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Edition 1.1 2023-07
CONSOLIDATED VERSION

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Household and similar electrical air cleaning appliances – Methods for measuring the performance –
Part 1: General requirements

Appareils d'épuration d'air électriques domestiques et appareils similaires – Méthodes de mesure de l'aptitude à la fonction –
Partie 1: Exigences générales



IEC 63086-1:2020-04+AMD1:2023-07 CSV(en-fr)



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD AND SIMILAR ELECTRICAL AIR CLEANING APPLIANCES – METHODS FOR MEASURING THE PERFORMANCE

Part 1: General requirements

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 63086-1 edition 1.1 contains the first edition (2020-04) [documents 59/722/FDIS and 59/725/RVD] and its amendment 1 (2023-07) [documents 59N/25/CDV and 59N/34/RVC].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 63086 has been prepared by IEC technical committee 59: Performance of household and similar electrical appliances.

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

In this standard, the following print types are used:

– **terms defined in Clause 3: bold type**.

A list of all parts in the IEC 63086 series, published under the general title *Household and similar electrical air cleaning appliances – Methods for measuring the performance* can be found on the IEC website.

The committee has decided that the contents of this document and its amendment 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- withdrawn,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 AND SIMILAR ELECTRICAL AIR CLEANING APPLIANCES – METHODS FOR MEASURING THE PERFORMANCE

Part 1: General requirements

1 Scope

This part of IEC 63086 applies to electrically powered household and similar **air cleaners** intended for use on rated single-phase AC input voltage circuits not exceeding 250 V and DC input voltage circuits not exceeding 48 V.

For **combination products**, this document is used to measure the performance of the appliance at reducing pollutants.

This document is not applicable to:

- appliances intended exclusively for industrial purposes;
- appliances intended for use in medical treatment locations, such as surgical suites, laboratories, medical treatment rooms;
- cooking fume extractors (see IEC 61591).

NOTE 1 See Clause 4 for examples of different technologies and placements of household and similar **air cleaners**.

~~NOTE 2 If the test methods in this document are applied to **combination products** (air conditioners, humidifiers, dehumidifiers, heaters, etc.) with air cleaning function, they are only aimed at their air cleaning function when tested.~~

NOTE ~~3~~2 Battery-operated appliances are within the scope of this document. Dual-supply appliances, either mains-supplied or battery-operated, are regarded as battery-operated appliances when operated in the battery mode.

~~NOTE 4 This document is not applicable to:~~

- ~~appliances intended exclusively for industrial purposes;~~
- ~~appliances intended for use in medical treatment locations, such as surgical suites, laboratories, medical treatments rooms, etc.~~
- ~~household range hoods or cooking fume extractors – see IEC 61591.~~

NOTE 3 A cooking fume extractor and an air cleaner differ significantly in their main use. A cooking fume extractor is designed to capture fumes close to the cooking surface in a kitchen environment. In the case of the cooking fume extractor, the focus is on the direct capture of the cooking fumes (first yield capture rate), whereas in the case of air cleaners, the focus is on general household air pollutant reduction.

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 60704 (all parts), *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
air cleaner
electrically powered household, or similar, appliance that employs one or multiple technologies to reduce one or more types of indoor air pollutants

3.2
robotic air cleaner
air cleaner that operates and changes its physical location autonomously without user intervention

Note 1 to entry: The **robotic air cleaner** can consist of a part that houses the air cleaning function and can have a docking station and/or other accessories to assist its operation.

3.3
fresh-air air cleaner
air cleaner connected to the external environment, which provides pollutant-reduced outdoor air into an indoor space

Note 1 to entry: The **fresh-air air cleaner** can also include other auxiliary functions, such as heat exchange.

3.4
combination products
air cleaner that includes a secondary function besides air cleaning within the same housing, such as humidifying, dehumidifying, heating, or air conditioning

3.5
DUT
device under test
air cleaner undergoing examination

3.6
test chamber
self-contained room with determined volume, shape, and dimensions, which is used to measure the performance of the **DUT**

3.7
target pollutant
specific air pollutant with defined components, including three main categories: particulate matter, gaseous pollutants, and microorganisms

3.8
operation decay rate
reduction rate of the **target pollutant** in the **test chamber**, due to operation of the **DUT**

Note 1 to entry: ~~Units are~~ The unit is per hour (h^{-1}).

3.9
CADR
clean air delivery rate
flow rate of clean air (with respect to the target pollutant) delivered by the **DUT** calculated as the product of the measured **operation decay rate** and the associated **test chamber** volume

Note 1 to entry: The unit is cubic metres per hour ($m^3\ h^{-1}$).

3.10
automatic operation mode
setting of the **DUT** chosen by the user in which the performance is regulated by the **air cleaner** without further user interaction

3.11
manual operation mode
setting of the **DUT**, chosen by the user, that is not influenced by further external operator interaction, air quality sensor data, and/or timers throughout the duration of the test

3.12
maximum performance operation mode
manual operation mode where the **DUT** is set to the highest flow rate with all air cleaning functions switched on and set to maximum, where applicable

Note 1 to entry: If the **DUT** has zero flow rate, the **CADR** is measured with all air cleaning functions switched on.

Note 2 to entry: "All air cleaning functions switched on" implies that the requirements for testing are that all available filters, either for particle and gas filtration, or a combination of both, are inserted in the **DUT** for each type of test described in the applicable parts of IEC 63086-2.

3.13
energy efficiency in maximum performance operation mode
volume of cleaned air provided by consumption of a certain amount of energy calculated by dividing the **CADR** of the **DUT** by the electrical power input

Note 1 to entry: The unit is cubic metres per watt hour ($m^3\ W^{-1}\ h^{-1}$).

4 Classification

4.1 Types of technologies used in air cleaners

According to the cleaning principles, the following types of technologies or combinations are used in air cleaning, but are not limited to:

- mechanical filtration type;
- physical and/or chemical adsorption type;
- chemical catalysis type;
- electrostatic filtration type;
- photocatalytic type;
- plasma type;
- ozone generating type;
- hydroxyl generating type;

4.2 Areas of placement for air cleaners

According to the installation modes described by the manufacturer, the following placement types exist for **air cleaners**, but are not limited to:

- floor type;
- table type;
- wall type;
- direct plug-in type;
- ceiling type;
- portable in-vehicle type;