

# INTERNATIONAL STANDARD

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

**Lave-vaisselle électriques à usage domestique - Méthodes de mesure de l'aptitude à la fonction**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

FOREWORD

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

This fifth edition cancels and replaces the fourth edition published in 2015, and Amendment 1:2020. This edition constitutes a technical revision.

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

- a) Implementation of a new reference machine, which better reflects modern dishwasher energy and water saving technologies. Its ability to function as a reference machine for the cleaning assessment was assessed in a Round Robin Test.
- b) Implementation of the new reference detergent type E, which better reflects market detergents formulations. It includes upgraded enzymes and a lower content of silicates to reduce the alkalinity which simplifies the world wide transportation by avoiding dangerous goods labelling and therefore improves the usage all over the world.
- c) Implementation of an alignment factor for the cleaning performance assessment as proposed in a scientific study done by an university to align test results of the previous version to the new version of this document with the new reference system described above.
- d) Introduction of replacements and alternatives for the pan and knives as the production of the current ones was stopped.
- e) Improvement of the room temperature control by a temperature measurement inside the dishwasher directly prior to the start of the test programme.
- f) Update of the weight of different load items and the specified ranges to anneal the requirements in the document to the actual weight of the items.
- g) Introduction of an updated method to assess low power modes providing a step-by-step measurement description and including new modes, e.g. network standby which are of increased importance for dishwasher offering additional services via internet connection. Additionally, reactions to different interactions with the appliance can be assessed in a better way and learnings of Round Robin Test are included.
- h) Inclusion of additional method for dishwasher testing which allows the assessment of variations of dishwasher units from one model.
- i) New requirements for the loading and handling instructions for tests institutes.
- j) Implementation of testing methodology for multi-compartment dishwashers.
- k) Improvement of ballast soil preparation process in Annex V.

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

Draft	Report on voting
59A/273/FDIS	59A/276/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.

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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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

The committee has decided that the contents of the base publication and its amendment 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, or
- revised.

## INTRODUCTION

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

- Discussion began in fourth quarter of 2021 during one of the web conferences of Maintenance Team 2.
- A first working draft was developed and discussed during the Qingdao China meeting in September 2023.
- It was decided by SC 59A to proceed directly to CDV, skipping CD stage, due to urgency of implementation of the new [detergent \(3.1.23\) E](#). This urgency is caused by production termination of enzymes used for [detergent \(3.1.23\) D](#) composition.
- Implementation of new reference system, the new reference [detergent \(3.1.23\)](#) and the new [reference machine \(3.1.6\)](#), is done based on data coming from Round Robin Test conducted in 2022-2023.

Further readings:

[ISO/IEC Guide 98-3:2008/Suppl 2:2011 \[1\]](#), *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995) – Supplement 2: Extension to any number of output quantities*

[ISO/IEC Guide 98-4:2012 \[2\]](#), *Uncertainty of measurement – Part 4: Role of measurement uncertainty in conformity assessment*

[DIN 5035-6:2006 \[3\]](#), *Beleuchtung mit künstlichem Licht – Teil 6: Messung und Bewertung ("Lighting with artificial light – Part 6: Measurements and evaluation")*

[ISO 3310-1:2016 \[4\]](#), *Test sieves – Technical requirements and testing – Part 1: Test sieves of metal wire cloth*

[EN 12665:2011 \[5\]](#), *Light and lighting – Basic terms and criteria for specifying lighting requirements*

[IEC 60704-3:2019 \[6\]](#), *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 3: Procedure for determining and verifying declared noise emission values*

[ISO/IEC Guide 98-1:2024 \[7\]](#), *Guide to the expression of uncertainty in measurement — Part 1: Introduction*

[ISO/IEC Guide 98-3:2008 \[8\]](#), *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

[ISO/IEC Guide 98-3:2008/Suppl 1:2008 \[9\]](#), *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995) – Supplement 1: Propagation of distributions using a Monte Carlo method*