

© Copyright SEK Svensk Elstandard. Reproduction in any form without permission is prohibited.

Diskmaskiner för hushållsbruk – Funktionsprovning

*Electric dishwashers for household use –
Methods for measuring the performance*

Som svensk standard gäller europastandarden EN 60436:2020. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60436:2020.

Nationellt förord

Europastandarden EN 60436:2020

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60436, Fourth edition, 2015 - Electric dishwashers for household use - Methods for measuring the performance**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 50242/60436, utgåva 3, 2016, gäller ej fr o m 2023-03-27.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

EUROPEAN STANDARD

EN 60436

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2020

ICS 97.040.40

Supersedes EN 50242:2016 and all of its amendments
and corrigenda (if any)

English Version

**Electric dishwashers for household use - Methods for measuring
the performance
(IEC 60436:2015, modified)**

Lave-vaisselle électriques à usage domestique - Méthodes
de mesure de l'aptitude à la fonction
(IEC 60436:2015 , modifiée)

Elektrische Geschirrspüler für den Hausgebrauch -
Messverfahren für Gebrauchseigenschaften
(IEC 60436:2015 , modifiziert)

This European Standard was approved by CENELEC on 2019-09-30. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

© 2020 CENELEC All rights of exploitation in any form and by any means reserved worldwide for CENELEC Members.

Ref. No. EN 60436:2020 E

Contents	Page
European foreword	5
1 Modification of Introduction	6
2 Modification of Clause 1 "Scope"	6
1 Scope	6
3 Modification of Clause 2 "Normative references"	6
4 Modification of Clause 3 "Terms and definitions"	7
3.2 Symbols	9
3.2.4 Symbols related to the measurements (Clause 8 and Annex U)	9
3.2.Z1 Symbols related to low power modes (Annex ZA)	9
5 Modification of Clause 5 "General conditions for measurements"	9
5.2 Sequence of test procedures and conditioning of the test machine	9
5.3 Electricity supply for machines	10
5.3.1 Electricity supply for test machine	10
5.3.1.1 Voltage	10
5.3.1.2 Frequency	10
5.3.2 Electricity supply for the reference machine	10
5.3.2.1 Voltage	10
5.4 Test programme	10
5.5 Ambient conditions	10
5.6 Water	10
5.6.2 Water temperature	10
5.6.3 Water hardness	11
5.7 Detergent	11
6 Modification of Clause 6 "Combined cleaning and drying performance test"	11
6 Combined cleaning and drying performance test	11
6.4 Preparation and application of soiling agents	11
6.4.2 Milk	11
6.4.2.1 General	11
6.4.3 Tea	11
6.4.3.1 General	11
6.4.3.3 Application	11
6.4.3.4 Pre-drying for oven drying method	11
6.4.3.5 Pre-drying for air drying method	12
6.4.4 Minced meat	12
6.4.4.1 General	12
6.4.6 Oat flakes	13
6.4.6.1 General	13
6.4.6.2 Preparation	13
6.4.6.3 Application	13
6.4.7 Spinach	13

6.4.7.1	General	13
6.5	Drying of the soiled tableware items	14
6.5.2	Oven drying method	14
6.5.3	Air drying method	14
6.6	Loading and operating	14
6.6.2	Operating	14
7	Modification of Clause 7 "Combined cleaning and drying performance assessment"	15
7	Combined cleaning and drying performance assessment	15
7.2	Determination of the drying performance	15
7.2.1	General requirements to enable subsequent cleaning assessment	15
7.2.2	Drying assessment procedure	15
7.2.3	Calculation of the drying index	16
7.3	Determination of the cleaning performance	16
7.3.1	General	16
7.3.4	Assessing $ln W_C$	16
8	Modification of clause 8, "Energy consumption, water consumption, cycle time and programme time"	17
8.1	General and purpose	17
8.2	Method of measurement	17
8.2.1	General	17
8.2.2	Energy consumption	18
8.2.4	Water consumption	18
8.2.5	Time	18
9	Modification of clause 9 "Airborne acoustical noise"	19
10	Modification of Annex A	19
	Annex A (normative) Place settings and serving pieces	19
	A.2 Test load specification	19
11	Modification of Annex B	22
12	Modification of Annex D	30
13	Modification of Annex E	30
	E.1 General	30
14	Modification of Annex F	30
	F.1 Specification of the microwave oven	30
	F.2 Calibration of the microwave oven	30
15	Modification of Annex G	31
	G.1 Specification of the thermal cabinet	31
16	Modification of Annex I	31
	I.4 Reference machine loading plan	32
17	Modification of Annex J	34
18	Modification of Annex K	34
	K.3 Determination of left on mode duration	37
	K.4 Determination of end of programme mode power	37

K.5 Determination of end of programme mode duration	37
K.6 Determination of off mode power.....	38
K.7 Determination of delay start mode power	38
19 Modification of Annex L.....	39
L.2 Alternative suppliers.....	42
L.2.1 General	42
L.2.2 Alternative food soils	42
20 Modification of Annex N	43
21 Modification of Annex P	43
22 Modification of Annex Q.....	43
23 Modification of Annex R.....	43
24 Modification of Annex S	43
25 Modification of Annex T	43
26 Modification of Annex U.....	44
U.3 Correlating energy consumption tests with different cold water inlet temperatures	44
U.3.2 Estimating regional energy consumption from standard cold water temperature	44
U.3.3 Estimating standard energy consumption from regional cold water temperature	44
27 Addition of Annexes	45
Annex ZA (normative) Measurement procedure for low power modes.....	45
ZA.1 General.....	45
ZA.2 Determination of off mode.....	48
ZA.3 Determination of standby mode.....	48
ZA.4 Determination of standby mode in condition of networked standby.....	48
ZA.5 Determination of delay start mode power	48
Annex ZB (normative) Normative references to international publications with their corresponding European publications.....	49
Annex ZZA (EU regulation on energy labelling)	50
Annex ZZB (EU regulation on ecodesign).....	50

European foreword

This document (EN 60436:2020) consists of the text of IEC 60436:2015 prepared by IEC/TC 59, "Electric dishwashers", together with the common modifications prepared by CLC/TC 59X "Performance of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has to be (dop) 2020-09-27 implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting (dow) 2023-03-27 with this document have to be withdrawn

This document supersedes EN 50242:2016 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.

EN 60436:2019 includes the following significant technical changes with respect to EN 50242:2016/EN 60436:2016:

- new test load with a bigger variety of materials and shapes, including pots, mugs, plastic items and more bowls;
- new phosphate-free reference detergent reflecting more market relevant composition of ingredients;
- more precise soiling procedure;
- new reference materials;
- new definitions and measurement procedures for low power modes.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60436:2015 are prefixed "Z".

In this document, the common modifications to the International Standards are indicated in red.

Endorsement notice

The text of the International Standard IEC 60436:2015 was approved by CENELEC as a European Standard with agreed common modifications.

CONTENTS

FOREWORD.....	7
INTRODUCTION.....	9
1 Scope.....	10
2 Normative references	10
3 Terms, definitions and symbols	10
3.1 Terms and definitions.....	10
3.2 Symbols.....	14
3.2.1 Symbols related to the application of egg (6.4.5.3)	14
3.2.2 Symbols related to the calculation of the drying index (7.2.3)	14
3.2.3 Symbols related to the calculation of the cleaning index (7.3.2)	14
3.2.4 Symbols related to the measurements (Clause 8 and Annex U)	15
3.2.5 Symbols related to the microwave calibration (Annex F)	15
4 List of measurements	15
5 General conditions for measurements.....	16
5.1 General.....	16
5.1.1 General information	16
5.1.2 Free standing dishwashers	16
5.1.3 Built-in and integrated dishwashers	16
5.2 Sequence of test procedures and conditioning of the test machine	17
5.3 Electricity supply for machines.....	17
5.3.1 Electricity supply for test machine.....	17
5.3.2 Electricity supply for the reference machine.....	17
5.4 Test programme.....	18
5.5 Ambient conditions	18
5.6 Water.....	18
5.6.1 General	18
5.6.2 Water temperature.....	18
5.6.3 Water hardness	19
5.6.4 Water pressure	19
5.7 Detergent.....	19
5.8 Rinse aid	20
5.9 Salt.....	20
6 Combined cleaning and drying performance tests	20
6.1 General and purpose	20
6.2 Load	20
6.2.1 Composition of the test load	20
6.2.2 Requirements for pre-conditioning of new tableware.....	21
6.2.3 Requirements for conditioning of tableware	21
6.2.4 Requirements for re-conditioning tableware	21
6.3 Soiling agents and preparation equipment	21
6.4 Preparation and application of soiling agents	22
6.4.1 General	22
6.4.2 Milk	22
6.4.3 Tea.....	24
6.4.4 Minced meat.....	26
6.4.5 Egg.....	27

6.4.6	Oat flakes	28
6.4.7	Spinach	28
6.4.8	Margarine	29
6.5	Drying of the soiled tableware items	30
6.5.1	General	30
6.5.2	Oven drying method	30
6.5.3	Air drying method	31
6.6	Loading and operating	31
6.6.1	Loading	31
6.6.2	Operating	32
7	Combined cleaning and drying performance assessment	32
7.1	General requirements	32
7.2	Determination of the drying performance	33
7.2.1	General requirements to enable subsequent cleaning assessment	33
7.2.2	Drying assessment procedure	33
7.2.3	Calculation of the drying index	35
7.3	Determination of the cleaning performance	37
7.3.1	General	37
7.3.2	Calculation of the cleaning index	39
7.3.3	Dishwasher filter systems	40
7.3.4	Assessing $ln W_C$	40
7.4	Results	41
7.4.1	Expressing drying results	41
7.4.2	Expressing cleaning results	41
8	Energy consumption, water consumption, cycle time and programme time	41
8.1	General and purpose	41
8.2	Method of measurement	42
8.2.1	General	42
8.2.2	Energy consumption	42
8.2.3	Hot water energy	42
8.2.4	Water consumption	43
8.2.5	Time	43
9	Airborne acoustical noise	43
Annex A (normative) Place settings and serving pieces		44
A.1	General information	44
A.2	Test load specifications	44
Annex B (informative) Tableware specifications		48
Annex C (normative) Illustration of soil application quantities		57
C.1	Soil application	57
C.1.1	Soil application example for type A tableware items	57
C.1.2	Soil application example for type B tableware items	57
C.1.3	Soil application on the serving pieces	58
C.1.4	Soil application quantities for different rated dishwasher capacities	59
Annex D (informative) Pictures of the soiled items		60
Annex E (normative) Test additives		64
E.1	General	64
E.2	Detergent	64
E.3	Rinse aid	64

E.4	Salt.....	65
Annex F (normative)	Microwave oven	66
F.1	Specification of the microwave oven	66
F.2	Calibration of the microwave oven	66
Annex G (normative)	Through-circulation thermal cabinet	68
G.1	Specification of the thermal cabinet	68
G.2	Calibration of the thermal cabinet	68
Annex H (informative)	Alternate cleaning and drying assessment tables	70
H.1	General.....	70
H.2	Alternate drying performance table	70
H.3	Alternate cleaning performance table	71
Annex I (normative)	Description of the reference machine	73
I.1	Specification of the reference machine	73
I.1.1	General	73
I.1.2	General specifications	73
I.1.3	Guidelines for performance values.....	74
I.2	Installation and use of the reference machine	74
I.3	Specification check of the reference machine	74
I.3.1	General	74
I.3.2	Checking spray arm rotation	75
I.3.3	Checking the water hardness.....	75
I.3.4	Checking the energy consumption and water consumption	75
I.3.5	Checking the water level in the sump.....	75
I.3.6	Checking the water temperature in the sump	75
I.3.7	Checking the cycle time.....	76
I.3.8	Checking the cleaning and drying performance.....	76
I.4	Reference machine loading plan	76
Annex J (informative)	Shade chart	78
J.1	General.....	78
J.2	Classification of shade numbers	78
Annex K (normative)	Additional aspects of energy consumption of dishwashers	79
K.1	General.....	79
K.2	Determination of left on mode power.....	81
K.3	Determination of left on mode duration	82
K.4	Determination of end of cycle mode power.....	82
K.5	Determination of end of cycle mode duration	83
K.6	Determination of off mode power	83
K.7	Determination of delay start mode power	83
Annex L (informative)	Addresses of suppliers	84
L.1	General suppliers.....	84
L.2	Alternative suppliers	88
L.2.1	General	88
L.2.2	Alternative food soils	88
Annex M (informative)	Test report format	89
M.1	General.....	89
M.2	Machine description	89
M.3	Laboratory details	89
M.4	Test Conditions.....	89

M.5	Test Results and measurements	89
M.5.1	Setup	89
M.5.2	Results	89
Annex N (normative)	Test enclosure for built-in and integrated dishwashers	91
Annex O (informative)	Internal evaluation guidelines	92
Annex P (informative)	Test procedure for sensing programmes	93
P.1	General	93
P.2	General conditions	93
P.3	Loading	94
P.4	Soiling	94
P.5	Measured data	94
Annex Q (informative)	Additional rinse performance evaluation	95
Q.1	General	95
Q.2	General conditions	95
Q.3	Loading	95
Q.4	Evaluation	95
Q.5	Measured data	96
Annex R (informative)	Dishwasher filtration evaluation	98
R.1	General	98
R.2	General conditions	98
R.3	Test procedure	98
R.3.1	General	98
R.3.2	Coffee grounds	98
R.3.3	Spinach	100
R.4	Evaluation	100
Annex S (Informative)	Flow chart – test sequence for IEC 60436	103
Annex T (normative)	Instrumentation and accuracy	104
Annex U (informative)	Inlet water temperature influence on energy consumption	105
U.1	General	105
U.2	Cold water energy correction	105
U.3	Correlating energy consumption tests with different cold water inlet temperatures	106
U.3.1	General	106
U.3.2	Estimating regional energy consumption from standard cold water temperature	107
U.3.3	Estimating standard energy consumption from regional cold water temperature	107
Bibliography	109
Figure 1	– Position of the glasses on the microwave turntable	24
Figure 2	– The thermal cabinet for pre-drying of soiled cups, mugs and saucers	25
Figure 3	– Schematic view of the different beef pieces	26
Figure 4	– The thermal cabinet with soiled load items (30 place settings)	30
Figure G.1	– Location of the thermocouple on upper, intermediate and lower wire shelves	69
Figure K.1	– Measurement procedure for low power modes (Left on mode and Off mode)	80
Figure K.2	– Measurement procedure for low power mode (End of cycle mode)	81

Figure N.1 – Test enclosure for built-in and integrated dishwashers.....	91
Figure Q.1 – Example for an assessment light box.....	96
Figure Q.2 – Photo catalogue to assess spots on glasses.....	97
Table 1 – Evaluation of the drying performance	34
Table 2 – Evaluation to determine the drying performance.....	35
Table 3 – Evaluation of the cleaning performance.....	38
Table 4 – Evaluation to determine the cleaning performance	38
Table 5 – Numerical Values of the t-factor for statistical calculations	40
Table A.1 – Specifications of tableware items	45
Table A.2 – Composition of test loads.....	46
Table B.1 – Tableware specifications.....	48
Table C.1 – Soil application example for type A tableware items.....	57
Table C.2 – Soil application example for type B tableware items.....	58
Table C.3 – Soil application on the serving pieces	58
Table C.4 – Soil application quantities for different rated dishwasher capacities	59
Table E.1 – Ingredients of reference detergent type D	64
Table E.2 – Ingredients of reference rinse aid III.....	65
Table H.1 – Alternate drying performance table	70
Table H.2 – Alternate cleaning performance table.....	71
Table J.1 – Shade chart.....	78
Table P.1 – Test scenarios for testing the sensing programme	93
Table P.2 – Example for a one week schedule.....	94
Table R.1 – Evaluation to determine the cleaning performance.....	101
Table R.2 – Soil application on the serving pieces	102
Table R.3 – Soil application quantities for different rated dishwasher capacities	102
Table T.1 – Specification of instruments	104

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRIC DISHWASHERS FOR HOUSEHOLD USE –
METHODS FOR MEASURING THE 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.

International Standard IEC 60436 has been prepared by subcommittee 59A: Electric dishwashers, of IEC technical committee 59: Performance of household electrical appliances.

This fourth edition cancels and replaces the third edition published in 2004, its Amendment 1 published in 2009 and its Amendment 2 published in 2012.

This edition constitutes a technical revision and includes the following significant technical changes with respect to the previous edition:

- a) Addition of a specification of the reference dishwasher G1222, addition of the microwave oven 752C, inclusion of standby/low power modes and updated cutlery and tableware items.
- b) Combined cleaning and drying: combining the cleaning and drying performance evaluations into one test, along with the energy and water consumption evaluation, prevents an opportunity for circumvention if tests were performed separately. A dishwasher can detect whether soil is present (cleaning evaluation) or not (drying

evaluation) and adjust the cycle to favour performance; combining the tests addresses this.

- c) New dish load items: new dish load items were incorporated which reflect consumer use. New items are: stainless pots, coffee mugs, melamine plastic items, and glass bowl. The new load items provide different shapes which challenge a dishwasher water spray patterns and provide additional surfaces for soil removal assessment.
- d) Detergent: a new detergent “D” is specified which mirrors current tablet formulations available on the market. Detergent type D is phosphate free, with percarbonate instead of perborate bleach and more active enzymes.
- e) Repeatability and reproducibility improvements.
- f) Addition of annexes for the evaluation of soil sensing programmes, rinsing performance, dishwasher filtration and of an annex on the inlet water temperature influence on energy consumption.

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

FDIS	Report on voting
59A/202/FDIS	59A/203/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.

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

The following print type is used in this standard:

- words in **bold** are defined in Clause 3.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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 document using a colour printer.

INTRODUCTION

The history of this fourth edition of IEC 60436 is provided as follows:

- Discussion began during the Sydney Australia meeting in September 2008.
- A first working draft was developed and discussed during the Seattle USA meeting in October 2010.
- A questionnaire (59A/149/Q) regarding proposed changes was published January 2011. Responses (59A/153/RQ) were reviewed during a meeting in Bonn Germany April 2011 and published May 2011.
- A Document for Comment (59A/155/DC) was published May 2011. Review of responses (59A/164/INF) began during the Melbourne Australia meeting in October 2011.
- A Committee Draft (59A/168/CD) was published May 2012. Review of responses (59A/170/CC) began during the Oslo Norway meeting in October 2012.
- A second Committee Draft (59A/175/CD) was published May 2013. Review of responses (59A/177/CC) began during the New Delhi India meeting in October 2013.
- Committee Documents for Vote (59A/183/CDV and 59A/184/CDV) were published June 2014. 59A/183/CDV (fragment 1) contained the complete edition 4, except for some Annex U content; 59A/184/CDV (fragment 2) contained additional Annex U content. Review of responses (59A/190b/RVC and 59A/191b/RVC for fragments 1 and 2) began during the Tokyo Japan meeting in October 2014.
- The FDIS document was prepared for publication built upon this history of work.

A Round Robin Test (RRT) has been planned and will be carried out using edition 4. Results from the RRT will be available after the edition 4 is published. Edition 4 updates, if needed, will be incorporated into edition 4 Amendment 1.

ELECTRIC DISHWASHERS FOR HOUSEHOLD USE – METHODS FOR MEASURING THE PERFORMANCE

1 Scope

This International Standard applies to electric **dishwashers** for household and similar use that are supplied with hot and/or cold water.

The object is to state and define the principal performance characteristics of electric **dishwashers** for household and similar use and to describe the standard methods of measuring these characteristics.

This standard is concerned neither with safety nor with minimum performance requirements.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60704-2-3, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 2-3: Particular requirements for dishwashers*

IEC 60705, *Household microwave ovens – Methods for measuring performance*

IEC 60734, *Household electrical appliances – Performance – Water for testing*

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

ISO 607, *Surface active agents and detergents – Methods of sample division*

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