SS 655 : 2020
IEC 60335-2-80:2015, MOD
(ICS 13.120; 23.120)

SINGAPORE STANDARD

Safety of household and similar electrical appliances – Particular requirements for fans

Singapore Standards Council

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Safety of Household and similar electrical appliances – Particular requirements for fans

Published by Enterprise Singapore

ISBN 978-981-48-9475-3

The content of this Singapore Standard was approved on 10 March 2020 by the Electrical and Electronic Standards Committee (EESC) under the purview of the Singapore Standards Council.

First published, 2020

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The Technical Committee set up the Working Group on Safety of Household and Similar Electrical Appliances and Electronic Equipment to prepare this standard. The Working Group consists of the following experts who contribute in their *individual capacity*:

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Deputy Convenor	:	Mr Tan Boon Chong
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The organisations in which the experts of the Working Group are involved are:

Association of Consulting Engineers Singapore
Energy Market Authority
Enterprise Singapore
Housing & Development Board
Intertek Testing Services (S) Pte Ltd
Marian Energy Pte Ltd
Singapore Electrical Testing Services
Singapore Electrical Trades Association
Singapore Manufacturing Federation
The Institution of Engineers, Singapore
TÜV SÜD PSB Pte Ltd

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National Foreword

This Singapore Standard was prepared by the Working Group on Safety of Household and Similar Electrical Appliances and Electronic Equipment set up by the Technical Committee on Electrical and Electronic Products under the purview of EESC.

This standard is a modified adoption of IEC 60335-2-80:2015, "Household and similar electrical appliances – Safety – Part 2-80: Particular requirements for fans", published by the International Electrotechnical Commission.

In this standard, certain modifications due to national requirements and the particular needs of the local industry have been made. These technical deviations and additional information have been added directly to the clauses to which they refer, and are marked by a margin on the left of the standard. A complete list of modifications, together with their justifications, is given as follows:

Clause/Subclause	Modification
1 (Scope)	Replaced the texts of paragraph 2 with the following: This Singapore Standard deals with the safety of electric fans for household and similar purposes, their **rated voltage** being not more than 250 V for single-phase appliances. Explanation: *Rated voltage of 480V for other appliances is removed to suit local requirements.*
8.2	Replaced the texts with the following After the removal of **detachable parts** for the purposes of **user maintenance**, the **basic insulation** of internal wiring may be touched provided that it is electrically equivalent to the insulation of cords complying with SS 358 or IEC 60227 or IEC 60245. Explanation: *SS 358 is the modified adoption of IEC 60227 and is included to suit local requirements on polyvinyl chloride insulated cables*.
–	Included a new Annex ZA (normative). Explanation: *To suit local requirements on the suspension system and installation of ceiling-mounted fan.*

NOTE 1 – Where appropriate, the words "International Standard" are read as "Singapore Standard".

NOTE 2 – Reference to International Standards are replaced by applicable Singapore Standards/Technical References.

NOTE 3 – Where numerical values are expressed as decimals, the comma is read as a full point.

NOTE 4 – When "Part 1" is mentioned in this standard, it refers to IEC 60335-1. This standard is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as "Mature Standards". Mature Standards will not be subject to further review, unless there are requests to review such standards.*

2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore and the Singapore Standards Council shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*

3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-80: Particular requirements for fans

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.
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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.

This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This bilingual version (2018-11) corresponds to the monolingual English version, published in 2015-04.

This third edition cancels and replaces the second edition published in 2002 including its Amendment 1 (2004) and its Amendment 2 (2008). It constitutes a technical revision.

The principal changes in this edition as compared with the second edition of IEC 60335-2-80 are as follows (minor changes are not listed):

– added definition for ceiling fan suspension system (3.102);
– added instructions for ceiling fan maintenance (7.12);

– added instructions for ceiling fan installation (7.12.1);
– added entrapment assessment criteria for table and pedestal fan with a fan head that oscillates in the up-down direction (20.102);
– added requirements for insulation of pre-installed internal wiring used to supply attached luminaires (22.101);
– added suspension system failure protection requirements for ceiling fans (22.102);
– added motor brush wear requirements (27.3).

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

FDIS	Report on voting
61/4878/FDIS	61/4914/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.

The French version of this standard has not been voted upon.

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

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fifth edition (2010) of that standard.

NOTE 1 When “Part 1” is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for fans.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

– subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
– unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
– additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

– requirements: in roman type;
– *test specifications: in italic type;*
– notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

The committee has decided that the contents of this publication 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,
- replaced by a revised edition, or
- amended.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

The following differences exist in the countries indicated below.

– 6.2: This requirement is not applicable (USA).
– 7.1: The "T" marking is not required (USA).
– 7.12.1: Other mounting heights are specified and have to be marked on the appliance (USA).
– 19.7: The addition is not applicable (USA).
– 20.2: The requirements are different (USA).
– 21.102: The loads are different (USA).
– 22.102.1: The requirement is not applicable (USA).
– 22.102.2: The requirement is not applicable (USA).
– Figure 101 Example 1: The requirement is not applicable (China, USA).
– Figure 101 Example 2: The requirement is not applicable (China, USA).
– Figure 101 Example 3: This requirement is not applicable (MY).
– Figure 101 Example 4: This requirement is not applicable (MY).
– Figure 101 Example 5: This requirement is not applicable (MY).
– Figure 101 Example 6: This requirement is not applicable (MY).
– 23.3: Different requirements apply (USA).
– 24.101: The requirement is not applicable (USA).

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

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

Safety of household and similar electrical appliances – Particular requirements for fans

1 Scope

This clause of Part 1 is replaced by the following.

This Singapore Standard deals with the safety of electric fans for household and similar purposes, their **rated voltage** being not more than 250 V for single-phase appliances.

NOTE 101 Examples of fans that are within the scope of this standard are

– ceiling fans;
– **duct fans**;
– partition fans;
– pedestal fans;
– table fans.

This standard also applies to separate controls supplied with fans.

Appliances not intended for normal household use but which nevertheless may be a source of danger to the public, such as appliances intended for use in shops, in light industry and on farms, are within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

– persons (including children) whose
  - physical, sensory or mental capabilities; or
  - lack of experience and knowledge

  prevents them from using the appliance safely without supervision or instruction;
– children playing with the appliance.

NOTE 102 Attention is drawn to the fact that

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
– in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 103 This standard does not apply to

– appliances intended exclusively for industrial purposes;
– appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
– fans incorporated in other appliances.