SLOVENSKI STANDARD
SIST EN 60065:1999

01-julij-1999

Audio, video and similar electronic apparatus - Safety requirements (IEC 60065:1998, modified)

Audio, video and similar electronic apparatus - Safety requirements

Audio-, Video- und ähnliche elektronische Geräte - Sicherheitsanforderungen

Appareils audio, vidéo et appareils électroniques analogues - Exigences de sécurité

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Ta slovenski standard je istoveten z: **EN 60065:1998**

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ICS:

33.160.01	Avdio, video in avdiovizualni sistemi na splošno	Audio, video and audiovisual systems in general

SIST EN 60065:1999 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60065

August 1998

ICS 97.020

Supersedes EN 60065:1993 + A11:1997

Descriptors: Radiocommunication, broadcasting, transmitter, circuit interconnection, interconnection cable, interface, splash-proof electronic equipment

English version

Audio, video and similar electronic apparatus Safety requirements (IEC 60065:1998, modified)

Appareils audio, vidéo et appareils électroniques analogues
Exigences de sécurité
(CEI 60065:1998, modifiée)

Audio-, Video- und ähnliche elektronische Geräte
Sicherheitsanforderungen
(IEC 60065:1998, modifiziert)

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This European Standard was approved by CENELEC on 1998-08-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, 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 de Stassart 35, B - 1050 Brussels

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Ref. No. EN 60065:1998 E

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Foreword

The text of document 92/60/FDIS, future edition 6 of IEC 60065, prepared by IEC TC 92, Safety of audio, video and similar electronic equipment, together with the common modifications prepared by the Technical Committee CENELEC TC 92, was submitted to the CENELEC formal vote and was approved by CENELEC as EN 60065 on 1998-08-01.

This European Standard supersedes EN 60065:1993 + corrigenda November 1993 and September 1997 + A11:1997.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-05-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes ZA and ZB are normative and annex ZC is informative.
Annexes ZA , ZB and ZC have been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60065:1998 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

CONTENTS **Add** the following annexes:

Annex ZA (normative) Other international publications quoted in this standard with the references of the relevant European publications
Annex ZB (normative) Special national conditions
Annex ZC (informative) A-deviations

1.1.1 **Replace** the text of note 1 by:

NOTE 1 This standard can be used as a guide for the testing of battery operated apparatus.

3.1 **Delete** the note.

Add the following indent:

- exposure to excessive sound pressures from headphones or earphones

NOTE A new method is under consideration by CENELEC/TC 206.

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15.1.1 **Delete** notes 1 and 2.

Add to note 4:

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Attention is drawn to the fact that a standard is under preparation (presently prEN 50074) for socket-outlets which allow connection of Class II appliances only.

15.2 **Delete** note 2.

16.1 **Delete** note 1.

16.2 **Delete** the note.

20 **Delete** note 2.

Annex B **Delete** note 2.

B.5.4.1 e) **Delete** notes 1 and 2.

B.8.1 **Delete** notes 1, 2 and 3.

B.8.2 **Delete** the note.

B.14.12 **Delete** notes 1 and 2.

Annex G **Delete** the note.

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Annex P Bibliography

Add the following notes for the standards indicated:

IEC 60130	NOTE: IEC 60130-9:1989 + A1:1993 are harmonized as EN 60130-9 (not modified).
IEC 60169	NOTE: Parts 23, 24 and 25 are harmonized as ENs (not modified).
IEC 60173	NOTE: Harmonized as HD 27 S1:1983 (not modified).
IEC 60260	NOTE: Harmonized as HD 98 S1:1977 (not modified).
IEC 60335-2-56	NOTE: Harmonized as EN 60335-2-56:1997 (not modified).
IEC 61040	NOTE: Harmonized as EN 61040:1992 (not modified).
IEC 60695	NOTE: Harmonized as EN 60695 series (not modified)

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Annex ZA (normative)

Other international publications quoted in this standard with the references of the relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international standard has been modified by common modification, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60027	series	Letter symbols to be used in electrical technology	HD 245	series
IEC 60038 (mod)	1983	Nominal voltages for low-voltage public electricity supply systems	HD 472 S1 + A1	1989 1995
IEC 60068-2-3	1969	Environmental testing Part 2: Tests - Test Ca: Damp heat, steady state	HD 323.2.3 S2[1]	1987
IEC 60068-2-6 + corr. Mar.	1995 1995	Test Fc: Vibration (sinusoidal)	EN 60068-2-6	1995
IEC 60068-2-32	1975	Test Ed: Free fall	EN 60068-2-32[2]	1993
IEC 60068-2-75	1997	Test Eh: Hammer tests	EN 60068-2-75	1997
IEC 60085	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
IEC 60112	1979	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980
IEC 60127	series	Miniature fuses	EN 60127	series
IEC 60167	1964	Methods of test for the determination of the insulation resistance of solid insulating materials	HD 568 S1	1990
IEC 60227 (mod)	series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	HD 21	series

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[1] HD 323.2.3 S2 includes A1:1984 to IEC 60068-2-3.
[2] EN 60068-2-32 includes A2:1990 to IEC 60068-2-32.

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Publication	Year	Title	EN/HD	Year
IEC 60245 (mod)	series	Rubber insulated cables of rated voltages up to and including 450/750 V	HD 22	series
IEC 60249-2	series	Base materials for printed circuits Part 2: Specifications	EN 60249-2	series
IEC 60268-1	1985	Sound system equipment Part 1: General	HD 483.1 S2[3]	1989
IEC 60317	series	Specifications for particular types of winding wires	EN 60317	series
IEC 60320 (mod)	series	Appliance couplers for household and similar general purposes	EN 60320	series
IEC 60335-1 (mod)	1991	Safety of household and similar electrical appliances Part 1: General requirements	EN 60335-1	1994
IEC 60384-1	1982	Fixed capacitors for use in electronic equipment Part 1: Generic specification	EN 130000[4]	1993
IEC 60384-14 A1	1993 1995	Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 132400[4]	1994
IEC 60417	series	Graphical symbols for use on equipment - Index, survey and compilation of the single sheets	HD 243 S12[5]	1995
IEC 60454	series	Specifications for pressure-sensitive adhesive tapes for electrical purposes	EN 60454	series
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60536	1976	Classification of electrical and electronic equipment with regard to protection against electric shock	HD 366 S1	1977
IEC 60664-1 (mod)	1992	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	HD 625.1 S1 + corr. November	1996 1996
IEC 60664-3	1992	Part 3: Use of coatings to achieve insulation coordination of printed board assemblies	HD 625.3 S1	1997

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[3] HD 483.1 S2 includes A1:1988 to IEC 60268-1.
[4] Documents are technically equivalent but not identical.
[5] HD 243 S12 is based on IEC 60417:1974 + Supplements A:1974 to M:1994 to IEC 60417.

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Publication	Year	Title	EN/HD	Year
IEC 60691	1993	Thermal-links - Requirements and application guide	EN 60691[6]	1995
IEC 60695-2-2	1991	Fire hazard testing Part 2: Test methods Section 2: Needle-flame test	EN 60695-2-2	1994
IEC 60707	1981	Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source	HD 441 S1	1983
IEC 60730 (mod)	series	Automatic electrical controls for household and similar use	EN 60730	series
IEC 60738	series	Directly heated positive step-function temperature coefficient thermistors	-	-
IEC 60825-1	1993	Safety of laser products Part 1: Equipment classification, requirements and user's guide	EN 60825-1	1994
IEC 60884	series	Plugs and socket-outlets for household and similar purposes	-	-
IEC 60885-1	1987	Electrical test methods for electric cables Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750 V	-	-
IEC 60906	series	IEC system of plugs and socket outlets for household and similar purposes	-	-
IEC 60950 (mod)	1991	Safety of information technology equipment	EN 60950 + A11	1992 1997
IEC 60990	1990	Methods of measurement of touch-current and protective conductor current	-	-
IEC 60998-2-2	1991	Connecting devices for low-voltage circuits for household and similar purposes Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units	EN 60998-2-2	1993

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[6] EN 60691 includes A1:1995 to IEC 60691.

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Publication	Year	Title	EN/HD	Year
IEC 60999-1 (mod) + corr. February	1990 1995	Connecting devices - Safety requirements for screw-type and screwless-type clamping units for electrical copper conductors Part 1: General requirements and particular requirements for conductors from 0,5 mm² up to 35 mm² (included)	EN 60999-1 + corr. March	1993 1997
IEC 61032	1990[7]	Test probes to verify protection by enclosures	HD 601 S1	1991
IEC 61058-1	1996[8]	Switches for appliances Part 1: General requirements	-	-
IEC 61149	1995	Guide for safe handling and operation of mobile radio equipment	-	-
IEC 61260	1995	Electroacoustics - Octave-band and fractional-octave-band filters	EN 61260	1995
IEC 61293	1994	Marking of electrical equipment with ratings related to electrical supply - Safety requirements	EN 61293	1994
ISO 261	1973	ISO general purpose metric screw threads - General plan	-	-
ISO 262	1973	ISO general purpose metric screw threads - Selected sizes for screws, bolts and nuts	-	-
ISO 306	1994	Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST)	-	-
ISO 7000	1989	Graphical symbols for use on equipment - Index and synopsis	-	-

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[7] IEC 61032:1997 is harmonized as EN 61032:1998.
[8] IEC 61058-1:1990 is harmonized as EN 61058-1:1992.

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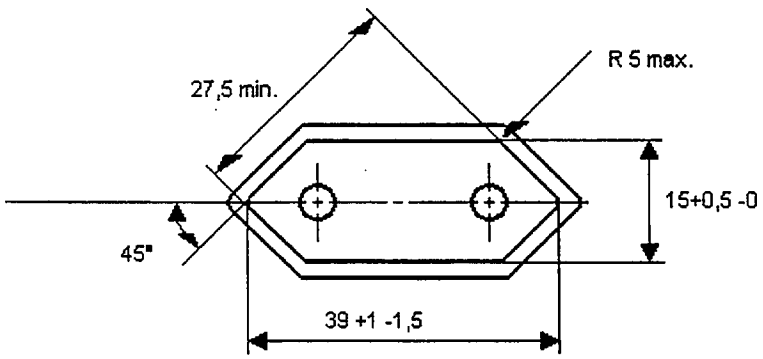
Annex ZB (normative)

Special national conditions

Special national condition: National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions. If it affects harmonization, it forms part of the European Standard or Harmonization Document.

For the countries in which the relevant special national condition apply these provisions are normative, for other countries they are informative.

Clause	Special national condition
2.6.1	**Denmark** The following is added: Certain types of Class I apparatus, see Sub-clause 15.1.1, may be provided with a plug not establishing earthing continuity when inserted in Danish socket-outlets *Justification:* Heavy Current Regulations, Section 107
15.1.1	**Denmark** To the first paragraph the following is added: In Denmark, supply cords of single phase appliances having a rated current not exceeding 10 A shall be provided with a plug according to the Heavy Current Regulations Section 107-2-D1. Appliances of Class I provided with socket-outlets with earth contact or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a. To the second paragraph the following is added: Socket outlets intended for provision power to Class II apparatus with a rated current of 2,5 A shall have the following dimensions:  Dimensions in mm

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Clause	Special national condition
15.1.1 continued	**Denmark** (continued) Other dimensions shall be according to IEC 60083, Standard Sheet C 1a for portable socket-outlets. NOTE This Special National Condition will be deleted when prEN 50074 is ratified. To the third paragraph the following is added: Mains socket-outlets with earthing contact shall be in compliance with Heavy Current Regulations Section 107-2-D1, Standard sheet DK 1-3a, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 107
15.1.1	**Ireland** Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525:1997, "13A Plugs and Conversion Adapters for Domestic Use Regulations:1997". *Justification:* SI 525:1997.
15.1.1	**Norway** Mains socket-outlets mounted on Class II apparatus shall comply with the specifications given in CEE Publ. 7 as far as applicable, with the following amendments: § 8 Dimensions a 2,5 A 250 V two-pole socket-outlets for electronic apparatus shall comply with the enclosed Standard Sheet I.

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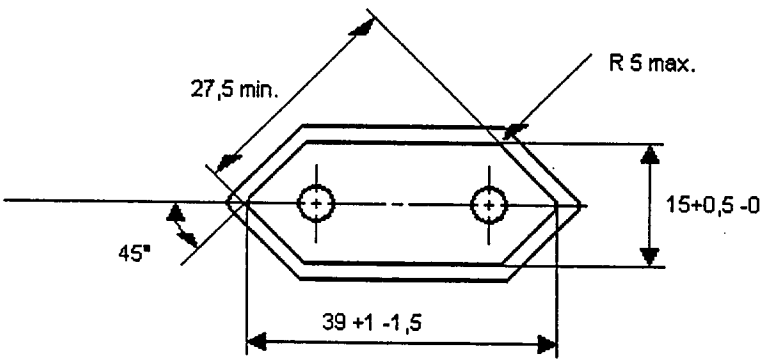
STANDARD SHEET I

2,5 A/250 V SOCKET-OUTLET FOR ELECTRONIC APPLIANCES OF CLASS II



Dimensions in mm

Other dimensions according to CEE Publication 7 Standard Sheet I "Portable Single-Way Socket-Outlets".

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Clause	Special national condition
15.1.1 continued	**Norway** (continued) § 24 Mechanical strength a 2,5 A, 250 V socket-outlets for Class II electronic apparatus are tested as specified in EN 60065, Subclause 12.1.3. Also the protecting rim shall be tested *Justification*: Act of 24 May 1929 relating to supervision of electrical installation (TEA 1929/FEB 1991). NOTE This Special National Condition will be deleted when prEN 50074 is ratified
15.1.1	**United Kingdom** Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug shall be fitted with a "standard plug" in accordance with Statutory Instrument 1768: 1994: The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those Regulations . NOTE Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. *Justification:* SI 1768: 1994
B.5.4.1 e)	**Norway** The following note is added: NOTE In Norway, if separation between the MAINS and a communication system/network, other than public TELECOMMUNICATION NETWORKS, relies upon connection to the safety earth, apparatus shall have a marking stating that it must be connected to an earthed mains socket-outlet. For requirements for the apparatus to be connected to a public TELECOMMUNICATION NETWORK, see B.8.1 *Justification:* Based on a use in Norway of an IT power distribution system where the neutral is not provided and where wall socket-outlets without earth are used in parts of building installations
B.5.4.1 e)	**Sweden** The following note is added: NOTE In Sweden, if - for apparatus to be connected to the MAINS by means of a plug - the separation between the MAINS and the TELECOMMUNICATION NETWORK relies upon connection to protective earth, the apparatus shall have a marking stating that it must be connected to an earthed MAINS socket-outlet. The marking text shall be in Swedish and as follows: "Apparaten skall anslutas till jordat uttag." *Justification:* In Sweden, unearthed wall socket-outlets exist in many building installations all over the country.

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Clause	Special national condition
	Denmark
B.8.1	The following note is added:
	NOTE In Denmark method b) is permitted only for PERMANENTLY CONNECTED APPARATUS
	Justification:
	Heavy Current Regulations, Section 107
	Norway
B.8.1	The following note is added:
	NOTE In Norway, method b) is not permitted. Insulation between parts CONDUCTIVELY CONNECTED TO THE MAINS and parts connected to a public TELECOMMUNICATION NETWORK shall comply with the requirements for DOUBLE or REINFORCED INSULATION.
	Justification:
	Based on a use in Norway of an IT power distribution system where the neutral is not provided and where wall socket-outlets without earth are used in parts of building installations
	Denmark
B.14.12	The following note is added:
	NOTE In Denmark the use of surge suppressors between the TELECOMMUNICATION NETWORK and conductive ACCESSIBLE parts or TERMINALS which are considered to be ACCESSIBLE, is allowed only for PERMANENTLY CONNECTED APPARATUS.
	Justification:
	Heavy Current Regulations, Section 107
	Norway
B.14.12	The following note is added:
	NOTE In Norway, for Class I apparatus intended to be connected to the MAINS by means of a plug, surge suppressors may only be connected between TNV circuits and ACCESSIBLE parts if the apparatus has a marking stating that it must be connected to an earthed MAINS socket-outlet.
	Justification:
	Based on a use in Norway of an IT power distribution system where the neutral is not provided and where wall socket-outlets without earth are used in parts of building installations
	Sweden
B.14.12	The following note is added:
	NOTE In Sweden, for Class I apparatus intended to be connected to the MAINS by means of a plug, surge suppressors may only be connected between TNV circuits and ACCESSIBLE parts if the apparatus has a marking stating that it must be connected to an earthed MAINS socket-outlet.
	The marking text shall be in Swedish and as follows: "Apparaten skall anslutas till jordat uttag."
	Justification:
	In Sweden, unearthed wall socket-outlets exist in many building installations all over the country.

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Annex ZC (informative)

A-deviations

A-deviation: A national deviation due to regulations, the alteration of which - at least for the time being - outside the competence of the CEN/CENELEC member.

Clause	National deviation
5	**Germany** The following markings are required: a) In case of intrinsically ionizing radiation safe cathode-ray tubes with accelerating voltages between 20 kV and 30 kV: - On the cathode-ray tube itself the wording: Eigensichere Kathodenstrahlröhre nach Anlage III Röntgenverordnung - Inside the apparatus: the maximum allowed accelerating voltage in kV, and the maximum allowed beam current in mA. - On the outer of the apparatus: a notice in German language that produced X-rays are sufficiently shielded by the intrinsically safe cathode-ray tube. b) In case of approval of the whole TV receiver with an accelerating voltage exceeding 30 kV: - On the outer of the apparatus: the licence number .../.../.../Rö, and the following text: Die in diesem Gerät entstehende Röntgenstrahlung ist ausreichend abgeschirmt. Beschleunigungsspannung: max: ... kV. - Supplied with the apparatus: a copy of the "Zulassungsschein", together with the notices required there. c) In case of TV receivers with accelerating voltages not exceeding 20 kV: Die in diesem Gerät entstehende Röntgenstrahlung ist ausreichend abgeschirmt. Beschleunigungsspannung: max: ... kV. *Justification:* German ministerial decree against ionizing radiation (Röntgenverordnung), dated 1987-01-08.

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