



SLOVENSKI STANDARD

SIST EN 60335-1:1997

01-junij-1997

Nadomešča:

SIST HD 251 S3:2000

SIST HD 251 S3:2000/A1:2000

SIST HD 251 S3:2000/A2:2000

SIST HD 251 S3:2000/A3:2000

SIST HD 251.2.S1:2002

SIST HD 251.2.S1:2002

Varnost gospodinjskih in podobnih električnih aparatov - 1. del: Splošne zahteve
(IEC 60335-1:1983, spremenjen)

(standards.iteh.ai)

Safety of household and similar electrical appliances -- Part 1: General requirements

[SIST EN 60335-1:1997](https://standards.iteh.ai/catalog/standards/sist/14f94b5c-6696-4904-a68b-)

<https://standards.iteh.ai/catalog/standards/sist/14f94b5c-6696-4904-a68b->

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke -- Teil 1:
Allgemeine Anforderungen

Sécurité des appareils électrodomestiques et analogues -- Partie 1: Règles générales

Ta slovenski standard je istoveten z: EN 60335-1:1988

ICS:

13.120	Varnost na domu	Domestic safety
97.030	Električni aparati za dom na splošno	Domestic electrical appliances in general

SIST EN 60335-1:1997

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 60335-1:1997

<https://standards.iteh.ai/catalog/standards/sist/14f94b5c-6696-4904-a68b-d92510c11311/sist-en-60335-1-1997>

UDC: 621.365:64-621-83:64:614.8.004.1-777:621.396.699.8

KEY WORDS: Household electrical appliance; protection against electric shock;
protection against fire risk; protection against mechanical hazard

ENGLISH VERSION

SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES

PART 1: GENERAL REQUIREMENTS

(IEC 335-1 (1976) 2nd impression (1983), modified)

Sécurité des appareils électrodomestiques et analogues	Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke
Première partie:	Teil 1:
Règles générales (CEI 335-1 (1976) 2ème impression (1983), modifiée)	Allgemeine Anforderungen (IEC 335-1 (1976) 2. Auflage (1983) modifiziert)

This European Standard was ratified by CENELEC on 2 March 1988.

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 CENELEC General Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue Bréderode 2, B - 1000 Brussels

BRIEF HISTORY

A draft harmonization document, CENELEC/TC 61 (SEC) 405, based on the second impression 1983 of IEC Publication 335-1, was circulated under the enquiry procedure in August 1984.

This draft was discussed during the Copenhagen meeting in May 1985 when it was decided to submit a draft for EN 60 335-1 to the voting procedure. This procedure started in July 1986.

Consideration of the result of this procedure during the Nice meeting in November 1986 resulted in a new draft for EN 60 335-1 being submitted for voting in June 1987. The text of this draft was approved during the Brighton meeting in October 1987 and ratified by the CENELEC Technical Board on the 2nd of March 1988.

A draft for an amendment to EN 60 335-1, document CENELEC/TC 61 (SEC) 431, was circulated under the enquiry procedure in January 1985.

This draft was discussed during the Athens meeting in October 1985 when it was decided to submit a new draft to the voting procedure. This procedure started in August 1986. The text of this draft was approved during the Nice meeting in November 1986 and ratified by the CENELEC Technical Board on the 4th of March 1987. It has been incorporated in EN 60 335-1.

https://standards.iteh.ai/catalog/standards/sist/c944455c-6696-4904-a000-d9251e3111/sist-cn-60-335-1-1997
ITEH STANDARDS PREVIEW
(standards.iteh.ai)

FOREWORD

R This European Standard has been prepared by the Secretariat of CENELEC Technical Committee 61.

The following dates are applicable:

- date of announcement (doa) 1988-06-01
- date of latest publication (dop) 1989-01-01

This European Standard replaces HD 251 S3. However, HD 251 S3 remains valid until the Harmonization Documents (HD) which are used in conjunction with it are withdrawn. No date of withdrawal of conflicting national standards (dow) has therefore been fixed.

This document supplements or modifies the corresponding clauses of IEC 335-1, so as to convert that standard into the European Standard EN 60 335-1.

Sub-clauses and figures which are in addition to those in the IEC standard are numbered starting with 501. Additional appendices are lettered ZA, ZB, etc.

Special national conditions (snc) causing a deviation from this European Standard are listed in an annex which forms part of this standard.

National deviations from this European Standard are listed in an informative annex which does not form part of this standard.

Note 1. Where reference is made to other harmonized standards, the latest edition of that standard is applicable.

Note 2. Compulsory approval of appliances with regard to safety is legally required in Sweden and with regard to safety and to radio and television interference suppression is legally required in Finland, Norway and Switzerland.

r The following print types referred to in the preface of IEC 335-1 are used:

- requirements proper: in roman type (indicated in this document in the margin by R);
- test specifications: in italic type (indicated in this document in the margin by i);
- explanatory matter: in smaller roman type (indicated in this document in the margin by r).

In addition:

- instructions for modification of the reference document: in italic type (indicated in this document in the margin by i).

ENDORSEMENT NOTICE

R IEC 335-1, second edition (1976), second impression (1983) incorporating Amendments No. 1 (1977), 2 (1979) and 3 (1982) applies, taking into account the following common modifications.

COMMON MODIFICATIONS

- i Foreword Delete.
- Preface Delete the text on pages 5 and 7.
- On page 9, delete the text between asterisks.
- On page 9, replace the list of IEC publications by:
- r Other publications quoted in this standard:
- EN 60 238: Edison screw lampholders.
 - EN 60 320: Appliance couplers for household and similar general purposes.
 - EN 60 742: Isolating transformers and safety isolating transformers - Requirements.
 - HD 21: Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V.
 - HD 22: Rubber insulated cables of rated voltages up to and including 450/750 V.
 - HD 65: Lamp caps and holders together with gauges for the control of interchangeability and safety.
 - HD 109: Cartridge fuse-links for miniature fuses.
 - HD 195: Safety requirements for mains operated electronic and related apparatus for household and similar general use.
 - HD 393: Outside diameters of conduits for electrical installations and threads for conduits and fittings.
 - HD 495: Spring-operated impact-test apparatus and its calibration.
 - IEC 83: Plugs and socket-outlets for domestic and similar general use. Standards.
 - IEC 85: Recommendations for the classification of materials for the insulation of electrical machinery and apparatus in relation to their thermal stability in service (first edition).
 - IEC 252: A.C. motor capacitors.
 - ISO 1463: Metallic and oxide coatings - Measurement of coating thickness - Microscopical method.
 - ISO 2178: Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method.
 - CEE 7: Specification for plugs and socket-outlets for domestic and similar purposes.
 - CEE 15: Specification for safety isolating transformers.
 - CEE 24: Specification for switches for appliances.

COMMON MODIFICATIONS

1. SCOPE
- i 1.1 Delete in the explanations the line referring to fans.
Replace in the explanations "IEC Publication 65" by "HD 195" (in two places).
2. DEFINITIONS
- i 2.2.9 Replace in the explanation "IEC Publication 320" by "EN 60 320".
- 2.2.17 Add:
r Refer snc.
- i 2.2.18 Add:
r Refer snc.
4. GENERAL NOTES ON TESTS
- i 4.6 Replace the second paragraph by:
Appliances for a.c. which are not marked with rated frequency are tested at 50 Hz. Appliances for a.c. which are marked with a rated frequency range of 50 Hz to 60 Hz are tested at 50 Hz or 60 Hz, whichever is the more unfavourable.
Add:
r Refer snc.
- i 4.15 Add "22.27" to the list of sub-clauses.
- 4.16 Add:
If Class OI or Class I appliances have accessible non-metallic parts which are not separated from live parts by an intermediate metal part which is connected to an earthing terminal or earthing contact, such parts are checked for compliance with the appropriate requirements specified for Class II appliances.

https://standards.iteh.ai/catalog/standards/sist/1494b5c-6696-4904-a68b-d92510c11311/kit-en-60335-1-1997
SIST EN 60335-1:1997
iTech STANDARD PREVIEW
(standards.iteh.ai)

COMMON MODIFICATIONS

5. **RATING**
- i Add:
- R 5.501 Single-phase appliances intended to be connected directly to the supply mains, shall have a rated voltage covering their use at 220 V or 230 V and a rated frequency covering their use at 50 Hz.
- i Compliance is checked by inspection.
- r Refer snc.
7. **MARKING**
- i 7.1 On page 27, replace the last three lines by:
- R - rated frequency or rated frequency range, in hertz, unless the appliance is designed for d.c. only or for a.c. of 50 Hz only;
- rated input, if greater than 25 W, in watts or kilowatts;
- i 7.6 On page 33, replace "IEC Publication 127" by "HD 109".
- 7.7 Add:
- r Refer snc.
- i 7.10 On page 35, after the first paragraph, add:
- R The "off" position shall not be indicated by words only.
- i 7.12 Add:
- r Refer snc.
11. **HEATING**
- i 11.3 In the second paragraph, delete "embedded in the surface or".
- 11.8 On page 51, add in the table to "lampholders E 26 and E 27":
- with T-marking T - 25
- On page 55, in note 2), add Class F and Class H to the list of insulation classifications.
- On page 55, in note 4), replace "the relevant IEC standards" by "HD 21 or HD 22".

https://standards.iteh.ai/catalog/standards/sist/1494b5c2-896c-4901-80-02-0011311/sist-en-60335-1-1997
ST EN 60335-1:1997
iTech STANDARD PREVIEW
(standards.iteh.ai)

COMMON MODIFICATIONS

19. **ABNORMAL OPERATION**
- i 19.6 On page 85, delete the explanation referring to Appendix D.
- 19.8 On page 89, delete the explanation referring to Appendix D.
20. **STABILITY AND MECHANICAL HAZARDS**
- i Add:
- R 20.501 Appliances and their accessories shall have no sharp edges, burrs or the like which might cause injury to the user, other than those necessary for the function of the appliance or accessory.
- i Compliance is checked by inspection.
21. **MECHANICAL STRENGTH**
- i 21.1 Add the following explanation:
- r HD 495 contains a method for calibrating the spring-operated impact-test apparatus.
- i 21.2 Replace the figure 19 by 20 (in two places).
22. **CONSTRUCTION**
- i 22.1 Replace the requirement by:
- R Appliances shall be of Class I, Class II or Class III.
- i Add:
- r Refer snc.
- i 22.8 On page 97, in the test specification after "earthing contact", add "complying with CEE 7".
- Add:
- r Refer snc.
- i 22.21 Replace "IEC Publication 227" by "HD 21" and "IEC Publication 245" by "HD 22" (in two places) and delete the titles.

<https://standards.itec.ai/catalog/standards/sist/en-60335-1-1997>

SIST EN 60335-1:1997

ITEC STANDARD PREVIEW
(standards.itec.ai)

COMMON MODIFICATIONS

- i 22.27 Replace the requirement by:
- R Appliances other than those of Class III shall be so constructed that sagging of heating conductors cannot make accessible metal parts live.
23. INTERNAL WIRING
- i 23.1 On page 111, add the following explanation:
- r In general, a surface is considered to be well-rounded if its radius of curvature is at least 1.5 mm.
- i 23.4 Replace in the explanations "IEC Publication 227 or 245" by "HD 21 or HD 22".
- 23.5 Replace in the explanations "IEC Publication 227 or 245" by "HD 21 or HD 22".
- 23.6 Add:
- r Refer snc.
24. COMPONENTS
- i 24.1 To the first paragraph add:
- R However,
- power supply cords shall comply with HD 21 or HD 22;
 - thermal controls and overload releases shall comply with Appendix A;
 - switches shall comply with Appendix ZA;
 - safety isolating transformers shall comply with CEE 15.
- r Switches complying with CEE 24 are considered to comply with Appendix ZA.
- i Replace "IEC Publication 61-1" by "HD 65" (in two places) and "IEC Publication 238" by "EN 60 238".
- On page 115, replace the test specification by:
- Thermal controls and overload releases are tested in or with the appliance or with that part of the appliance for which they are designed, as specified in this standard. In addition, they are subjected to the tests specified in Appendix A. However, controls which operate during the test of Clause 11 of this standard and do not render the appliance unsafe if short-circuited during that test, are not subjected to the test of Sub-clause A3 or A4.

https://standards.iteh.ai/catalog/standards/sist/494b5c69-696c-4904-a68b-d92510e15111/si-en-60-335-1-1997
SIST EN 60335-1:1997
iTech STANDARD PREVIEW
(standards.iteh.ai)

COMMON MODIFICATIONS

i Switches are tested in or with the appliance or with that part of the appliance for which they are designed, as specified in this standard. In addition, they are subjected to the tests specified in Appendix ZA.

Switches may be tested separately, in which case they are loaded with either the appliance load or a simulated load, as specified in Appendix ZA.

The appliance load is to be used when the switch controls a circuit including a winding, other than a motor winding, with an iron core.

Delete the explanations referring to Appendix A and Appendix C.

Add the following explanations:

r The replacement of CEE 15 by EN 60 742 is under consideration. In some countries, other requirements are applicable for components for which no harmonized requirements exist. The requirements for thermal controls, overload releases and switches, specified in this standard, are considered to be harmonized. Refer snc.

i 24.4 On page 117, replace "IEC Publication 320" by "EN 60 320".

Add:

r Refer snc.

i 24.5 Replace "IEC Publication 320" by "EN 60 320".

24.11 Add the following requirement:

R For poly-phase Class I appliances with heating elements, which are intended for use unattended and to be permanently connected to fixed wiring, the thermal cut-out, if any, shall disconnect all phases, unless a temperature-sensing device is connected, inside the appliance, in each conductor supplying the heating element.

i Add:

r Refer snc.

i Add the following explanation:

r A temperature-sensing device denotes a device the operation of which results in a limitation of the temperature:
- directly or
- indirectly by its operation on the functioning of the appliance.

COMMON MODIFICATIONS

- i Add:
- R 24.501 Transformers used for safety purposes shall be short-circuit proof safety isolating transformers.
- i Compliance is checked by inspection and by subjecting the transformer to the relevant tests of CEE 15.
25. **SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CABLES AND CORDS**
- i 25.1 Delete the text of the second dash.
- On page 119, in the fourth line, delete "or with more than one set of supply leads".
- 25.2 Delete the text of the second dash.
- In the table, replace the figure 19.0 by 20.0 (in two places) and delete note 1) and the values in parentheses.
- Immediately after the table, add:
- R For other appliances, conduit entries shall be suitable for conduits having a maximum overall diameter in accordance with HD 393.
- i 25.3 Replace "IEC Publication 320" by "EN 60 320" (in two places).
- 25.4 Add:
- R For appliances with type M attachment, it shall not be readily possible to replace the power supply cord by a power supply cord for type X attachment.
- i 25.5 Replace the second paragraph by:
- R Power supply cords of single-phase portable appliances having a rated current not exceeding 16 A shall be provided with a plug complying with the following standards of IEC 83:
- for Class O and Class OI appliances Standard C1b;
 - for Class I appliances Standard C2b, C3b or C4;
 - for Class II appliances Standard C5 or C6.
- i Add:
- r Refer snc.

https://standards.iteh.ai/catalog/standards/sist/14445c-6696-484-688-d9251e11311/sist-en-60335-1-1997
STEN 0335-1:1997
ITEH STANDARD PREVIEW
(standards.iteh.ai)

COMMON MODIFICATIONS

- i 25.6 Replace the text of the first dash by:
- R - if rubber insulated, ordinary tough rubber sheathed flexible cord (code designation H05 RR-F) or ordinary polychloroprene sheathed flexible cord (code designation H05 RN-F):
- i Replace "227 IEC 52" by "H03 VV-F or H03 VVH2-F" and "227 IEC 53" by "H05 VV-F or H05 VVH2-F".
- Add:
- r Refer snc.
- i 25.8 Replace the text after the first paragraph by:
- R Inlet openings in metal for power supply cords shall be provided with either a lining of insulating material or a bushing of insulating material; in both cases the insulation shall comply with the requirements for supplementary insulation.
- i 25.11 On page 131, replace the penultimate paragraph by:
- Screws of insulating material bearing directly on the cable or cord are fastened with the torque specified in the following table.

Length of slot of screw head (mm)	Torque (Nm)
Up to and including 2.8	0.13
over 2.8 up to and including 3.0	0.16
over 3.0 up to and including 3.2	0.20
over 3.2 up to and including 3.6	0.26
over 3.6 up to and including 4.1	0.46
over 4.1 up to and including 6.0	0.53
over 6.0 up to and including 8.0	0.80
over 8.0 up to and including 10.0	1.10
over 10.0	1.30

- 25.12 On page 135, delete the requirement referring to supply leads, including the table and the explanation.

COMMON MODIFICATIONS

26. TERMINALS FOR EXTERNAL CONDUCTORS

i 26.9 In the table, add the following lines:

R	over 32 up to and including 40	5.0	0.6	6.0
	over 40 up to and including 63	6.0	0.6	6.5

27. PROVISION FOR EARTHING

i 27.4 Replace this sub-clause by:

R All parts of the earthing terminal intended for the connection of external conductors shall be such that there is no risk of corrosion resulting from contact between these parts and the copper of the earthing conductor or any other metal in contact with these parts.

Parts which may transmit current in the event of an insulation fault, other than parts of a metal frame or enclosure, shall be of coated or uncoated metal having adequate resistance to corrosion. If such parts are of steel, they shall be provided at the essential areas with an electroplated coating having a thickness of at least 5 µm.

Parts of coated or uncoated metal which are only intended to provide or to transmit contact pressure, shall be adequately protected against rusting.

If the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloy, precautions shall be taken to avoid the risk of corrosion resulting from contact between copper and aluminium or its alloys.

i Compliance with the requirements of Sub-clauses 27.3 and 27.4 is checked by inspection, by measurement, by manual test and by the test of Sub-clause 31.1.

r Parts of copper or copper alloys containing at least 58% copper for parts that are worked cold and at least 50% copper for other parts, and parts of stainless steel containing at least 13% chrome, are considered to be sufficiently resistant to corrosion. Parts subjected to a treatment such as chromate conversion coating are in general not considered to be adequately protected against corrosion, but they may be used to provide or to transmit contact pressure.

<https://standards.iteh.ai/catalog/standards/sist/41416c6969699416585d92510c11311/sist-en-60335-1-1997>
 iTeh STANDARD PREVIEW
 (standards.iteh.ai)

COMMON MODIFICATIONS

r Examples of parts which may transmit current in the event of an insulation fault and parts which are only intended to provide or to transmit contact pressure, are shown in Figure 501. The essential areas of steel parts are, in particular, those transmitting current. In evaluating such areas, the thickness of the coating in relation to the shape of the part has to be taken into account. In case of doubt, the thickness of the coating is measured as described in ISO 2178-1982 or in ISO 1463-1982.

28. SCREWS AND CONNECTIONS

i 28.3 Add:

R This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0.5 A.

29. CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION

i 29.1 In the table, under "between live parts of different polarity 2)", add:

R - for positive temperature coefficient (PTC) resistors, including their connecting wires, if protected against deposition of moisture or dirt 3) | - | - | 1.0 | 1.0 | 1.0 | 1.0 | - | - |

i Figure 13 In the table, replace the figure 19 by 20 and the figure 18.7 by 19.7.

Appendix B ELECTRONIC CIRCUITS

i B8.1 Delete the explanation referring to some countries.

B19.101 Replace "IEC Publication 65" by "HD 195" (in two places).

Add:

r Refer snc.

i Appendix C Delete.

Appendix D Delete.
