



NSAI
Standards

Irish Standard
I.S. EN IEC/ASTM 62885-7:2021

Surface cleaning appliances - Part 7: Dry-cleaning robots for household or similar use - Methods for measuring the performance

I.S. EN IEC/ASTM 62885-7:2021

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN IEC/ASTM 62885-7:2021

Published:

2021-01-22

*This document was published
under the authority of the NSAI
and comes into effect on:*

2021-02-08

ICS number:

97.080

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN IEC/ASTM 62885-7:2021 is the adopted Irish version of the European Document EN IEC/ASTM 62885-7:2021, Surface cleaning appliances - Part 7: Dry-cleaning robots for household or similar use - Methods for measuring the performance

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC/ASTM 62885-7

January 2021

ICS 97.080

Supersedes EN 62929:2014 and all of its amendments
and corrigenda (if any)

English Version

**Surface cleaning appliances - Part 7: Dry-cleaning robots for
household or similar use - Methods for measuring the
performance
(IEC/ASTM 62885-7:2020)**

Appareils de nettoyage des sols - Partie 7 : Robots de
nettoyage à sec à usage domestique ou analogue -
Méthodes de mesure de l'aptitude à la fonction
(IEC/ASTM 62885-7:2020)

Geräte zur Oberflächenreinigung - Teil 7: Trocken-
Reinigungsroboter für den Hausgebrauch und ähnliche
Anwendungen - Verfahren zur Messung der
Gebrauchseigenschaften
(IEC/ASTM 62885-7:2020)

This European Standard was approved by CENELEC on 2020-12-02. 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

EN IEC/ASTM 62885-7:2021 (E)**European foreword**

The text of document 59F/393/FDIS, future IEC/ASTM 62885-7, prepared by SC 59F "Surface cleaning appliances" of IEC/TC 59 "Performance of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC/ASTM 62885-7:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-09-02
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-12-02

This document supersedes EN 62929:2014 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.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Endorsement notice

The text of the International Standard IEC/ASTM 62885-7:2020 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60335-1:2010 NOTE Harmonized as EN 60335-1:2012

IEC 60335-2-2:2019 NOTE Harmonized as EN IEC 60335-2-2:—¹ (not modified)

ISO 2768-1:1989 NOTE Harmonized as EN 22768-1:1993 (not modified)

¹ To be published. Stage at the time of publication: prEN IEC 60335-2-2:2020.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62301	-	Household electrical appliances - Measurement of standby power	EN 50564	-
IEC/TS 62885-1	-	Surface cleaning appliances - Part 1: General requirements on test material and test equipment	-	-
IEC 62885-2	2016	Surface cleaning appliances - Part 2: Dry vacuum cleaners for household or similar use - Methods for measuring the performance	-	-
IEC 60704-1	-	Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 1: General requirements	EN 60704-1	-
IEC 60704-2-17	-	Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 2-17: Particular requirements for dry-cleaning robots	EN IEC 60704-2-17	-
ISO 554	-	Standard atmospheres for conditioning and/or testing - Specifications	-	-
ISO 2813	-	Paints and varnishes - Determination of gloss value at 20 degrees, 60 degrees and 85 degrees	EN ISO 2813	-

This page is intentionally left blank



IEC/ASTM 62885-7

Edition 1.0 2020-10

INTERNATIONAL STANDARD



**Surface cleaning appliances –
Part 7: Dry-cleaning robots for household or similar use – Methods for
measuring the performance**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2020 IEC, Geneva, Switzerland

Copyright © 2020 ASTM International

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing being secured. Requests for permission to reproduce should be addressed to either IEC at the address below or IEC's member National Committee in the country of the requester or from ASTM.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

ASTM Headquarters
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
United States of America
<mailto:mkhooper@astm.org>
www.astm.org

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

67 000 electrotechnical terminology entries in English and French extracted from the Terms and definitions clause of IEC publications issued between 2002 and 2015. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.



IEC/ASTM 62885-7

Edition 1.0 2020-10

INTERNATIONAL STANDARD



**Surface cleaning appliances –
Part 7: Dry-cleaning robots for household or similar use – Methods for
measuring the performance**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 97.080

ISBN 978-2-8322-8540-4

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references	9
3 Terms and definitions	9
4 General conditions for testing	11
4.1 General.....	11
4.2 Atmospheric conditions	11
4.3 Lighting conditions	12
4.4 Test equipment and materials	12
4.5 Number of samples	12
4.6 Preparation of the battery	12
4.7 Running-in of a new cleaning robot	13
4.8 Operation of the cleaning robot	13
4.9 Measurement of collected dust weight	13
4.10 Measurement resolution and accuracy	13
4.11 Tolerance of dimensions	14
5 Cleaning performance – Straight line	14
5.1 General.....	14
5.2 Preparation of test	14
5.2.1 Pre-treatment of cleaning robot	14
5.2.2 Preconditioning of test floor	15
5.2.3 Pre-treatment of test carpet	15
5.3 Test mode.....	16
5.3.1 General	16
5.3.2 Access to test mode	16
5.3.3 Test mode action	17
5.3.4 Speed verification	17
5.4 Dust removal from hard floor.....	18
5.4.1 Test bed	18
5.4.2 Preparation of test	18
5.4.3 Test method	18
5.4.4 Determination of dust removal ability	19
5.5 Dust removal from carpet.....	20
5.5.1 Test bed	20
5.5.2 Preparation of test	20
5.5.3 Test method	20
5.5.4 Determination of dust removal ability	21
5.6 Medium size debris removal from hard floor	21
5.6.1 Test bed	21
5.6.2 Preparation of test	21
5.6.3 Test method	21
5.6.4 Determination of medium size debris removal ability	21
5.7 Medium size debris removal from carpet	22
5.7.1 Test bed	22
5.7.2 Preparation of test	22

5.7.3	Test method	22
5.7.4	Determination of medium size debris removal ability	22
5.8	Large debris removal from hard floor	22
5.8.1	Test bed	22
5.8.2	Preparation of test	22
5.8.3	Test method	24
5.8.4	Determination of large debris removal ability	24
5.9	Large debris removal from carpet.....	24
5.9.1	Test bed	24
5.9.2	Preparation of test	24
5.9.3	Test method	25
5.9.4	Determination of large debris removal ability	25
5.10	Fibre removal from carpet	25
5.10.1	Test bed	25
5.10.2	Preparation of test	25
5.10.3	Test method	27
5.10.4	Determination of fibre removal ability	27
6	Mobility.....	28
6.1	General.....	28
6.2	Test bed	29
6.3	Preparation of test	29
6.3.1	Test conditions	29
6.3.2	Preconditioning of test floor	29
6.3.3	Pre-treatment of cleaning robot	29
6.4	Test method.....	29
6.4.1	General	29
6.4.2	Minimum passable gap width.....	30
6.4.3	Minimum passable height	31
6.4.4	Maximum passable transition height	31
6.4.5	Maximum passable threshold height	32
6.5	Determination of mobility results	33
7	Autonomous navigation/coverage test	34
7.1	General.....	34
7.2	Preparation of test	34
7.2.1	Test bed	34
7.2.2	Test conditions	34
7.3	Test method.....	34
7.4	Performance measurement	36
8	Miscellaneous.....	38
8.1	Energy consumption of a cleaning robot.....	38
8.1.1	General	38
8.1.2	Test conditions	38
8.1.3	Test method	39
8.2	Airborne acoustical noise	41
8.3	Straight-line cleaning speed.....	41
8.3.1	General	41
8.3.2	Preparation.....	41
8.3.3	Test method	41
8.3.4	Determination of straight-line cleaning speed	42

9	Test material and equipment	44
9.1	Straight-line test bed.....	44
9.1.1	Hard floor	44
9.1.2	Carpet	44
9.2	Mobility test bed.....	45
9.2.1	Basic test bed configuration.....	45
9.2.2	Minimum passable gap width – additional equipment.....	46
9.2.3	Minimum passable height – additional equipment	47
9.2.4	Maximum passable transition height – additional equipment	48
9.2.5	Maximum passable threshold height – additional equipment	48
9.3	Coverage test bed.....	49
9.3.1	Floor configuration.....	49
9.3.2	Wall and ceiling configuration	55
9.3.3	General conditions.....	62
10	Instructions for use	63
Annex A (informative)	Calculation of coverage	64
A.1	Definitions.....	64
A.2	Calculating orifice pass coverage.....	64
Annex B (informative)	Comprehensive cleaning performance metric	66
Annex C (informative/normative)	Detailed images of fibre removal ability.....	67
Bibliography	72
Figure 1	– Test mode action	17
Figure 2	– Dust distribution devices	18
Figure 3	– Large debris template	23
Figure 4	– Large debris template hole alignment.....	24
Figure 5	– Straight-line fibre removal from carpet test bed configuration	25
Figure 6	– Exemplary picture of fibre distribution	26
Figure 7	– Exemplary picture of judgement area	27
Figure 8	– Starting positions and orientations	30
Figure 9	– Minimum passable gap width test.....	30
Figure 10	– Suggested process to determine the minimum passable gap width.....	31
Figure 11	– Minimum passable height test	31
Figure 12	– Maximum passable transition height test	32
Figure 13	– Process to determine the maximum passable transition height	32
Figure 14	– Maximum passable threshold height test	33
Figure 15	– Starting positions for navigation test.....	36
Figure 16	– Exemplary graph of coverage test result.....	38
Figure 17	– Straight-line speed measurement areas	43
Figure 18	– Straight-line hard floor test bed configuration	44
Figure 19	– Straight-line carpet test bed configuration	45
Figure 20	– Basic test bed configuration for mobility testing.....	45
Figure 21	– Test bed with an additional adjustable wall.....	46
Figure 22	– Part 1 and part 2 of the wall	46
Figure 23	– Test bed with an additional tunnel	47

Figure 24 – Test bed with additional transition and its sectional view	48
Figure 25 – Test bed with additional threshold	49
Figure 26 – Drawings of cylindrical and rectangular thresholds	49
Figure 27 – Navigation/coverage test bed configuration	50
Figure 28 – Details of obstacles around table	51
Figure 29 – Illustration of metal transition installation.....	53
Figure 30 – Illustration of wood transition installation.....	53
Figure 31 – Detail view of checkerboard and transitions.....	54
Figure 32 – Configuration of four walls and ceiling	55
Figure 33 – Illustration of four-panel door	59
Figure 34 – Illustration of window.....	59
Figure 35 – Illustration of skirting board	60
Figure 36 – Illustration of pendant light	60
Figure 37 – Illustration of clock	61
Figure 38 – Illustration of mirror.....	61
Figure 39 – Illustration of picture.....	62
Figure 40 – Illustration of curtains	62
Figure A.1 – Robot coordinate frame	64
Figure A.2 – Coverage step	65
Figure C.1 – Detailed images for rating 1	67
Figure C.2 – Detailed images for rating 2.....	68
Figure C.3 – Detailed images for rating 3.....	69
Figure C.4 – Detailed images for rating 4.....	70
Figure C.5 – Detailed images for rating 5.....	71
Table 1 – Tolerance of dimensions	14
Table 2 – Medium size debris	21
Table 3 – Large Debris	23
Table 4 – Rating system with exemplary pictures	28
Table 5 – List of described mobility tests	29
Table 6 – Reported results for each mobility test	33
Table 7 – Overview of duration and the values that should be reported.....	40
Table 8 – Dimensions of furniture and obstacles	51
Table 9 – Wall and ceiling furniture	56

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SURFACE CLEANING APPLIANCES –

Part 7: Dry-cleaning robots for household or similar 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/ASTM 62285-7 has been prepared by subcommittee 59F: Surface cleaning appliances, of IEC technical committee 59: Performance of household and similar electrical appliances, in co-operation with ASTM Committee F11: Vacuum cleaners, under the IEC/ASTM Dual Logo Agreement.

It is published as a dual logo standard.

This first edition of IEC/ASTM 62885-7 cancels and replaces IEC 62929:2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 62929:2014:

- a) the box test has been cancelled;
- b) the set of straight-line tests have been extended to contain also tests on removal of different kinds of debris both from hard floors and carpets;
- c) the set of straight-line tests also contains a test on the removal of fibres from carpets;

IEC/ASTM 62885-7:2020
© IEC/ASTM 2020

– 7 –

- d) as a miscellaneous test, a method for the determination of energy consumption has been added;
- e) a separate clause on test material and equipment has been added.

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

FDIS	Report on voting
59F/393/FDIS	59F/401/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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 62885 series, published under the general title *Surface cleaning appliances*, 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 "<http://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.

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

In addition to the performance measurement methods that are included in this International Standard, a few more performance items have been reviewed and considered. The list of the performance items that have been discussed over time but have not yet been included comprises corner/edge dust pick-up, docking, fall-off prevention, and dust re-emissions.

The performance items that have been left out in this edition will be continuously reviewed and will soon be included in future editions of this document.

SURFACE CLEANING APPLIANCES –

Part 7: Dry-cleaning robots for household or similar use – Methods for measuring the performance

1 Scope

This part of IEC 62885 is applicable to **dry-cleaning robots** for household use or under conditions similar to those in households.

The purpose of this document is to specify the essential performance characteristics of **dry-cleaning robots** that are of interest to users and to describe methods for measuring these characteristics.

This document is neither concerned with safety requirements nor with performance requirements.

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

IEC TS 62885-1, *Surface cleaning appliances – Part 1: General requirements on test material and test equipment*

IEC 62885-2:2016, *Surface cleaning appliances – Part 2: Dry vacuum cleaners for household or similar use – Methods for measuring the performance*

IEC 60704-1, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 1: General requirements*

IEC 60704-2-17, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 2-17: Particular requirements for dry cleaning robots*

ISO 554, *Standard atmospheres for conditioning and/or testing – Specifications*

ISO 2813, *Paints and varnishes – Determination of gloss value at 20 degrees, 60 degrees and 85 degrees*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62885-2 and the following 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>

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-