

## SLOVENSKI STANDARD SIST EN 60335-1:2012

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Nadomešča: SIST EN 60335-1:2003 SIST EN 60335-1:2003/A1:2005 SIST EN 60335-1:2003/A11:2004 SIST EN 60335-1:2003/A12:2007 SIST EN 60335-1:2003/A13:2009 SIST EN 60335-1:2003/A14:2010 SIST EN 60335-1:2003/A15:2011 SIST EN 60335-1:2003/A2:2006

## iTeh STANDARD PREVIEW

# Gospodinjski in podobni električni aparati - Varnosta i) del: Splošne zahteve (IEC 60335-1:2010, spremenjen)

#### SIST EN 60335-1:2012

https://standards.iteh.ai/catalog/standards/sist/cec134f8-c867-4d74-ba61-Household and similar electrical appliances.ist.Safety5- Part 1: General requirements

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

Appareils électrodomestiques et analogues - Sécurité - Partie 1: Prescriptions générales

Ta slovenski standard je istoveten z: EN 60335-1:2012

### ICS:

- 13.120 Varnost na domu
- 97.030 Električni aparati za dom na splošno

Domestic safety Domestic electrical appliances in general

SIST EN 60335-1:2012

en



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<u>SIST EN 60335-1:2012</u> https://standards.iteh.ai/catalog/standards/sist/cec134f8-c867-4d74-ba61-8ed8d656165f/sist-en-60335-1-2012



# EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

# EN 60335-1

January 2012

ICS 13.120; 97.030

Supersedes EN 60335-1:2002 + corr. Jul.2009 + corr. May.2010 + A1:2004 + A2:2006 + A11:2004 + A12:2006 + A13:2008 + A14:2010 + A15:2011 + corr. Jan.2007 + corr. Feb.2007

English version

### Household and similar electrical appliances -Safety -Part 1: General requirements (IEC 60335-1:2010, modified)

Appareils électrodomestiques et analogues -Sécurité -Partie 1: Exigences générales (CEI 60335-1:2010, modifiée) Sicherheit elektris Hausgebrauch un Teil 1: Allgemeine (IEC 60335-1:201 **Teh STANDARD PREVIEW** 

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke -Teil 1: Allgemeine Anforderungen (IEC 60335-1:2010, modifiziert)

## (standards.iteh.ai)

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# CENELEC

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

#### Management Centre: Avenue Marnix 17, B - 1000 Brussels

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### Foreword

This document (EN 60335-1:2012) consists of the text of IEC 60335-1:2010 prepared by IEC/TC 61 "Safety of household and similar electrical appliances", together with the common modifications prepared by CLC/TC 61, "Safety of household and similar electrical appliances".

The following dates are fixed:

•	latest date by which this document has to be implemented	(dop)	2012-11-21
	at national level by publication of an identical national standard or by endorsement		
•	latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2014-11-21

This document supersedes EN 60335-1:2002 + corr. Jul.2009 + corr. May.2010 + A1:2004 + A2:2006 + A11:2004 + A12:2006 + A13:2008 + A14:2010 + A15:2011 + corr. Jan.2007 + corr. Feb.2007.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60335-1:2010 are prefixed "Z".

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

This part of EN 60335 is to be used in conjunction with the appropriate Part 2. The Parts 2 contain clauses to supplement or modify the corresponding clauses in Part 1 to provide the relevant requirements for each type of appliance.

NOTE 1 The following annexes contain provisions suitably modified from other IEC standards:

- Annex E Needle flame test EN 60695-11-5
- Annex F Capacitors EN 60384-14

– Annex G Safety isolating transformers EN 61558-1 and EN 61558-2-6

- Annex H Switches EN 61058-1
- Annex J Coated printed circuit boards EN 60664-3
- Annex N Proof tracking test EN 60112

NOTE 2 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 associated noun are also in bold.

Special national conditions causing a deviation from this European Standard are listed in Annex ZA.

National deviations from this European Standard are listed in Annex ZB.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

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#### **Endorsement notice**

The text of the International Standard IEC 60335-1:2010 was approved by CENELEC as a European Standard with common modifications.

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#### COMMON MODIFICATIONS

### Introduction

Add after NOTE 1 the following sentence:

For appliances not covered by a particular Part 2 of EN 60335 additional consideration may need to be given to particular categories of likely users, including vulnerable people and children and to related specific risks (e.g. access to live parts, or to hot surfaces or to moving parts) that may be covered by a particular Part 2 considered to be closest to the product under examination.

#### Add:

The principal objectives of the Low Voltage Directive, 2006/95/EC, are covered by this standard. The essential safety requirements of the following directives, which can be applicable to some household and similar appliances, have also been taken into account:

- 2006/42/EC Machinery directive;
- 89/106/EEC Construction products directive;
- 97/23/EC Pressure equipment directive.

The Essential Health and Safety Requirements (EHSR) of the Directive 2006/42/EC are covered by Annex ZE. The application of EN 60335-1 alone does not give presumption of conformity for a product. This is achieved by complying with the requirements of EN 60335-1 and the relevant Part 2, when this Part 2 is also listed in the OJ under the Directive.

## (standards.iteh.ai)

#### 1 Scope

#### SIST EN 60335-1:2012

Replace the scope with the following lards. iteh.ai/catalog/standards/sist/cec134f8-c867-4d74-ba61-

8ed8d656165f/sist-en-60335-1-2012

This European Standard deals with the safety of electrical appliances for household environment and commercial purposes, their **rated voltage** being not more than 250 V for single-phase and 480 V for others. .

NOTE 1 Battery-operated appliances and other d.c. supplied appliances are within the scope of this standard.

NOTE Z1 Examples of appliance for household environment are appliances for typical housekeeping functions used in the household environment that may also be used by non expert users for typical housekeeping functions:

- in shops, offices and other similar working environments;
- in farm houses;
- by clients in hotels, motels and other residential type environments;
- in bed and breakfast type environments.

NOTE Z2 Household environment includes the dwelling and its associated buildings, the garden, etc.

Appliances and machines intended to be used by expert or trained users in shops, in light industry and on farms, and appliances and machines which are declared to be for commercial use by lay persons are within the scope of this standard.

Additional requirements for such appliances are given in Annex ZE.

NOTE 2 Text deleted.

NOTE Z3 Examples of such appliances and machines are catering equipment, cleaning machines for commercial use, and appliances for hairdressers.

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NOTE Z4 Criteria applied for the allocation of products covered by standards in the EN 60335 series under either the Low Voltage Directive (LVD) or the Machinery Directive (MD) are given for information in Annex ZF.

This standard deals with the reasonably foreseeable hazards presented by appliances and machines that are encountered by all persons.

However, in general, it does not take into account:

- children playing with the appliance;
- the use of the appliance by very young children;
- the use of the appliance by young children without supervision.

It is recognized that **very vulnerable people** may have needs beyond the level addressed in this standard.

NOTE 3 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, the national water supply authorities and similar authorities.

# NOTE 4 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 igas) og/standards/sist/cec134f8-c867-4d74-ba61-8ed8d656165f/sist-en-60335-1-2012
- audio, video and similar electronic apparatus (IEC 60065);
- appliances for medical purposes (IEC 60601);
- hand-held motor-operated electric tools (IEC 60745);
- personal computers and similar equipment (IEC 60950-1);
- transportable motor-operated electric tools (IEC 61029).

#### 2 Normative references

Add the following reference:

IEC/TR 60083:2009, Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC

#### Add the following references:

EN 50366:2003, Household and similar electrical appliances - Electromagnetic fields - Methods for evaluation and measurement

CLC/TR 50417, Safety of household and similar electrical appliances – Interpretations related to European Standards within the scope of CENELEC/TC 61

EN 62233, Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure (IEC 62233)

Add the following references:

EN 41003, Particular safety requirements for equipment to be connected to telecommunication networks and/or a cable distribution system

**Remove** the following reference :

IEC 62151, Safety of equipment electrically connected to a telecommunication network

#### 3 Terms and definitions

#### **3.1** Add as a first paragraph:

When the term "appliance" is used, it is intended to cover appliances and/or machines for household use and appliances and/or machines for commercial use.

#### 3.6.3

accessible part

Modification:

Insert "and probe 18" after "test probe B".

# Add the following new definitions: the STANDARD PREVIEW

#### 3.Z.1

## (standards.iteh.ai)

children (Standards.rtcn.al) young persons comprising very young children, young children and older children

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**3.Z.2**https://standards.iteh.ai/catalog/standards/sist/cec134f8-c867-4d74-ba61-very young children8ed8d656165f/sist-en-60335-1-2012

young persons aged from 0 up to and including 3 years

#### 3.Z.3

young children

young persons older than 3 years and younger than 8 years

#### 3.Z.4

#### older children

young persons aged from 8 years up to and including 14 years

#### 3.Z.5

#### vulnerable people

persons having reduced physical, sensory or mental capabilities (e.g. partially disabled, elderly having some reduction in their physical and mental capabilities), or lack of experience and knowledge (e.g. older children)

#### 3.Z.6

#### very vulnerable people

persons having very extensive and complex disabilities

#### 3.Z.7

#### use of the appliance

all actions required to have the appliance perform its intended function, such as plugging in, switching on, using, regulating, cleaning the appliance or performing **user maintenance** 

NOTE Z1 Children are not expected to perform cleaning or user maintenance of the appliance, very young children are not expected to use appliances, young children are not expected to use appliances safely unless continuous supervision is

given, older children and vulnerable people can use appliances safely after they have been given appropriate supervision or instruction concerning use of the appliance.

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NOTE Z2 Very vulnerable people are not expected to use appliances safely unless continuous supervision is given or appliances are adapted accordingly with arrangements beyond the scope of this standard.

#### 4 General requirement

Add at the end:

The interpretations included in CLC/TR 50417 shall be taken into consideration together with the relevant requirements in the standards listed therein.

#### 6 Classification

p 6.1 Delete "class 0" and "class 0l".

#### 7 Marking and instructions

#### **7.1** Add:

The marking of **rated voltage** or **rated voltage range**, for appliances intended to be connected to the supply mains, shall cover:

- 230 V for single-phase appliances;
- 400 V for multi-phase appliances. (standards.iteh.ai)
- **7.10** Add the following before the compliance paragraph:

#### SIST EN 60335-1:2012

Devices used to start/stop operational functions of the appliance, if any, shall be distinguished from other manual devices by means of shape, or size, or surface texture, or position, etc.

An indication that the device has been operated shall be given by:

- A tactile feedback or
- An audible and visual feedback.

NOTE Z1 The sound of the motor or sound of an actuator switching ON/OFF is regarded as audible feedback. The stopping of the typical function (e.g. stopping of the vibration on the body of the appliance or of a part of it) is regarded as tactile means.

NOTE Z2 Devices used to start/stop operational functions mean devices that are operated by the user to start/stop the intended function of the appliance.

A selector switch with an off-position clearly identifiable is allowed.

An ON/OFF switch, if any, is considered a suitable device to stop operational functions. A plug is not considered a suitable device to stop operational functions, as it can be difficult to be reached by vulnerable persons.

#### **7.12** Replace the $3^{rd}$ , $4^{th}$ and $5^{th}$ paragraph by the following:

The instructions shall include the substance of the following:

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall

not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Add the following new subclause before 7.12.1:

**7.12.Z1** The specific instructions related to the safe operation of this appliance (as given in 7.12 of this standard) shall be collated together in the front section of the user instructions. The height of the characters, measured on the capital letters, shall be at least 3 mm.

These instructions shall also be available in an alternative format, e.g. on a website

7.14 Add:

NOTE Z1 For the evaluation of legibility and clarity of safety warnings guidance can be found in IEC 62079.

#### 8 **Protection against access to live parts**

**8.1.1** Replace the  $3^{rd}$  paragraph by the following:

Test probe B and probe 18 of EN 61032 are applied with a force not exceeding 1 N, the appliance being in every possible position. Through openings, the test probe is applied to any depth that the probe will permit and is rotated or angled before, during and after insertion to any position. If the opening does not allow the entry of the probe, the force on the probe in the straight position is increased to 20 N when probe B is used or 10 N when probe 18 is used. If the probe then enters the opening, the test is repeated with the probe in the angled position. However when using test probe 18 the appliance shall be fully assembled as in normal use without any parts removed; parts that are intended to be removed for user maintenance shall not be removed.

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8.2 Modification

## In the third sentence, replace "test probe B of EN 61032" by "test probes of EN 61032".

<u>SIST EN 00355-1.2012</u> https://standards.iteb.ai/catalog/standards/sist/cec134f8\_c867\_4d74\_ba61\_

In the fourth sentence, replace "test probe B of EN 61032 is" by "test probe B and probe 18 of EN 61032 are".

#### 11 Heating

**11.8** Delete the second sentence of the first paragraph.

Replace in Table 3 the row "External enclosure of **motor-operated appliances**, except handles held in normal use" with the following:

External enclosure of <b>motor-operated appliances</b> except handles held in normal use <sup>za, zb</sup> :	
– of bare metal	50
– of coated metal <sup>zc</sup>	60
– of glass and ceramic	65
<ul> <li>of plastic having a thickness exceeding 0,3 mm<sup>zd</sup></li> </ul>	75

#### Add the following footnotes

<sup>za</sup> Values for temperature rises of accessible parts in case of appliances that may be used by vulnerable people are given in relevant Parts 2.

<sup>zb</sup> When the thickness of plastic coating does not exceed 0,3 mm, the temperature rise limits of coated metal or glass and ceramic apply.

<sup>zc</sup> Metal is considered coated when a coating having a minimum thickness of 80 μm made by enamel or non substantially plastic coating is used.

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<sup>zd</sup> The temperature rise limit applies also for plastic material having a metal finish of thickness less than 0,1 mm.

#### **15** Moisture resistance

#### **15.1.2** Add the following after the second paragraph:

Appliances with an automatic cord reel are tested with the cord in the most unfavourable position in such a way that the reeling of the wet cord may affect electrical insulation during operation. The cord shall not be dried before reeling.

#### 20 Stability and mechanical hazards

#### **20.2** Replace NOTE 1 by the following requirement:

For appliances having dangerous movable parts, due to their main function, e.g. the needle of a sewing machine, tools of kitchen machines or the blade of an electrical knife, full protection is not possible for performing their intended use.

NOTE 1 Void

Replace the 1<sup>st</sup> paragraph of compliance by:

Compliance is checked by inspection, by the tests of 21.1 and by means of

- a test probe that is similar to test probe B of EN 61032 but having a circular stop face with a diameter of 50 mm, instead of the non circular face, applied with a force of 5N with the accessories and detachable covers removed and 2012
- test probe 18 of EN 61032, applied with a force of 2.5N on the appliance in a fully assembled situation.

#### 22 Construction

**22.12** Add the following note after the first sentence in the first paragraph

NOTE Z1 Hazard includes ingestion or a choking hazard for **vulnerable people**.

#### 24 Components

24.1 Replace by:

Components shall comply with the safety requirements specified in the relevant standards as far as they reasonably apply.

NOTE Z1 Compliance with the standard for the relevant component does not necessarily ensure compliance with the requirements of this standard.

NOTE Z2 Motors are not required to comply with IEC 60034-1.

Unless otherwise specified, the requirements of Clause 29 of this standard apply between **live parts** of components and **accessible parts** of the appliance.

Unless otherwise specified, the requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components.

Components that have not been previously tested or do not comply with the standard for the relevant component are tested according to the requirements of 30.2 of this standard.

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Components that have been previously tested and shown to comply with the resistance to fire requirements in the standard for the relevant component need not be retested provided that:

 the severity specified in the component standard is not less than the severity specified in 30.2 of this standard,

and

 unless the preselection alternative is used, the test report for the component states whether it complied with the standard for the relevant component with or without flame. Flames existing for a cumulative time not exceeding 2 s during the test are ignored.

If the above two conditions are not satisfied, the component is tested as part of the appliance.

There are two levels of severity specified for appliances for which 30.2.3 is applicable.

Unless components have been previously tested and found to comply with the relevant standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9. For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant standard for the component are necessary other than those specified in 24.1.1 to 24.1.9.

Components that have not been separately tested and found to comply with the relevant standard and components that are not marked or not used in accordance with their marking, are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard.

NOTE Z3 For automatic controls, marking includes documentation and declaration as specified in Clause 7 of EN 60730-1:2000.

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Lamp holders and starter holders that have not been previously tested and found to comply with the relevant standard are tested as a part of the appliance and shall additionally comply with the gauging and interchangeability requirements of the relevant standard under the conditions occurring in the appliance. Where the relevant standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used.

There are no additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309, unless they are specifically mentioned in the text of this standard.

Plugs and socket-outlets and other connecting devices of interconnection cords shall not be interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1, if direct supply to these parts from the supply mains could give rise to a hazard.

When a standard does not exist for a component, there are no additional tests specified.

**24.1.3** Add the following new note after the note:

NOTE Z1 For this test a thermostat or timer that is operating the relay or contactor is considered to be a switch.

#### 24.1.7 Replace by:

**24.1.7** If the **remote operation** of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is EN 41003.

Compliance with Clause 8 of this standard shall not be impaired by connecting the appliance to a device covered by EN 41003.

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#### Add the following subclause:

**24.21** For motor running capacitors (IEC 60252-1 type P2) with a metallic enclosure having an overpressure fuse the flame testing of internal plastic parts supporting current carrying connections as required in 30.2.2 and 30.2.3.1 is not necessary.

#### 25 Supply connection and external flexible cords

#### **25.6** Add:

**Supply cords** of single-phase **portable appliances** having a **rated current** not exceeding 16 A shall be fitted with a plug complying with the following standard sheets of IEC/TR 60083.

- for **class I appliances** standard sheet C2b, C3b or C4;
- for **class II appliances** standard sheet C5 or C6.

**25.7** Add the content of NOTE 1 to the requirement as follows:

Their properties shall be at least those of ordinary tough rubber sheathed cords (code designation 60245 IEC 53). These cords are not suitable for appliances intended to be used outdoors or when they are liable to be exposed to significant amounts of ultraviolet radiation.

Add the following text after the last dash and before the paragraph regarding "Supply cords for class III appliances": iTeh STANDARD PREVIEW

Halogen-free thermoplastic compound sheathed.

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Their properties shall be at least those of

- halogen-free thermoplastic compound sheathed cords (code designation H03Z1Z1H2-F, H03Z1Z1-F), for appliances having a mass not exceeding 3 kg;
   H03Z1Z1-F), for appliances having a mass not exceeding 3 kg;
- halogen-free thermoplastic<sup>8d</sup>compound <sup>en</sup> sheathed<sup>01</sup> cords (code designation H05Z1Z1H2-F or H05Z1Z1-F), for other appliances;
- Cross-linked halogen-free compound sheathed.

Their properties shall be at least those of cross-linked halogen-free compound sheathed cords (code designation H07ZZ-F).

#### Add the following note:

NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.

#### 26 Terminals for external conductors

#### **26.11** Add after the second sentence in the first paragraph:

Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position unless they are held in place near the terminals independently of the solder

#### 29 Clearances, creepage distances and solid insulation

29.1 Modification:

Replace NOTE 5 by:

NOTE 5 Attention is drawn on the fact that for appliances intended for use at altitudes exceeding 2 000 m, the altitude correction factors, relevant to the intended altitude, for clearances specified in Table A.2 of EN 60664-1:2007 may need to be taken into account.

Add the following subclause:

**29.3.21** Appliance shall be constructed so that if there is a possibility of damaging the insulation during installation, the insulation shall withstand the scratch and penetration test of 21.2.

#### 32 Radiation, toxicity and similar hazards

Add at the end:

Compliance regarding electromagnetic fields is checked according to EN 50366 or EN 62233..

Annex I (normative) Motors having basic insulation that is inadequate for the rated voltage of the appliance

**19.I.101** Replace the first sentence by:

The appliance is supplied at **rated voltage** and operated under **normal operation** with each of the following fault conditions:

Add the following before the note:

When any of the fault conditions are simulated, the duration of the test is as specified in 19.7.

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Add the following annexes

#### Annex ZA

(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.

NOTE If it affects harmonization, it forms part of the European Standard.

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

Clause	Special national condition
19.5	Norway
	The test is also applicable to appliances intended to be permanently connected to fixed wiring.
iTeh ST	<b>FANDARD PREVIEW</b>
22.2 (S	Norway The second paragraph of this subclause, that deals with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system. Lai/catalog/standards/sist/cec13418-c867-4d74-ba61-
25.6 and 25.25	<b>Chformations concerning National</b> plug and socket-outlets is available from the CENELEC website, under the following hyperlink: <u>ftp://ftp.cencenelec.eu/CENELEC/TCs/61/PlugsSockets.pdf</u> Normative national requirements concerning plug and socket-outlets are shown in the relevant National standard.
25.8	Ireland and United Kingdom
	In the table, replace the line for 10 A and 16 A by: > 10 and $\leq$ 13 1,25 > 13 and $\leq$ 16 1,5.