

INTERNATIONAL STANDARD

IEC
60335-2-56

Third edition
2002-10

Household and similar electrical appliances – Safety –

Part 2-56: Particular requirements for projectors and similar appliances

*Appareils électrodomestiques et analogues –
Sécurité –*

*Partie 2-56:
Règles particulières pour les projecteurs d'images
et appareils analogues*



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –**
**Part 2-56: Particular requirements for projectors
and similar appliances**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The 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 third edition cancels and replaces the second edition published in 1997. It constitutes a technical revision.

The text of this part of IEC 60335 is based on the following documents:

FDIS	Report on voting
61/2171/FDIS	61/2252/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.

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 fourth edition (2001) 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 electric projectors and similar appliances.

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.

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

The following differences exist in the countries indicated below.

- 3.1.9: The operating times are different (USA).
- 11.8: The addition is not applicable (USA).
- 19.1: The test of 19.9 is carried out (USA).
- 19.7: The test is different (USA).
- 21.101: The test is different (USA).

A bilingual version of this publication may be issued at a later date.

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.

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.

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.

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.

<https://standards.iteh.ai/>

<https://standards.iteh.ai/cou/standard/iec/54125d-9a53-4e1e-b174-a64728217761/iec-60335-2-56-2002>

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-56: Particular requirements for projectors and similar appliances

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric projectors and similar appliances for household and similar purposes, their **rated voltage** being not more than 250 V.

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

- **effects projectors;**
- **film-strip projectors;**
- **film viewers;**
- **microscope projectors;**
- **motion-picture projectors;**
- **opaque projectors** (episcopes);
- **opaque-transparency projectors** (epidiascopes);
- **overhead projectors;**
- **photographic enlargers;**
- **photo-reproduction appliances;**
- **slide projectors** (diascopes);
- **slide-sorting appliances.**
- **still viewers.**

Appliances may incorporate sound amplifiers.

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 by laymen in schools, offices, shops and similar locations are within the scope of this standard.

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

- the use of appliances by young children or infirm persons without supervision;
- playing with the appliance by young children.

NOTES 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.
- IEC 60598-1 is applicable as far as is reasonable.

NOTE 103 This standard does not apply to:

- LCD and video projectors (IEC 60065);
- micrographic office equipment (IEC 60950);
- **motion picture projectors** for films having a width exceeding 16 mm;
- 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);
- appliances for medical purposes (IEC 60601).

2 Normative references

This clause of Part 1 is applicable.

3 Definitions

This clause of Part 1 is applicable except as follows.

3.1.9 Replacement:

normal operation

operation of the appliance as in normal use under the following conditions

Semi-automatic slide projectors are operated with the slide carrier filled and with the slide changing mechanism operated every 10 s.

Fully-automatic slide projectors are operated with the slide carrier filled and with the control for the slide changing mechanism adjusted for the most unfavourable speed. If necessary, the projector is reloaded with slides as quickly as possible.

Semi-automatic film-strip projectors are operated with the longest film that can be accommodated and with the frame changing mechanism operated every 10 s.

Fully-automatic film-strip projectors are operated with the longest film that can be accommodated and with the control adjusted to give the most unfavourable period for viewing the frames. If necessary, the projector is reloaded with film strips as quickly as possible.

Motion-picture projectors and **film viewers** are operated in cycles using the longest film that can be accommodated. Each cycle consists of a period during which the film is projected, followed by a period during which the film is fully rewound. Fans are not manually switched off.

Photographic enlargers, with a film strip in position, and **photo-reproduction appliances** are operated in cycles. Each cycle consists of a period of operation of 1 min followed by a rest period of 1 min.

Opaque projectors are operated with a neutral grey card of a sufficient size to completely cover the object field.

NOTE 101 The neutral grey card is made of 2 mm thick cardboard having a grey side with 18 % reflectance and a white side with 90 % reflectance.

Other appliances are operated with the appropriate visual media in position.

Audio amplifiers are operated in accordance with the conditions of normal operation specified in subclause 4.2.6 of IEC 60065.

Manually-switched motors for adjusting the lens are operated for the time necessary to move the lens from one extreme position to the other. This operation is carried out once every 4 min for manually-operated projectors and after each 18 frames have been projected for other projectors.

3.101

slide projector

appliance for the still projection of slides

3.102

manually-operated slide projector

slide projector in which the slides are changed by hand

3.103

semi-automatic slide projector

slide projector in which the slides are changed automatically, each operation being initiated manually

3.104

fully-automatic slide projector

slide projector in which the slides are changed automatically, each operation being initiated by a timer, tape recorder or other automatic means

3.105

overhead projector

appliance with a large object field intended for the still projection of positive transparencies

3.106

opaque projector

appliance for the still projection of non-transparent positives

3.107

opaque-transparency projector

combination of a **slide projector** and an **opaque projector**

3.108

microscope projector

appliance that projects microscope slides

3.109

effects projector

appliance for generating optical effects

NOTE Optical effects may be produced by projecting film loops, rotating disks or other means.

3.110

still viewer

appliance for directly viewing an image from a slide or film strip

3.111

film viewer

appliance for viewing motion picture film on an integral screen

3.112

motion-picture projector

appliance for the diasopic projection of motion picture film