

Légende

Anglais	Français
Set to off mode	Mise en mode arrêt
Cooling down period for 15 min ± 1 min	Période de refroidissement pendant 15 min ± 1 min
transition to low power mode	transition en mode faible puissance
Energy consumption according to Clause 14	Consommation d'énergie selon l'Article 14
unload oven and close the door 30 s ± 2 s after switching off	vider le four et fermer la porte 30 s ± 2 s après l'arrêt
cooling down period	période de refroidissement

Figure F.1 – Phases de mesure de la consommation d'énergie – exemple

On interrompt la mesure après 15 min \pm 2 s indépendamment de l'arrêt automatique de la ventilation.

La consommation d'énergie pour la **période de refroidissement** $W_{\rm V}$ est notée en Wh pour chaque charge.

S'assurer que les conditions suivantes restent applicables pendant la durée de la mesure:

- raccordement au secteur pendant la durée de l'essai;
- aucun réseau n'est connecté au produit.

Bibliographie

- [1] IEC 60335-2-25:2002 2010, Appareils électrodomestiques et analogues Sécurité Partie 2-25: Règles particulières pour les fours à micro-ondes, y compris les fours à micro-ondes combinés
- [2] IEC 60335-2-90:2006 2015, Appareils électrodomestiques et analogues Sécurité Partie 2-90: Règles particulières pour les fours à micro-ondes à usage commercial
- [3] IEC 60350:1999, Cuisinières, foyers de cuisson, fours électriques et grils à usage domestique Méthodes de mesure de l'aptitude à la fonction
- [3] IEC 60350-1:2016, Appareils de cuisson électrodomestiques Partie 1: Cuisinières, fours, fours à vapeur et grils Méthodes de mesure de l'aptitude à la fonction
- [4] CISPR 11:2009 2015, Appareils industriels, scientifiques et médicaux Caractéristiques de perturbations radioélectriques Limites et méthodes de mesure

This is a preview. Click here to purchase the full publication.





Edition 4.2 2018-05

FINAL VERSION

VERSION FINALE



Household microwave ovens - Methods for measuring performance

Fours à micro-ondes à usage domestique – Méthodes de mesure de l'aptitude à la fonction



CONTENTS

FO	FOREWORD5						
INT	INTRODUCTION to Amendment 17						
1	Scope						
2	Norm	tive references	. 8				
3	Term	and definitions	. 8				
4	Class	fication1	10				
	4.1	According to type1	10				
	4.2	According to characteristics1					
5	List o	measurements1	10				
6	Gene	al conditions for measurements1	11				
	6.1	General1	11				
	6.2	Supply voltage1	12				
	6.3	Test room1	12				
	6.4	Water1	12				
	6.5	Initial condition of the appliance1	12				
	6.6	Control setting1					
	6.7	Instruments and measurements					
_	6.8	Positioning the appliance					
7		sions and volume					
	7.1	External dimensions					
	7.2	Usable internal dimensions and calculated volume					
		7.2.1 General					
		7.2.3 Usable width					
		7.2.4 Usable depth					
		7.2.5 Reciprocating tray					
		7.2.6 Calculated volume					
		7.2.7 Dimensions of food support					
	7.3	Overall internal dimensions and overall volume1					
		7.3.1 General1	18				
		7.3.2 Overall height (<i>H</i>)1	18				
		7.3.3 Overall width (<i>W</i>)1	18				
		7.3.4 Overall depth (<i>D</i>)1	18				
		7.3.5 Overall volume of rectangular cavities1					
		7.3.6 Overall volume of non-rectangular cavities1	19				
8	Deter	nination of microwave power output1	19				
9	Efficie	ncy1	19				
10	Techi	ical tests for performance2	20				
	10.1 General						
	10.2	Square tank test	20				
		10.2.1 Procedure2	20				
		10.2.2 Evaluation2					
	10.3	Multiple beakers test					
		10.3.1 Procedure2	21				

		10.3.2	Evaluation	24		
11	Heati	ng perfo	rmance	24		
	11.1	Heating	beverages	24		
		_	General			
		11.1.2	Procedure	24		
			Evaluation			
	11.2	Heating	simulated food	25		
		_	Test purpose			
		11.2.2	Procedure	25		
		11.2.3	Evaluation	26		
12	Cook	ing perf	ormance	26		
	12.1	12.1 General				
	12.2	2.2 Evaluation				
		Tests		27		
			Egg custard			
		12.3.2	Sponge cake	27		
			Meatloaf			
		12.3.4	Potato gratin	29		
		12.3.5	Cake	30		
		12.3.6	Chicken	30		
13	Defro	sting pe	rformance	31		
	13.1	Genera	l	31		
	13.2	Evaluat	ion	31		
	13.3	Meat de	efrosting	32		
		13.3.1	Purpose of test	32		
		13.3.2	Container	32		
		13.3.3	Ingredients	33		
		13.3.4	Procedure	33		
14	Energ	gy consu	Imption for the microwave function	34		
	14.1	Genera	l	34		
	14.2	2 Test load				
	14.3	Prepara	ation	34		
	14.4	Position	ning the load in the appliance	35		
	14.5	Measur	ement of energy consumption for a cooking cycle	35		
	14.6	Calcula	tion for the energy consumption of a cooking cycle	36		
			sult			
	14.8	Reporti	ng of test results	37		
15	Cons	umption	measurement of low power modes	37		
Ann	ex A ((informa	tive) Regional defrosting tests	39		
	A.1	Genera	I	39		
	A.2	Introdu	ction	39		
	A.3	Test me	ethods	39		
	A.4	Evaluat	ion	40		
Ann	ex B ((informa	tive) Dishes for Clause 12 and 13	41		
Ann	ex C	(informa	tive) Stirrer	42		
Ann	ex D	(informa	tive) Glass container for Clauses 8 and 14	43		
			tive) Data and calculation sheet: Energy consumption for a cooking			
			ave function (Clause 14)	44		

Annex F (informative) Energy consumption for the cooling down period		
Bibliography	48	
Figure 1 – External dimensions of the microwave oven	14	
Figure 2 – Usable internal dimensions	16	
Figure 3 – Square tank	21	
Figure 4 – Beaker	22	
Figure 5 – Beaker positions for the test of 10.3	23	
Figure 6 – Beaker position for the test of 11.1	24	
Figure 7 – Rectangular tank	25	
Figure 8 – Shallow dish	33	
Figure C.1 – Plastic stirring adapter	42	
Figure C.2 – Example stirrer	42	
Figure D.1 – Example: small beaker (600 ml)	43	
Figure F.1 – Phases of energy consumption measurement – example	47	
Table 1 – List of measurements	11	
Table 2 – Instruments		
Table 3 – Measurements		
Table 4 – Test loads for measuring the energy consumption		
Table D.1 – Specification – glass containers	43	

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD MICROWAVE OVENS – METHODS FOR MEASURING PERFORMANCE

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

DISCLAIMER

This Consolidated version is not an official IEC Standard and has been prepared for user convenience. Only the current versions of the standard and its amendment(s) are to be considered the official documents.

This Consolidated version of IEC 60705 bears the edition number 4.2. It consists of the fourth edition (2010-04) [documents 59K/195/FDIS and 59K/198/RVD], its amendment 1 (2014-06) [documents 59K/252/FDIS and 59K/255/RVD] and its amendment 2 (2018-05) [documents 59K/297/FDIS and 59K/299/RVD]. The technical content is identical to the base edition and its amendments.

This Final version does not show where the technical content is modified by amendments 1 and 2. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 60705 has been prepared by subcommittee 59K: Ovens and microwave ovens, cooking ranges and similar appliances, of IEC technical committee 59: Performance of household and similar electrical appliances.

The main changes from the previous edition are as follows:

- the definition of rounding is given in 3.5;
- the usable volume and the overall volume are respectively determined in 7.2 and 7.3.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard, the following print types are used:

- test specifications: in italic type
- notes: in small roman type
- other texts: in roman type.

Words in **bold** in the text are defined in Clause 3.

This standard contains an attached file in the form of an Excel® 1 97-2003 data sheet program. This file is intended to be used as a complement and does not form an integral part of the standard.

The following differences exist in some countries:

Clause 7: Metric dimensional measures are not in common use (USA).

The committee has decided that the contents of the base publication and its amendments 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.

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.

Excel® is the trademark of a product supplied by Microsoft®. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

INTRODUCTION to Amendment 1

This amendment includes the following significant technical changes:

- the usable volume is renamed to calculated volume and the measurement method for the calculated volume is revised (see 7.2), which is in accordance with IEC 60350-1;
- new definitions for microwave function, combination microwave function, set to off mode, set to standby mode, cooling down period and food support in Clause 3;
- a method for measuring the energy consumption of the microwave function in Clause 14;
- more precise requirements for instruments and measurements in Table 2;
- additional product specific requirements for measuring the energy consumption of low power modes in Clause 15;
- a method for measuring the energy consumption for the cooling down period in Annex F (informative).