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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Household and similar electrical air cleaning appliances – Methods for measuring the performance – Part 2-1: Particular requirements for determination of particle reduction

Appareils d'épuration d'air électriques domestiques et appareils similaires – Méthodes de mesure de l'aptitude à la fonction – Partie 2-1: Exigences particulières pour la détermination de la réduction des particules



IEC 63086-2-1:2024-01(en-fr)



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IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2-1: Particular requirements for determination of particle reduction

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IEC 63086-2-1 has been prepared by subcommittee 59N: Electrical air cleaners for household and similar purposes, of IEC technical committee 59: Performance of household and similar electrical appliances, in co-operation with ISO technical committee 142: Cleaning equipment for air and other gases. It is an International Standard.

It is published as a double logo International Standard.

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

Draft	Report on voting
59N/44/FDIS	59N/46/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.

In this standard, the following print types are used:

– **terms defined in Clause 3 of IEC 63086-1: bold type**

– **terms defined in Clause 3 of IEC 63086-2-1: bold type**.

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.

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 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, or
- revised.

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

Part 2-1: Particular requirements for determination of particle reduction

1 Scope

This part of IEC 63086 specifies test methods for measuring the performance of electrically powered household and similar **air cleaners** intended for the reduction of particulate pollutants.

NOTE The limits of measurability for the **CADR** are described in Annex A.

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 63086-1:2020, *Household and similar electrical air cleaning appliances – Methods for measuring the performance – Part 1: General requirements*
IEC 63086-1:2020/AMD1:2023

ISO 12103-1, *Road vehicles – Test dust for filter evaluation – Part 1: Arizona test dust*

ISO 29463-1, *High efficiency filters and filter media for removing particles from air – Part 1: Classification, performance, testing and marking*

ISO 5011:2020, *Inlet air cleaning equipment for internal combustion engines and compressors – Performance testing*

EN 1822-1, *High efficiency air filters (EPA, HEPA and ULPA) – Part 1: Classification, performance testing, marking*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 63086-1:2020 and the following apply.

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

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

3.1.1
aerosol
suspension of fine solid particles or liquid droplets in air or another gas

3.1.2
smoke aerosol
aerosol produced by burning tobacco with air forced through a cigarette's filter

3.1.3
salt aerosol
aerosol produced by atomization of an aqueous potassium chloride (KCl) solution with subsequent drying

3.1.4
dust aerosol
aerosol produced by dispersion of commercially available test powder

3.1.5
pollen aerosol
aerosol produced by dispersion of naturally occurring particulate matter from plants

Note 1 to entry: In this document, non-defatted paper mulberry pollen including fragments are used.

3.1.6
natural decay rate
reduction rate of the **target pollutant** in the **test chamber** due to natural factors, principally sedimentation, agglomeration, surface deposition, chemical reaction, and air exchange

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

3.1.7
total decay rate
reduction rate of the **target pollutant** in the **test chamber** due to the combined effect of the **natural decay rate** and the **operation decay rate**

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

3.2 Abbreviated terms

APS	aerodynamic particle sizer
CADR	**clean air delivery rate**
CPC	condensation particle counter
DUT	**device under test**
HEPA filter	high-efficiency particulate air filter
KCl	potassium chloride
OPC	optical particle counter
RH	relative humidity

4 Aerosol measurement instruments

4.1 General

Calibration of all **aerosol** measurement instruments shall be performed at least annually in accordance with the manufacturer's instructions. A check of the zero counting rates shall be performed regularly by sampling with a high-efficiency particulate air (HEPA) filter on the sample intake. The HEPA filter shall be at least of class H13 in accordance with EN 1822-1 or ISO 35H in accordance with ISO 29463-1.