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INTERNATIONAL STANDARD



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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	7
1 Scope.....	10
2 Normative references	10
3 Terms and definitions	11
4 List of measurements	15
4.1 Dimensions and mass.....	15
4.2 Oven and combi steam oven.....	15
4.3 Steam oven and combi steam oven.....	15
4.4 Grill.....	15
4.5 Warming compartments	15
4.6 Cleaning	15
5 General conditions for the measurement	16
5.1 Test room	16
5.2 Electricity supply.....	16
5.3 Instrumentation.....	17
5.4 Positioning the appliance	18
5.5 Preheating	19
5.6 Setting of controls.....	19
5.7 Rounding	19
6 Dimensions and mass.....	19
6.1 Overall dimensions	19
6.2 Usable Internal dimensions and calculated volume	21
6.2.1 General	21
6.2.2 Usable Internal height.....	23
6.2.3 Usable Internal width	23
6.2.4 Usable Internal depth	23
6.2.5 Calculated volume	23
6.3 Overall internal dimensions and overall volume.....	24
6.3.1 General	24
6.3.2 Overall height (<i>H</i>)	24
6.3.3 Overall width (<i>W</i>)	24
6.3.4 Overall depth (<i>D</i>).....	24
6.3.5 Overall volume of rectangular cavities	24
6.3.6 Overall volume of non-rectangular cavities	24
6.4 Dimensions of shelves and steaming accessories.....	24
6.5 Dimensions of grill grids.....	25
6.5.1 Entire area.....	25
6.5.2 Usable area.....	25
6.6 Dimensions of warming compartments	25
6.7 Level of shelf	25
6.7 Mass of the appliance	26
7 Ovens and combi steam ovens Preheating and accuracy.....	26
7.1 General Purpose	26
7.2 Test setup.....	26
7.3 Preheating the empty oven	27
7.4 Accuracy of the control	27

7.4.1	Purpose	27
7.4.2	Measurements	27
7.4.3	Assessment	28
8	Energy consumption and time for heating a load	28
8.1	Purpose	28
8.2	Symbols and abbreviations	28
8.3	Test load	29
8.3.1	General	29
8.3.2	Pre-treatment	29
8.3.3	Preparation	30
8.4	Measurement	31
8.4.1	Test Procedure	35
7.4.4	Evaluation and calculation	
7.4.5	Reporting of test results	
8.4.2	Oven settings	39
8.4.3	Phase 1	40
8.4.4	Phase 2	41
8.5	Calculation	41
8.5.1	Smoothing the measured values	41
8.5.2	Determining the average temperature rise for a heating function (phase 2)	41
8.5.3	Determining the average temperature rise for an eco function (phase 2)	43
8.5.4	Calculation of average ambient temperature	45
8.5.5	Determining the <i>c</i> -factor	46
8.5.6	Determining the <i>s</i> -factor	46
8.6	Acceptance verification of the test results	47
8.6.1	Average temperature rise and standard deviation	47
8.6.2	Temperature setting and average temperature rise	48
8.6.3	<i>c</i> -factor	48
8.6.4	<i>s</i> -factor	48
8.7	Final electric energy consumption	48
8.8	Time for heating a load	49
8.9	Reporting of test results	49
9	Cooking tests	50
9.1	General	50
9.2	Heat distribution	50
9.2.1	Shortbread	50
9.2.2	Small cakes	52
9.3	Ability to supply heat	58
9.3.1	Fatless sponge cake	58
9.3.2	Apple pie	59
10	Steam ovens and combi steam ovens	61
10.1	Ability to supply steam	61
10.1.1	Purpose	61
10.1.2	Ingredients and steaming accessory	61
10.1.3	Procedure	61
10.1.4	Assessment	62
10.2	Distribution of steam	64
10.2.1	Purpose	64

10.2.2	Ingredients, steaming accessories and number of levels.....	64
10.2.3	Procedure.....	64
10.2.4	Assessment.....	65
10.3	Determination of the capacity.....	68
10.3.1	Purpose.....	68
10.3.2	Ingredients.....	68
10.3.3	Mass of peas, steaming accessories and number of levels.....	68
10.3.4	Procedure.....	69
10.3.5	Assessment.....	70
10.4	Accuracy of the temperature control.....	71
11	Effective grilling area.....	72
11.1	Purpose.....	72
11.2	Ingredients.....	72
11.3	Preparation.....	72
11.4	Procedure.....	72
11.5	Assessment.....	73
11.5.1	General.....	73
11.5.2	Criteria of validity.....	73
11.5.3	Criteria of assessment.....	73
12	Warming compartments.....	74
13	Cleaning.....	75
13.1	Pyrolytic self-cleaning ovens.....	75
13.2	Ovens with catalytic cleaning.....	75
14	Consumption measurement of low-power modes.....	75
14.1	Purpose and combination of appliances.....	75
14.2	Measurement.....	76
14.2.1	Principles.....	76
14.2.2	Determination of power consumption in off mode.....	77
14.2.3	Determination of power consumption in standby mode.....	77
14.2.4	Determination of power consumption in standby mode in condition of networked standby.....	78
14.2.5	Determination of power consumption in delay start.....	78
Annex A (normative) Colour measuring instrument.....		79
Annex B (normative) Brown shade charts.....		82
Annex B (informative) Addresses of suppliers.....		82
B.1	General.....	82
B.2	Testing ingredients for small cakes.....	82
B.3	Food mixer.....	84
B.4	Colour measuring instrument.....	85
B.5	Steaming basket.....	85
Annex C (normative) Description of the test brick.....		87
C.1	Specification.....	87
C.2	Supplier and order specification.....	87
Annex D (informative) Check of applied microwave energy during the measurement according to Clause 8.....		95
D.1	General.....	95
D.2	Procedure.....	95

Annex E (informative) Data and calculation sheet: Energy consumption for heating a load (7.4)	
Annex F (normative) Green shade charts	
Annex E (informative) Marking the temperature setting for checking the oven temperature	96
Annex F (informative) Approach to calculate the f -factor	97
Annex G (informative) Measurement of the energy consumption of the cooling down period	
Annex G (normative) Low-power mode measurements	98
Bibliography	100
Figure 1 – Position of the thermocouple for measuring ambient temperature	16
Figure 2 – Dimensions of appliances	20
Figure 3 – Dimensions of built-in appliances	21
Figure 4 – Usable Internal dimensions	22
Figure 5 – Gauge for measuring these dimensions	22
Figure 6 – Device for checking the level of shelves	
Figure 6 – Examples for determining the entire area and usable area of a grill grid	25
Figure 7 – Example of a thermocouple for the test of 7.4	30
Figure 8 – Entire process of measurement	37
Figure 9 – Installation observer thermocouple	38
Figure 10 – Vertical installation of the observer thermocouple	38
Figure 11 – Horizontal installation of the observer thermocouple	39
Figure 12 – Example – average temperature rise for a heating function	42
Figure 13 – Examples – set temperature reached	44
Figure 14 – Example – set temperature not reached	45
Figure 15 – Shape of the nozzle for extruding pastry	51
Figure 16 – Position of pastry strips on the baking sheet tray	51
Figure 10 – Convex colour sample	
Figure 17 – Template for the sectioning of small cakes	57
Figure 18 – Reference values of cooking time (t_{ref})	71
Figure 19 – Determining the assessable area of a slice of toast – Example	73
Figure A.1 – Colour measuring instrument	79
Figure C.1 – Position of the thermocouples	88
Figure D.1 – Filament lamp	95
Figure E.1 – Polar coordinate paper – Example	96
Table 1 – settings	
Table 1 – Instruments	18
Table 2 – Measurements	18
Table 3 – Symbols	28
Table 4 – Temperature rise for three settings	40
Table 5 – Ingredients	53
Table B.1 – Classification of shade numbers	

Table B.2 – Examples for the shade charts
Table B.1 – Ingredient specification	83
Table B.2 – Food mixer – revolutions per minute	84
Table B.3 – Mixing time and setting	84
Table F.1 – Specification of relevant green shade charts
Figure G.1 – Phases of energy consumption measurement – Example.....
Table G.1 – Step by step instruction for measuring low-power modes	98

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD ELECTRIC COOKING APPLIANCES –

**Part 1: Ranges, ovens, steam ovens and grills –
Methods for measuring performance**

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60350-1:2016+AMD1:2021 CSV. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 60350-1 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 2016 and Interpretation Sheet 1:2021. This edition constitutes a technical revision.

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

- a) new definitions for heating function, eco function and definitions relevant for low power mode considerations are amended in Clause 3;
- b) order of clauses is changed;
- c) revision of 5.3;
- d) update of 6.2 in order to improve the reliability of volume measurement;
- e) removal of 6.7, Level of shelf;
- f) revision of Clause 7 concerning the accuracy of **eco functions** with residual heat use;
- g) revision of Clause 8 in order to improve the reliability of the method for measuring the energy consumption, especially regarding anti-circumvention;
- h) unique energy consumption measurement for all **heating functions** and **eco functions** with an indication of the energy consumption for a temperature increase of 165 K (compared to 155 K currently for forced air circulation function, for example), which results in higher energy consumption values compared to the previous edition;
- i) R_y replaced by L^* in Clause 9 and reference to IEC TS 63350;
- j) cooking time for reference measurement introduced for broccoli in Clause 10;
- k) yellow part replaced by hue angle value in Clause 10;
- l) requirements for digital assessment (see former 7.5.3.6.3) are obsolete as specified in IEC TS 63350;
- m) revision of Clause 14 (Consumption measurement of low power modes, previous Clause 12);
- n) former Annex G (informative) is cancelled due to the fact that this method for measuring an associated activity has been not applied;
- o) former Annexes B and F are obsolete, up-to-date shade charts are specified in IEC TS 63350;
- p) former Annex E will be substituted by a supporting document located on the IEC's website.

The document contains supplementary material highlighted by notes indicating the link.

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

Draft	Report on voting
59K/365/FDIS	59K/370/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.

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

A list of all parts in the IEC 60350 series, published under the general title *Household electric cooking appliances*, can be found on the IEC website.

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.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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HOUSEHOLD ELECTRIC COOKING APPLIANCES –

Part 1: Ranges, ovens, steam ovens and grills – Methods for measuring performance

1 Scope

This part of IEC 60350 specifies methods for measuring the performance of electric **cooking ranges, ovens, steam ovens, and grills** for household use.

NOTE 1 This document is also applicable to portable appliances with similar functionalities that were previously covered by the withdrawn IEC 61817.

The **ovens** covered by this document ~~may~~ can be with or without microwave function.

Manufacturers ~~should~~ are expected to define the primary cooking function of the appliance – microwave function or thermal heat. The primary cooking function ~~should be~~ is measured with an existing method according to energy consumption. If the primary cooking function is declared in the instruction manual as a microwave function, IEC 60705 is applied for energy consumption measurement. If the primary cooking function is declared as a thermal heat, then IEC 60350-1 is applied for energy consumption measurement.

If the primary function is not declared by the manufacturer, the performance of the microwave function and thermal heat ~~should be~~ is measured as far as it is possible.

NOTE 2 For measurement of energy consumption and time for heating a load (see Clause 8), this document is furthermore not applicable to:

- microwave combination function;
- **ovens** with reciprocating trays or turntable;
- **small cavity ovens** (see 3.16);
- **ovens** without adjustable temperature control;
- **heating functions and eco functions** other than defined in this document;
- appliances with only solo **steam function**.

NOTE 3 This document does not apply to

- microwave ovens (IEC 60705).

This document defines the main performance characteristics of these appliances that are of interest to the user and specifies methods for measuring these characteristics.

This document does not specify a classification or ranking for performance.

~~NOTE 3 Some of the tests which are specified in this standard are not considered to be reproducible since the results may vary between laboratories. They are therefore intended for comparative testing purposes only.~~

NOTE 4 This document does not deal with safety requirements (IEC 60335-2-6 and IEC 60335-2-9).

NOTE 5 Appliances covered by this document ~~may~~ can be built-in or for placing on a working surface or the floor.

NOTE 6 There is no measurement method for the energy consumption for grilling and **steam functions** available.

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 60584-2, Thermocouples – Part 2: Tolerances~~

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

IEC 62301:2011, *Household electrical appliances – Measurement of standby power*

IEC TS 63350:2022, *Household electrical appliances – Specification of the properties of a digital system for measuring the performance*

IEC 63474¹, *Electrical and electronic household and office equipment – Measurement of networked standby power consumption of edge equipment*

ISO 80000-1:2009, *Quantities and units – Part 1: General*

~~GIE 15, Colorimetry~~

¹ Under preparation. Stage at the time of publication: IEC CDV 63474:2022.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

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

CONTENTS

FOREWORD.....	6
1 Scope.....	9
2 Normative references	9
3 Terms and definitions	10
4 List of measurements	13
4.1 Dimensions and mass.....	13
4.2 Oven and combi steam oven.....	13
4.3 Steam oven and combi steam oven.....	13
4.4 Grill.....	13
4.5 Warming compartments	13
4.6 Cleaning	13
5 General conditions for the measurement	14
5.1 Test room	14
5.2 Electricity supply.....	14
5.3 Instrumentation.....	14
5.4 Positioning the appliance	15
5.5 Preheating	16
5.6 Setting of controls.....	16
5.7 Rounding	16
6 Dimensions and mass.....	16
6.1 Overall dimensions	16
6.2 Internal dimensions and calculated volume	18
6.2.1 General	18
6.2.2 Internal height	19
6.2.3 Internal width.....	20
6.2.4 Internal depth	20
6.2.5 Calculated volume	20
6.3 Overall internal dimensions and overall volume.....	20
6.3.1 General	20
6.3.2 Overall height (<i>H</i>)	21
6.3.3 Overall width (<i>W</i>)	21
6.3.4 Overall depth (<i>D</i>).....	21
6.3.5 Overall volume of rectangular cavities	21
6.3.6 Overall volume of non-rectangular cavities	21
6.4 Dimensions of shelves and steaming accessories.....	21
6.5 Dimensions of grill grids.....	21
6.5.1 Entire area.....	21
6.5.2 Usable area.....	21
6.6 Dimensions of warming compartments	22
6.7 Mass of the appliance	22
7 Preheating and accuracy	22
7.1 Purpose	22
7.2 Test setup.....	22
7.3 Preheating the empty oven	23
7.4 Accuracy of the control	23
7.4.1 Purpose.....	23

7.4.2	Measurements	23
7.4.3	Assessment	24
8	Energy consumption and time for heating a load	24
8.1	Purpose	24
8.2	Symbols and abbreviations	24
8.3	Test load	25
8.3.1	General	25
8.3.2	Pre-treatment	25
8.3.3	Preparation	26
8.4	Measurement	26
8.4.1	Test Procedure	26
8.4.2	Oven settings	29
8.4.3	Phase 1	30
8.4.4	Phase 2	31
8.5	Calculation	31
8.5.1	Smoothing the measured values	31
8.5.2	Determining the average temperature rise for a heating function (phase 2)	31
8.5.3	Determining the average temperature rise for an eco function (phase 2)	33
8.5.4	Calculation of average ambient temperature	35
8.5.5	Determining the <i>c</i> -factor	36
8.5.6	Determining the <i>s</i> -factor	36
8.6	Acceptance verification of the test results	37
8.6.1	Average temperature rise and standard deviation	37
8.6.2	Temperature setting and average temperature rise	38
8.6.3	<i>c</i> -factor	38
8.6.4	<i>s</i> -factor	38
8.7	Final electric energy consumption	38
8.8	Time for heating a load	39
8.9	Reporting of test results	39
9	Cooking tests	40
9.1	General	40
9.2	Heat distribution	40
9.2.1	Shortbread	40
9.2.2	Small cakes	42
9.3	Ability to supply heat	47
9.3.1	Fatless sponge cake	47
9.3.2	Apple pie	48
10	Steam ovens and combi steam ovens	50
10.1	Ability to supply steam	50
10.1.1	Purpose	50
10.1.2	Ingredients and steaming accessory	50
10.1.3	Procedure	50
10.1.4	Assessment	51
10.2	Distribution of steam	52
10.2.1	Purpose	52
10.2.2	Ingredients, steaming accessories and number of levels	52
10.2.3	Procedure	53
10.2.4	Assessment	54

10.3	Determination of the capacity.....	56
10.3.1	Purpose.....	56
10.3.2	Ingredients.....	56
10.3.3	Mass of peas, steaming accessories and number of levels.....	56
10.3.4	Procedure.....	56
10.3.5	Assessment.....	57
10.4	Accuracy of the temperature control.....	59
11	Effective grilling area.....	59
11.1	Purpose.....	59
11.2	Ingredients.....	59
11.3	Preparation.....	59
11.4	Procedure.....	60
11.5	Assessment.....	60
11.5.1	General.....	60
11.5.2	Criteria of validity.....	60
11.5.3	Criteria of assessment.....	61
12	Warming compartments.....	62
13	Cleaning.....	62
13.1	Pyrolytic self-cleaning ovens.....	62
13.2	Ovens with catalytic cleaning.....	62
14	Consumption measurement of low-power modes.....	63
14.1	Purpose and combination of appliances.....	63
14.2	Measurement.....	63
14.2.1	Principles.....	63
14.2.2	Determination of power consumption in off mode.....	64
14.2.3	Determination of power consumption in standby mode.....	65
14.2.4	Determination of power consumption in standby mode in condition of networked standby.....	65
14.2.5	Determination of power consumption in delay start.....	65
Annex A (normative)	Colour measuring instrument.....	67
Annex B (informative)	Addresses of suppliers.....	68
B.1	General.....	68
B.2	Testing ingredients for small cakes.....	68
B.3	Food mixer.....	70
B.4	Colour measuring instrument.....	71
B.5	Steaming basket.....	71
Annex C (normative)	Description of the test brick.....	72
C.1	Specification.....	72
C.2	Supplier and order specification.....	72
Annex D (informative)	Check of applied microwave energy during the measurement according to Clause 8.....	74
D.1	General.....	74
D.2	Procedure.....	74
Annex E (informative)	Marking the temperature setting for checking the oven temperature.....	75
Annex F (informative)	Approach to calculate the <i>f</i> -factor.....	76
Annex G (normative)	Low-power mode measurements.....	77
Bibliography	79

Figure 1 – Position of the thermocouple for measuring ambient temperature.....	14
Figure 2 – Dimensions of appliances	17
Figure 3 – Dimensions of built-in appliances	18
Figure 4 – Internal dimensions.....	19
Figure 5 – Gauge for measuring these dimensions	19
Figure 6 – Examples for determining the entire area and usable area of a grill grid.....	22
Figure 7 – Example of a thermocouple	25
Figure 8 – Entire process of measurement.....	27
Figure 9 – Installation observer thermocouple.....	28
Figure 10 – Vertical installation of the observer thermocouple	28
Figure 11 – Horizontal installation of the observer thermocouple	29
Figure 12 – Example – average temperature rise for a heating function	32
Figure 13 – Examples – set temperature reached	34
Figure 14 – Example – set temperature not reached	35
Figure 15 – Shape of the nozzle for extruding pastry	41
Figure 16 – Position of pastry strips on the baking tray	41
Figure 17 – Template for the sectioning of small cakes.....	46
Figure 18 – Reference values of cooking time (t_{ref})	58
Figure 19 – Determining the assessable area of a slice of toast – Example	60
Figure A.1 – Colour measuring instrument	67
Figure C.1 – Position of the thermocouples.....	73
Figure D.1 – Filament lamp.....	74
Figure E.1 – Polar coordinate paper – Example	75
Table 1 – Instruments	15
Table 2 – Measurements.....	15
Table 3 – Symbols	24
Table 4 – Temperature rise for three settings.....	30
Table 5 – Ingredients	43
Table B.1 – Ingredient specification	69
Table B.2 – Food mixer – revolutions per minute	70
Table B.3 – Mixing time and setting	70
Table G.1 – Step by step instruction for measuring low-power modes	77

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD ELECTRIC COOKING APPLIANCES –

Part 1: Ranges, ovens, steam ovens and grills – Methods for measuring performance

FOREWORD

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IEC 60350-1 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 2016 and Interpretation Sheet 1:2021. This edition constitutes a technical revision.

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

- a) new definitions for heating function, eco function and definitions relevant for low power mode considerations are amended in Clause 3;
- b) order of clauses is changed;
- c) revision of 5.3;
- d) update of 6.2 in order to improve the reliability of volume measurement;
- e) removal of 6.7, Level of shelf;

- f) revision of Clause 7 concerning the accuracy of **eco functions** with residual heat use;
- g) revision of Clause 8 in order to improve the reliability of the method for measuring the energy consumption, especially regarding anti-circumvention;
- h) unique energy consumption measurement for all **heating functions** and **eco functions** with an indication of the energy consumption for a temperature increase of 165 K (compared to 155 K currently for forced air circulation function, for example), which results in higher energy consumption values compared to the previous edition;
- i) R_y replaced by L^* in Clause 9 and reference to IEC TS 63350;
- j) cooking time for reference measurement introduced for broccoli in Clause 10;
- k) yellow part replaced by hue angle value in Clause 10;
- l) requirements for digital assessment (see former 7.5.3.6.3) are obsolete as specified in IEC TS 63350;
- m) revision of Clause 14 (Consumption measurement of low power modes, previous Clause 12);
- n) former Annex G (informative) is cancelled due to the fact that this method for measuring an associated activity has been not applied;
- o) former Annexes B and F are obsolete, up-to-date shade charts are specified in IEC TS 63350;
- p) former Annex E will be substituted by a supporting document located on the IEC's website.

The document contains supplementary material highlighted by notes indicating the link.

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

Draft	Report on voting
59K/365/FDIS	59K/370/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.

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

A list of all parts in the IEC 60350 series, published under the general title *Household electric cooking appliances*, can be found on the IEC website.

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.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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HOUSEHOLD ELECTRIC COOKING APPLIANCES –

Part 1: Ranges, ovens, steam ovens and grills – Methods for measuring performance

1 Scope

This part of IEC 60350 specifies methods for measuring the performance of electric **cooking ranges, ovens, steam ovens, and grills** for household use.

NOTE 1 This document is also applicable to portable appliances with similar functionalities that were previously covered by the withdrawn IEC 61817.

The **ovens** covered by this document can be with or without microwave function.

Manufacturers are expected to define the primary cooking function of the appliance – microwave function or thermal heat. The primary cooking function is measured with an existing method according to energy consumption. If the primary cooking function is declared in the instruction manual as a microwave function, IEC 60705 is applied for energy consumption measurement. If the primary cooking function is declared as a thermal heat, then IEC 60350-1 is applied for energy consumption measurement.

If the primary function is not declared by the manufacturer, the performance of the microwave function and thermal heat is measured as far as it is possible.

NOTE 2 For measurement of energy consumption and time for heating a load (see Clause 8), this document is furthermore not applicable to:

- microwave combination function;
- **ovens** with reciprocating trays or turntable;
- **small cavity ovens** (see 3.16);
- **ovens** without adjustable temperature control;
- **heating functions** and **eco functions** other than defined in this document;
- appliances with only solo **steam function**.

NOTE 3 This document does not apply to

- microwave ovens (IEC 60705).

This document defines the main performance characteristics of these appliances that are of interest to the user and specifies methods for measuring these characteristics.

This document does not specify a classification or ranking for performance.

NOTE 4 This document does not deal with safety requirements (IEC 60335-2-6 and IEC 60335-2-9).

NOTE 5 Appliances covered by this document can be built-in or for placing on a working surface or the floor.

NOTE 6 There is no measurement method for the energy consumption for grilling and **steam functions** available.

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 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

IEC 62301:2011, *Household electrical appliances – Measurement of standby power*

IEC TS 63350:2022, *Household electrical appliances – Specification of the properties of a digital system for measuring the performance*

IEC 63474¹, *Electrical and electronic household and office equipment – Measurement of networked standby power consumption of edge equipment*

ISO 80000-1:2009, *Quantities and units – Part 1: General*

¹ Under preparation. Stage at the time of publication: IEC CDV 63474:2022.

SOMMAIRE

AVANT-PROPOS	84
1 Domaine d'application	87
2 Références normatives	88
3 Termes et définitions	88
4 Liste des mesurages.....	91
4.1 Dimensions et masse.....	91
4.2 Four et four à vapeur combiné	92
4.3 Four à vapeur et four à vapeur combiné.....	92
4.4 Gril	92
4.5 Compartiments de réchauffage	92
4.6 Nettoyage	92
5 Conditions de mesurage générales.....	92
5.1 Local d'essai.....	92
5.2 Alimentation électrique	93
5.3 Appareillage de mesure	94
5.4 Positionnement de l'appareil	95
5.5 Préchauffage	95
5.6 Réglage des commandes.....	95
5.7 Arrondi.....	95
6 Dimensions et masse	95
6.1 Dimensions hors tout	95
6.2 Dimensions intérieures et volume calculé	97
6.2.1 Généralités.....	97
6.2.2 Hauteur intérieure.....	99
6.2.3 Largeur intérieure	99
6.2.4 Profondeur intérieure.....	99
6.2.5 Volume calculé	100
6.3 Dimensions intérieures globales et volume global	100
6.3.1 Généralités.....	100
6.3.2 Hauteur globale (H)	100
6.3.3 Largeur globale (W)	100
6.3.4 Profondeur globale (D)	100
6.3.5 Volume global des cavités rectangulaires	100
6.3.6 Volume global des cavités non rectangulaires	100
6.4 Dimensions des étagères et des accessoires à vapeur	101
6.5 Dimensions des grilles de gril	101
6.5.1 Surface totale	101
6.5.2 Surface utile	101
6.6 Dimensions des compartiments de réchauffage	101
6.7 Masse de l'appareil.....	101
7 Préchauffage et exactitude	102
7.1 Objet.....	102
7.2 Montage d'essai.....	102
7.3 Préchauffage du four vide	102
7.4 Exactitude de la commande	103
7.4.1 Objet	103

7.4.2	Mesurages.....	103
7.4.3	Évaluation	103
8	Consommation d'énergie et temps de chauffage d'une charge.....	103
8.1	Objet.....	103
8.2	Symboles et abréviations	104
8.3	Charge d'essai.....	104
8.3.1	Généralités.....	104
8.3.2	Prétraitement.....	104
8.3.3	Préparation.....	105
8.4	Mesurage.....	106
8.4.1	Procédure d'essai	106
8.4.2	Réglages du four	109
8.4.3	Phase 1	110
8.4.4	Phase 2	111
8.5	Calcul	111
8.5.1	Lissage des valeurs mesurées.....	111
8.5.2	Détermination de l'échauffement moyen pour une fonction de chauffage (phase 2).....	112
8.5.3	Détermination de l'échauffement moyen pour une fonction éco (phase 2).....	113
8.5.4	Calcul de la température ambiante moyenne	116
8.5.5	Détermination du facteur c	116
8.5.6	Détermination du facteur s	117
8.6	Vérification d'acceptation des résultats d'essai	117
8.6.1	Échauffement moyen et écart-type	117
8.6.2	Réglage de température et échauffement moyen	118
8.6.3	Facteur c	119
8.6.4	Facteur s	119
8.7	Consommation d'énergie électrique finale.....	119
8.8	Temps pour le chauffage d'une charge	120
8.9	Rapport des résultats d'essai.....	120
9	Essais de cuisson.....	120
9.1	Généralités	120
9.2	Répartition de la chaleur	121
9.2.1	Sablés	121
9.2.2	Petits gâteaux	123
9.3	Aptitude à produire de la chaleur	128
9.3.1	Biscuit de Savoie sans graisse	128
9.3.2	Tarte aux pommes.....	129
10	Fours à vapeur et fours à vapeur combinés	131
10.1	Aptitude à produire de la vapeur	131
10.1.1	Objet	131
10.1.2	Ingrédients et accessoire à vapeur	131
10.1.3	Procédure.....	132
10.1.4	Évaluation	133
10.2	Répartition de la vapeur.....	134
10.2.1	Objet	134
10.2.2	Ingrédients, accessoires à vapeur et nombre de niveaux	134
10.2.3	Procédure.....	134

10.2.4	Évaluation	135
10.3	Détermination de la capacité.....	137
10.3.1	Objet	137
10.3.2	Ingrédients	137
10.3.3	Masse de pois, accessoires à vapeur et nombre de niveaux	138
10.3.4	Procédure.....	138
10.3.5	Évaluation	139
10.4	Exactitude de la commande de température.....	140
11	Surface effective de grillage	141
11.1	Objet.....	141
11.2	Ingrédients.....	141
11.3	Préparation	141
11.4	Procédure	141
11.5	Évaluation.....	142
11.5.1	Généralités	142
11.5.2	Critères de validité	142
11.5.3	Critères de vérification.....	142
12	Compartiments de réchauffage	144
13	Nettoyage.....	144
13.1	Fours autonettoyants par pyrolyse	144
13.2	Fours à nettoyage par catalyse	144
14	Mesurage de la consommation des modes faible puissance	145
14.1	Objet et combinaison d'appareils	145
14.2	Mesurage.....	145
14.2.1	Principes	145
14.2.2	Détermination de la consommation de puissance en mode arrêt.....	147
14.2.3	Détermination de la consommation de puissance en mode veille	147
14.2.4	Détermination de la consommation de puissance en mode veille avec maintien de la connexion au réseau.....	147
14.2.5	Détermination de la consommation de puissance en démarrage différé	147
Annex A	(normative) Colorimètre	149
Annex B	(informative) Adresses des fournisseurs	150
B.1	Généralités	150
B.2	Ingrédients pour les essais des petits gâteaux.....	150
B.3	Batteur.....	152
B.4	Colorimètre	153
B.5	Panier vapeur	153
Annex C	(normative) Description de la brique d'essai	154
C.1	Spécification	154
C.2	Fournisseur et spécification de commande.....	154
Annex D	(informative) Vérification de l'énergie à micro-ondes appliquée au cours des mesurages selon l'Article 8.....	156
D.1	Généralités	156
D.2	Procédure	156
Annex E	(informative) Marquage du réglage de température pour la vérification de la température du four	157
Annex F	(informative) Méthode de calcul du facteur f	158
Annex G	(normative) Mesurage des modes faible puissance.....	159

Bibliographie.....	161
Figure 1 – Position du couple thermoélectrique pour le mesurage de la température ambiante.....	93
Figure 2 – Dimensions des appareils	96
Figure 3 – Dimensions des appareils à encastrer	97
Figure 4 – Dimensions intérieures.....	98
Figure 5 – Gabarit pour le mesurage des dimensions.....	98
Figure 6 – Exemples pour la détermination de la surface totale et de la surface utile d'une grille de gril	101
Figure 7 – Exemple de couple thermoélectrique.....	105
Figure 8 – Processus de mesurage complet.....	107
Figure 9 – Installation du couple thermoélectrique observateur.....	108
Figure 10 – Installation verticale du couple thermoélectrique observateur.....	108
Figure 11 – Installation horizontale du couple thermoélectrique observateur.....	109
Figure 12 – Exemple – Échauffement moyen pour une fonction de chauffage	112
Figure 13 – Exemples – Consigne de température atteinte	114
Figure 14 – Exemple – Consigne de température non atteinte	115
Figure 15 – Forme de la douille ruban pour la confection des bandes de pâte	121
Figure 16 – Position des bandes de pâte sur la plaque à pâtisserie	122
Figure 17 – Gabarit pour la division en sections des petits gâteaux	127
Figure 18 – Valeurs de référence du temps de cuisson (t_{ref})	140
Figure 19 – Détermination de la surface évaluable d'une tranche de pain grillé – Exemple	142
Figure A.1 – Colorimètre.....	149
Figure C.1 – Position des couples thermoélectriques	155
Figure D.1 – Lampe à filament.....	156
Figure E.1 – Feuille de papier à coordonnées polaires – Exemple	157
Tableau 1 – Appareils de mesure.....	94
Tableau 2 – Mesurages	94
Tableau 3 – Symboles	104
Tableau 4 – Échauffement pour trois réglages	110
Tableau 5 – Ingrédients	124
Tableau B.1 – Spécification des ingrédients.....	151
Tableau B.2 – Batteur – Nombre de tours par minute.....	152
Tableau B.3 – Temps de mélange et réglages	153
Tableau G.1 – Instructions pas à pas pour le mesurage des modes faible puissance.....	159

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

APPAREILS DE CUISSON ÉLECTRODOMESTIQUES –

Partie 1: Cuisinières, fours, fours à vapeur et grils – Méthodes de mesure de l'aptitude à la fonction

AVANT-PROPOS

- 1) La Commission Électrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. À cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
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- 9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets.

L'IEC 60350-1 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 2016 et la Fiche d'interprétation 1:2021. Cette édition constitue une révision technique.

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

- a) ajout de nouvelles définitions pour la fonction de chauffage et la fonction éco, avec un amendement concernant les considérations relatives au mode faible puissance à l'Article 3;
- b) modification de l'ordre des articles;
- c) révision du 5.3;
- d) mise à jour du 6.2 afin d'améliorer la fiabilité de la mesure du volume;
- e) suppression du 6.7, Horizontalité de l'étagère;
- f) révision de l'Article 7 relatif à l'exactitude des **fonctions éco** avec utilisation de la chaleur résiduelle;
- g) révision de l'Article 8 afin d'améliorer la fiabilité de la méthode de mesure de la consommation d'énergie, en particulier en ce qui concerne l'anticonournement;
- h) mesurage de la consommation d'énergie unique pour l'ensemble des **fonctions de chauffage** et des **fonctions éco** avec indication de la consommation d'énergie pour une augmentation de la température de 165 K (comparée à 155 K actuellement pour une fonction de circulation forcée de l'air, par exemple), ce qui donne des valeurs de consommation d'énergie supérieures à celles de l'édition précédente;
- i) remplacement de R_y par L^* dans l'Article 9 et référence à l'IEC TS 63350;
- j) introduction du temps de cuisson pour la mesure de référence des brocolis à l'Article 10;
- k) remplacement du terme "partie jaune" par le terme "valeur d'angle de teinte" à l'Article 10;
- l) les exigences relatives à la vérification numérique (voir l'ancien 7.5.3.6.3) sont obsolètes, comme cela est spécifié dans l'IEC TS 63350;
- m) révision de l'Article 14 (Mesurage de la consommation des modes faible puissance, ancien Article 12);
- n) annulation de l'ancienne Annexe G (informative) en raison de l'absence d'application de cette méthode de mesure d'une activité associée;
- o) les anciennes Annexes B et F sont obsolètes, car des nuanciers plus récents sont spécifiés dans l'IEC TS 63350;
- p) l'ancienne Annexe E sera remplacée par un document de support disponible sur le site web de l'IEC.

Ce document contient des informations supplémentaires mises en évidence par des notes qui indiquent le lien.

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

Projet	Rapport de vote
59K/365/FDIS	59K/370/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.

Les termes en **gras** dans le texte sont spécifiquement définis à l'Article 3.

Une liste de toutes les parties de la série IEC 60350, publiées sous le titre général *Appareils de cuisson électrodomestiques*, se trouve sur le site web de l'IEC.

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.

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APPAREILS DE CUISSON ÉLECTRODOMESTIQUES –

Partie 1: Cuisinières, fours, fours à vapeur et grils – Méthodes de mesure de l'aptitude à la fonction

1 Domaine d'application

La présente partie de l'IEC 60350 spécifie les méthodes de mesure de l'aptitude à la fonction des **cuisinières**, des **fours**, des **fours à vapeur** et des **grils** électriques à usage domestique.

NOTE 1 Le présent document s'applique également aux appareils mobiles équipés de fonctionnalités similaires, qui étaient auparavant couverts par l'IEC 61817 aujourd'hui supprimée.

Les **fours** couverts par le présent document peuvent disposer ou non d'une fonction micro-ondes.

Les fabricants sont présumés définir la fonction de cuisson principale de l'appareil: micro-ondes ou chaleur thermique. La fonction de cuisson principale est mesurée au moyen d'une méthode existante en fonction de la consommation d'énergie. Si la fonction de cuisson principale est déclarée dans le manuel d'instruction comme étant la fonction micro-ondes, l'IEC 60705 s'applique pour le mesurage de la consommation d'énergie. Si la fonction de cuisson principale est déclarée comme étant la chaleur thermique, l'IEC 60350-1 s'applique pour le mesurage de la consommation d'énergie.

Si la fonction principale n'est pas déclarée par le fabricant, l'aptitude à la fonction micro-ondes et à la fonction chaleur thermique est mesurée autant que possible.

NOTE 2 Pour le mesurage de la consommation d'énergie et du temps de chauffage d'une charge (voir l'Article 8), le présent document ne s'applique pas non plus aux:

- fonctions micro-ondes combinées;
- **fours** avec plateau coulissant ou plateau tournant;
- **fours à petite cavité** (voir le 3.16);
- **fours** sans commande de température réglable;
- **fonctions de chauffage** et **fonctions éco** autres que celles définies dans le présent document;
- appareils avec **fonction de vapeur** uniquement.

NOTE 3 Le présent document ne s'applique pas aux:

- fours à micro-ondes (IEC 60705).

Le présent document définit les caractéristiques de performance principales de ces appareils qui sont pertinentes pour l'utilisateur et spécifie les méthodes de mesure de ces caractéristiques.

Le présent document ne spécifie pas un système de classement pour l'aptitude à la fonction de ces appareils.

NOTE 4 Le présent document ne traite pas des exigences de sécurité (IEC 60335-2-6 et IEC 60335-2-9).

NOTE 5 Les appareils couverts par le présent document peuvent être posés sur le sol, encastrés ou placés sur un plan de travail.

NOTE 6 Aucune méthode de mesure de la consommation d'énergie n'est disponible pour les **fonctions de vapeur** et de gril.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60584-1, *Couples thermoélectriques – Partie 1: Spécifications et tolérances en matière de FEM*

IEC 62301:2011, *Appareils électrodomestiques – Mesure de la consommation en veille*

IEC TS 63350:2022, *Household electrical appliances – Specification of the properties of a digital system for measuring the performance* (disponible en anglais seulement)

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¹ À l'étude. Stade au moment de la publication: IEC CDV 63474:2022.