61B: Safety of microwave ovens, of IEC technical committee 61: Safety of household and similar electrical appliances.

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

FDIS	Report on voting
61B/416/FDIS	61B/424/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.

The committee has decided that the contents of this amendment and the base 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- withdrawn,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.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may 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.

<https://standards.iteh.org/standards/sis/60335-2-90-06-amd1-2010>

## INTRODUCTION

*Replace the fifth paragraph by the following:*

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.

## 1 Scope

Add before Note 101:

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

## 2 Normative references

Replace the existing text by the following:

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60068-2-6, *Environmental testing – Part 2-6: 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)*

## 7 Marking and instructions

7.1 Add the following text to the addition:

If appliances have **accessible metal surfaces**, other than working surfaces, that have a temperature rise exceeding 90 K during the test of Clause 11, they shall be marked with symbol IEC 60417-5041 (2002-10) or with the substance of the following:

CAUTION: Hot surface.

7.6 Add the following to the addition:



[symbol IEC 60417-5041 (2002-10)]

Caution, hot surface

7.14 Add the following paragraph to the addition:

The height of the triangle used with symbol IEC 60417-5041 (2002-10) shall be at least 12 mm.

## 18 Endurance

Replace the existing text by the following:

This clause of Part 1 is replaced by the following.

The door system, including hinges, microwave seals and other associated parts, shall be constructed to withstand wear that may be expected in normal use.

*Compliance is checked by the following test.*

*The door system is subjected to 100 000 cycles of operation with the appliance supplied at **rated voltage** and containing an appropriate microwave-absorbing load. It is then subjected to 100 000 cycles of operation without microwave generation.*

*The door is opened and closed as in normal use. It is opened from the closed position to a position approximately 10° before fully open. The rate of operation is 6 cycles per minute. With the agreement of the manufacturer the rate of operation without microwave generation can be increased to 12 cycles per minute.*

*After the test, the microwave leakage shall not exceed the limit specified in Clause 32 and the door system shall still function.*

NOTE 101 Controls may be rendered inoperative in order to carry out the test.

NOTE 102 Components, the deterioration of which does not impair compliance with this standard, may be replaced in order to complete the test.

NOTE 103 Bricks or additional water of maximum 1 000 g may be added if necessary to avoid stopping of the test due to overheating.

## 22 Construction

*Add the following new subclause:*

**22.119** If **electronic circuits** are used to provide protection against microwave leakage they shall be designed so that a fault condition will not affect protection against microwave leakage.

*Compliance is checked by applying the tests in Clause 19 in conjunction with the requirements and test specifications in 22.105, 22.106, 22.107 and 22.108.*

## Annexes

*Add the following new Annex EE:*

## Annex EE (normative)

### Microwave ovens intended to be used on board ships

The following modifications to this standard are applicable for **microwave ovens** intended to be used on board ships.

#### 3 Terms and definitions

##### 3.EE.101

##### **open deck**

area which is exposed to marine environment

##### 3.EE.102

##### **dayroom**

area which may be exposed to marine environment from time to time

#### 6 Classification

##### 6.2 Addition:

Appliances for **open deck** use shall be IPX6.

#### 7 Marking and instructions

##### 7.12 Addition:

The instructions for use shall also include the substance of the following.

- usage on board ships;
- installation place (**open deck** protective enclosure, **dayrooms**);
- fastening means.

#### 22 Construction

**22.EE.101** Appliances shall withstand the pulses to which they may be subjected.

*Compliance is checked by carrying out the half-sine pulse tests specified in IEC 60068-2-27 under the following conditions.*

*The appliance is fastened in its normal position of use to a shock-testing machine by means of straps around the enclosure.*

*The type of pulse is a half-sine pulse and the severity is as follows.*

- application of the half-sine pulse is in all 3 axes;
- peak acceleration: 250 m/s<sup>2</sup>,
- duration of each half-sine pulse: 6 ms;
- number of half-sine pulses in each direction: 1 000 ± 10.



*The appliance shall show no damage that could impair compliance with 8.1, 16.3, Clause 29 and Clause 32 and connections shall not have worked loose.*

**22.EE.102** Appliances shall withstand the vibrations to which they may be subjected.

*Compliance is checked by carrying out the vibration tests specified in IEC 60068-2-6 under the following conditions.*

*The appliance is fastened in its normal position of use upon a vibration table by means of straps around the enclosure. The type of vibration is sinusoidal and the severity is as follows.*

- *direction of vibration is vertical and horizontal;*
- *amplitude of vibration: 0,35 mm;*
- *sweep frequency range: 10 Hz to 150 Hz;*
- *duration of the test: 30 min.*

*The appliance shall show no damage that could impair compliance with 8.1, 16.3, Clause 29 and Clause 32 and connections shall not have worked loose.*

### **31 Resistance to rusting**

*Replacement:*

This clause of part 1 is applicable except as follows.

*Addition:*

*Compliance is checked by the salt mist test Kb of IEC 60068-2-52:*

- *for **open deck** use severity 1 is applicable;*
- *for **dayrooms** use severity 2 is applicable.*

*Before the test, coatings are scratched by means a hardened steel pin, the end of which has the form of a cone with an angle of 40°. Its tip is rounded with a radius of 0,25 mm ± 0,02 mm. The pin is loaded so that the force exerted along its axis is 10 N ± 0,5 N. The scratches are made by drawing the pin along the surface of the coating at the speed of approximately 20 mm/s. Five scratches are made at least 5 mm apart and at least 5 mm from the edges.*

*After the test, the appliance shall not have deteriorated to such an extent that compliance with this standard, in particular with Clauses 8 and 27, is impaired. The coating shall not be broken and shall not have detached from the metal surface.*

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Withdrawing

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[IEC 60335-2-90:2006/AMD1:2010](#)

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[60335-2-90-2006-amd1-2010](#)

## AVANT-PROPOS

Le présent amendement a été établi par le sous-comité 61B, Sécurité des fours à micro-ondes, du comité d'études 61 de la CEI: Sécurité des appareils électrodomestiques et analogues

Le texte de cet amendement est issu des documents suivants:

FDIS	Rapport de vote
61B/416/FDIS	61B/424/RVD

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

Le comité a décidé que le contenu de cet amendement et de la publication de base ne sera pas modifié avant la date de stabilité indiquée sur le site web de la CEI sous «<http://webstore.iec.ch>» dans les données relatives à la publication recherchée. A cette date, la publication sera

- reconduite,
- supprimée,
- remplacée par une édition révisée, ou
- amendée.

NOTE L'attention des Comités Nationaux est attirée sur le fait que les fabricants d'appareils et les organismes d'essai peuvent avoir besoin d'une période transitoire après la publication d'une nouvelle publication CEI, ou d'une publication amendée ou révisée, pour fabriquer des produits conformes aux nouvelles exigences et pour adapter leurs équipements aux nouveaux essais ou aux essais révisés.

Le comité recommande que le contenu de cette publication soit entériné au niveau national au plus tôt 12 mois et au plus tard 36 mois après la date de publication.

## INTRODUCTION

*Remplacer le cinquième alinéa par ce qui suit:*

Lorsqu'une partie 2 ne comporte pas d'exigences complémentaires pour couvrir les risques traités dans la Partie 1, la Partie 1 s'applique.

NOTE 1 Cela signifie que les comités d'études responsables pour les parties 2 ont déterminé qu'il n'était pas nécessaire de spécifier des exigences particulières pour l'appareil en question en plus des exigences générales.

Cette norme est une norme de famille de produits traitant de la sécurité d'appareils et a préséance sur les normes horizontales et génériques couvrant le même sujet.

NOTE 1 Les normes horizontales et génériques couvrant un risque ne sont pas applicables parce qu'elles ont été prises en considération lorsque les exigences générales et particulières ont été étudiées pour la série de normes CEI 60335. Par exemple, dans le cas des exigences de température de surface pour de nombreux appareils, des normes génériques, comme l'ISO 13732-1 pour les surfaces chaudes, ne sont pas applicables en plus de la Partie 1 ou des parties 2.