SLOVENSKI STANDARD
SIST EN 60065:2003

01-marec-2003

Nadomešča:
SIST EN 60065:1995
SIST EN 60065:1999

Avdio, video in sorodni elektronski aparati - Varnostne zahteve (IEC 60065:2001, spremenjen) (vsebuje popravek AC:2006)

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

Ta slovenski standard je istoveten z: **EN 60065:2002**

ICS:

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

SIST EN 60065:2003 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60065

May 2002

ICS 97.020

Supersedes EN 60065:1998
Incorporates Corrigendum March 2006

English version

Audio, video and similar electronic apparatus – Safety requirements
(IEC 60065:2001, modified)

Appareils audio, vidéo et appareils électroniques analogues –
Exigences de sécurité
(CEI 60065:2001, modifiée)

Audio-, Video- und ähnliche elektronische Geräte –
Sicherheitsanforderungen
(IEC 60065:2001, modifiziert)

This European Standard was approved by CENELEC on 2002-03-01. 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, Malta, 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

Ref. No. EN 60065:2002 E

Foreword

Following BT decision D105/051 the text of future edition 7 of the International Standard IEC 60065 (92/85/FDIS), prepared by IEC TC 92, Safety of audio, video and similar electronic equipment, together with common modifications prepared by the Technical Committee CENELEC TC 92, Safety of audio, video and similar electronic equipment, was submitted to the formal vote and was approved by CENELEC as EN 60065 on 2002-03-01.

This European Standard supersedes EN 60065:1998 + corrigendum June 1999.

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) 2003-03-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-03-01

Annexes designated “normative” are part of the body of the standard.

Annexes designated “informative” are given for information only.

In this standard, annexes A to K, ZA and ZB are normative; annexes M, N and ZC are informative.

Annexes ZA, ZB and ZC have been added by CENELEC

The contents of the corrigendum of March 2006 have been included in this copy.

Endorsement notice

The text of the International Standard IEC 60065:2001 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

3.1 **Add** the following indent at the end of the list:

- exposure to excessive sound pressures from headphones or earphones.

NOTE A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.

4.1.1 **Replace** the text of the note by:

NOTE For ROUTINE TEST reference is made to EN 50333.

5.1.i) **Add** the following note:

NOTE For RATED POWER CONSUMPTION measurements of TVs reference is made to EN 60107.

6.1 **Replace** the entire subclause by:

Apparatus including a potential source of ionizing radiation shall be so constructed that personal protection against ionizing radiation is provided under normal operating conditions and under fault conditions.

Compliance is checked by measurement under the following conditions:

In addition to the normal operating conditions, all controls adjustable from the outside BY HAND, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.

NOTE Soldered joints and paint lockings are examples of adequate locking.

The amount of ionizing radiation is regulated by European Council Directive 96/29/Euratom of 13 May 1996. This directive requires that at any point 10 cm from the outer surface of the apparatus, the dose-rate shall not exceed 1µSv/h (0,1 mR/h) taking account of the background level.

Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.

A picture is considered to be intelligible if the following conditions are met:

- *a scanning amplitude of at least 70 % of the usable screen width;*
- *a minimum luminance of 50 cd/m² with locked blank raster provided by a test generator;*
- *a horizontal resolution corresponding to at least 1,5 MHz in the centre, with a similar vertical degradation;*
- *not more than one flashover per 5 min.*

13.3.1 **Delete** note 4.

14 **Delete** note 4 and note 5.

15.1.1 **Delete** note 1 and note 2.

15.2 **Delete** note 2.

16.1 **Delete** note 1.

16.2 **Delete** the note.

20 **Delete** note 2.

Annex B **Replace** note 1 by:

In the CENELEC countries listed in IEC 62151, special national conditions apply.

Annex G **Delete** the note.

Annex J.2 **Delete** the notes of Table J.1.

Annex N **Add** after the introduction:

For ROUTINE TEST reference is made to EN 50333.

Bibliography **Add** the following standards:

EN 50332-1:2000, *Sound system equipment: Headphones and earphones associated with portable audio equipment — Maximum sound pressure level measurement methodology and limit considerations — Part 1: General method for "one package equipment"*

prEN 50332-2 (under consideration), *Sound system equipment: Headphones and earphones associated with portable audio equipment — Maximum sound pressure level measurement methodology and limit considerations — Part 2: Guidelines to associate sets with headphones coming from different manufacturers*

Add the following notes for the standards indicated:

IEC 60130	NOTE	Parts 9 and 17:1998 are harmonized as ENs (not modified).
IEC 60169	NOTE	Partly harmonized in the EN 60169/HD 134 series (not modified).
IEC 60173	NOTE	Harmonized as HD 27 S1:1978 (not modified).
IEC 60335-2-56	NOTE	Harmonized as EN 60335-2-56:1997 (not modified).
IEC 60335-2-82	NOTE	Harmonized as EN 60335-2-82:2000 (not modified).
IEC 60695	NOTE	Harmonized as EN 60695 series (not modified).
IEC 61040	NOTE	Harmonized as EN 61040:1992 (not modified).
IEC 61558-2-1	NOTE	Harmonized as EN 61558-2-1:1997 (not modified).
IEC 61558-2-4	NOTE	Harmonized as EN 61558-2-4:1997 (not modified).
IEC 61558-2-6	NOTE	Harmonized as EN 61558-2-6:1997 (not modified).

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	Date	Title	EN/HD	Date
-	-	Audio, video and similar electronic apparatus – Routine electrical safety testing in production	EN 50333	2001
IEC 60027	series	Letter symbols to be used in electrical technology	HD 245	series
IEC 60038 (mod)	1983	IEC standard voltages [1)]	HD 472 S1	1989
IEC 60068-2-3	1969	Environmental testing Part 2: Tests - Test Ca: Damp heat, steady state	HD 323.2.3 S2 [2)]	1987
IEC 60068-2-6 + corr. March	1995 1995	Part 2: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	1995
IEC 60068-2-32	1975	Part 2: Tests - Test Ed: Free fall	EN 60068-2-32 [3)]	1993
IEC 60068-2-75	1997	Part 2: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997
IEC 60085	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
IEC 60107	series	Methods of measurement on receivers for television broadcast transmissions	EN 60107	series
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

1) The title of HD 472 S1 is: Nominal voltages for low voltage public electricity supply systems.

2) HD 323.2.3 S2 includes A1:1984 to IEC 60068-2-3.

3) EN 60068-2-32 includes A2:1990 to IEC 60068-2-32.

Publication	Date	Title	EN/HD	Date
IEC 60167	1964	Methods of test for the determination of the insulation resistance of solid insulating materials	HD 568 S1	1990
IEC 60216	series	Guide for the determination of thermal endurance Properties of electrical insulating materials	HD 611 / EN 60216	series
IEC 60227 [4)]	series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	HD 21	series
IEC 60245 [5)]	series	Rubber insulated cables - 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 [6)]	1989
IEC 60317	series	Specifications for particular types of winding wires	EN 60317	series
IEC 60320	series	Appliance couplers for household and similar general purposes	EN 60320	series
IEC 60335-1 (mod)	2001	Safety of household and similar electrical appliances Part 1: General requirements	EN 60335-1	-[7)]
IEC 60384-1	1982	Fixed capacitors for use in electronic equipment Part 1: Generic specification	EN 130000 [8)]	1993
IEC 60384-14 A1	1993 1995	Fixed capacitors for use in electronic equipment Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 132400 [9)]	1994
IEC 60417	series	Graphical symbols for use on equipment	EN 60417	series
IEC 60454	series	Specifications for pressure-sensitive adhesive tapes for electrical purposes	EN 60454	series

4) The HD 21 series is related to but not directly equivalent to the IEC 60227 series.

5) The HD 22 series is related to but not directly equivalent to the IEC 60245 series.

6) HD 483.1 S2 includes A1:1988 to IEC 60268-1.

7) to be published.

8) EN 130000:1993 (which was related to but not directly equivalent to IEC 60384-1:1982) is superseded by EN 60384-1:2001, which is based on IEC 60384-1:1999, mod.

9) EN 132400:1994 is related to but not directly equivalent to IEC 60384-14:1993 + A1:1995.

Publication	Date	Title	EN/HD	Date
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
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
IEC 60691	1993	Thermal links - Requirements and application guide	EN 60691 [10)]	1995
IEC 60695-2-2	1991	Fire hazard testing Part 2-2: Test methods - Needle-flame test	EN 60695-2-2	1994
IEC 60695-11-10	1999	Part 11-10: Test flames – 50 W horizontal and vertical flame test methods	EN 60695-11-10	1999
IEC 60707	1999	Flammability of solid non-metallic materials when exposed to flame sources – List of test methods	EN 60707	1999
IEC 60730 (mod)	series	Automatic electrical controls for household and similar use	EN 60730	series
IEC 60825-1 corr. December A1 A2	1993 1994 1997 2001	Safety of laser products Part 1: Equipment classification, requirements and user's guide	EN 60825-1 + corr. February + A11 + corr. July A2	1994 1995 1996 1997 2001
IEC 60851-3	1996	Winding wires - Test methods Part 3: Mechanical properties	EN 60851-3	1996
IEC 60851-5	1996	Part 5: Electrical properties	EN 60851-5	1996
IEC 60851-6	1996	Part 6: Thermal properties	EN 60851-6	1996
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) + corr. January	1999 2000	Safety of information technology equipment	EN 60950 [11)] + corr. February	2000 2002

10) EN 60691 includes A1:1995 to IEC 60691.

11) EN 60950 is superseded by EN 60950-1:2001 (IEC 60950-1:2001, mod.).

Publication	Date	Title	EN/HD	Date
IEC 60990	1999	Methods of measurement of touch-current and protective conductor current	EN 60990	1999
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
IEC 60999-1	1999	Connecting devices - Safety requirements for screw-type and screwless-type clamping units Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm^2 up to 35 mm^2 (included)	EN 60999-1	2000
IEC 61032	1997	Protection of persons and equipment by enclosures Probes for verification	EN 61032	1998
IEC 61051-2	1991	Varistors for use in electronic equipment Part 2: Sectional specification for surge suppression varistors	-	-
IEC 61058-1	1996	Switches for appliances Part 1: General requirements	- [12]	-
IEC/TR2 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
IEC 61558-1 (mod)	1997	Safety of power transformers, power supply units and similar	EN 61558-1	1997
A1	1998	Part 1: General requirements and tests	A1	1998
IEC 61558-2-17	1997	Part 2-17: Particular requirements for transformers for switch mode power supplies	EN 61558-2-17	1997
IEC 61965	2000	Mechanical safety of cathode ray tubes	EN 61965	2001
IEC 62151	2000	Safety of equipment electrically connected to a telecommunication network	-	-
IEC Guide 104	1997	The preparation of safety publications and the use of basic safety publications and group safety publications		-

[12] IEC 61058-1:2000 + A1:2001, mod., are harmonized as EN 61058-1:2002.

Publication	Date	Title	EN/HD	Date
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	-	-
ITU-T Recommendation K.17	1988	Tests on power-fed repeaters using solid-state devices in order to check the arrangements for protection from external interference		-
ITU-T Recommendation K.21	1996	Resistibility of subscriber's terminal to overvoltages and overcurrents		-

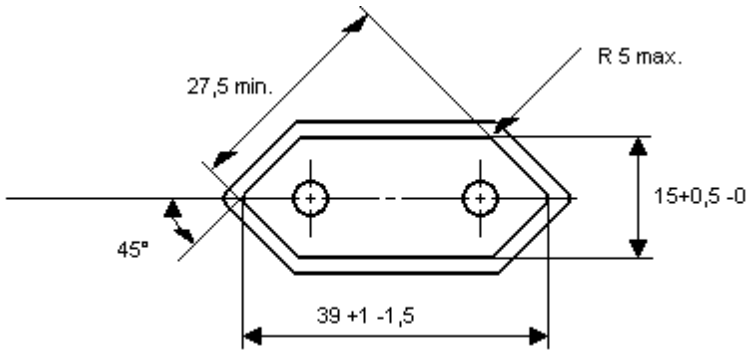
Annex ZB
(normative)

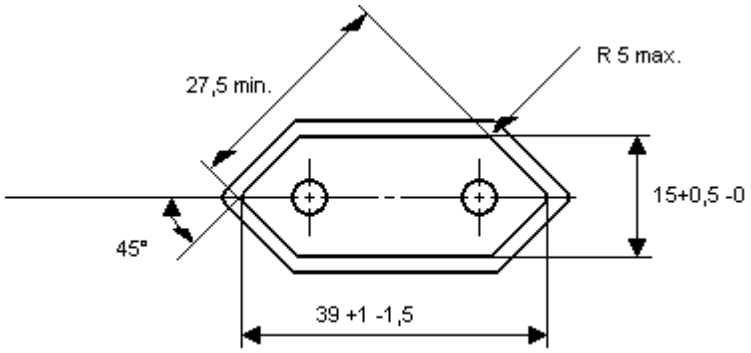
Special national conditions

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
	Denmark
2.6.1	The following is added: Certain types of CLASS I apparatus, see 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
	Norway
13.3.1	To the second paragraph the following is added: In Norway, due to the IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230 V in case of a single earth fault. *Justification:* Based on a use in Norway of an IT power distribution system where the neutral is not provided
	Denmark
15.1.1	To the first paragraph the following is added: In Denmark, supply cords of single phase appliances having a rated current not exceeding 13 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 the Heavy Current Regulations, Section 107-2-D1 standard sheet DK 2-1a.

Clause	Special national condition
	Denmark (continued)
15.1.1 continued	To the second paragraph the following is added: Socket outlets intended for providing power to CLASS II apparatus with a rated current of 2,5 A shall have the following dimensions:  Dimensions in mm Other dimensions shall be in compliance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DKA 1-3 for portable socket-outlets. Shutters are not required 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
	Ireland
15.1.1	Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, “13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. *Justification*: SI 525: 1997
	Norway
15.1.1	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.

Clause	Special national condition
15.1.1 continued	**Norway** (continued) 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". § 24 Mechanical strength a 2,5 A, 250 V socket-outlets for CLASS II electronic apparatus are tested as specified in 12.1.3 of EN 60065. Also the protecting rim shall be tested *Justification*: Act of 24 May 1929 relating to supervision of electrical installation (TEA 1929/FEL 1998). **United Kingdom** **15.1.1** 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