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**PREDSTANDARD**

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**Gospodinjski in podobni električni aparati - Varnost - 1. del: Splošne zahteve**

Household and similar electrical appliances - Safety - Part 1: General requirements

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# 61/2869/CDV

## COMMITTEE DRAFT FOR VOTE (CDV) PROJET DE COMITÉ POUR VOTE (CDV)

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Secretary: Mr A. P. Brazauski, U.S.A. <input type="checkbox"/> Secrétaire:			
Also of interest to the following committees Intéresse également les comités suivants <b>61B, 61C, 61D, 61E, 61F, 61H, 61J</b>		Supersedes document Remplace le document <b>61/2821/MCR</b>	
Functions concerned Fonctions concernées			
<input checked="" type="checkbox"/> Safety Sécurité	<input type="checkbox"/> EMC CEM	<input type="checkbox"/> Environment Environnement	<input type="checkbox"/> Quality assurance Assurance qualité

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Titre : CEI 60335-1-A2 Ed 4.0: Partie 1:  
Prescriptions générales

### Note d'introduction

Ce document est diffusé conformément à la décision prise à la réunion du TC 61 de  
Durban – voir 61/2454/RM  
Toulouse – voir 61/2568/RM  
Kuala Lumpur – voir 61/2712A/RM  
Brisbane – voir 61/2800A/RM

Historique:

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Title : IEC 60335-1-A2 Ed 4.0: Household and similar electrical appliances - Safety - Part 1: General requirements

### Introductory note

This document is circulated according to the decisions taken at the meetings of TC 61in:  
Durban – see 61/2454/RM  
Toulouse – see 61/2568/RM  
Kuala Lumpur – see 61/2712A/RM  
Brisbane – see 61/2800A/RM

### History:

61/2236/DC	61/2350A/INF
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61/2331/DC	61/2365A/INF
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61/2560/DC	61/2655A/INF
61/2561/DC	61/2651A/INF
61/2685/DC	61/2761A/INF
61/2703/DC	61/2756A/INF
61/2714/DC	61/2760A/INF

Plus MT 4, MT22, MT23 and Chairman reports from Brisbane

**ATTENTION**  
CDV soumis en parallèle au vote (CEI)  
et à l'enquête (CENELEC)

**ATTENTION**  
Parallel IEC CDV/CENELEC Enquiry

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## FOREWORD

This amendment has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

The text of this amendment is based on the following documents:

FDIS	Report on voting
61/XXXX/FDIS	61/XXXX/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result date<sup>1)</sup> indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

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### 1 Scope

*Replace the two dashed items in the third paragraph by the following:*

- persons (including children) whose physical, sensory or mental capabilities or lack of experience and knowledge prevents them from using the appliance safely without initial supervision or instruction;
- children playing with the appliance.

### 2 Normative references

*Delete from the existing list the following normative references:*

IEC 60249-2-4

IEC 20249-2-5

*Replace reference to IEC 60085 by the following new reference:*

IEC 60085:2004, *Electrical insulation – Thermal classification*

*Replace reference to IEC 60664-3 by the following new reference:*

IEC 60664-3:2003, *Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution*

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<sup>1)</sup> The National Committees are requested to note that for this publication the maintenance result date is 2006.

Replace reference to IEC 60695-2-2 by the following new reference:

IEC 60695-11-5:2004, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

Replace reference to IEC 61000-4-11 by the following new reference:

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests*

Replace reference to IEC 60384-14:1993 by the following reference:

IEC 60384-14	1993	<i>Fixed capacitors for use in electronic equipment – Part 14:</i>
Amendment 1	(1995)	<i>Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains</i>

Replace reference to IEC 60730-1:1999 by the following reference:

IEC 60730-1	1999	<i>Automatic electrical controls for household and similar use – Part</i>
Amendment 1	(2003) <sup>1)</sup>	<i>1: General requirements</i>

Replace reference to IEC 60730-2-8:2000 by the following reference:

IEC 60730-2-8	2000	<i>Automatic electrical controls for household and similar use – Part</i>
Amendment 1	(2002) <sup>2)</sup>	<i>2-8: Particular requirements for electrically operated water valves, including mechanical requirements</i>

Replace reference to IEC 61558-1:1997 by the following reference:

IEC 61558-1	1997	<i>Safety of power transformers, power supply units and similar –</i>
Amendment 1	(1998) <sup>3)</sup>	<i>Part 1: General requirements and tests</i>

Replace reference to ISO 9772:2001 by the following reference:

ISO 9772	2001	<i>Cellular plastics – Determination of horizontal burning</i>
Amendment 1	(2003)	<i>characteristics of small specimens subjected to a small flame</i>

Add the following new references:

IEC 60691:2002, *Thermal-links - Requirements and application guide*

IEC 61810-1:2003, *Electromechanical elementary relays - Part 1: General and safety requirements*

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

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1) There exists a consolidated edition 3.1 (2003) that includes edition 3 and its amendment 1.

2) There exists a consolidated edition 2.1 (2003) that includes edition 2 and its amendment 1.

3) There exists a consolidated edition 1.1 (1998) that includes edition 1 and its amendment 1.

### 3 Definitions

Add the following new definition:

#### 3.1.12


##### **remote operation**


control of an appliance by a command that can be initiated out of sight of the appliance using means such as telecommunications, sound controls or bus systems

### 7 Marking and instructions

**7.5** In the first paragraph of the requirement, replace (in two places) “mean value” by “arithmetic mean value”.

**7.6** Replace the third and fourth symbols by the following:

3  [symbol 5032-1 of IEC 60417] three-phase alternating current

3N  [symbol 5032-2 of IEC 60417] three-phase alternating current with neutral

Replace the symbol 1641 of ISO 7000 by the following:



[symbol 1641 of ISO 7000] Operator's manual; operating instructions

Add the following symbol:



[symbol 0790 of ISO 7000] Read operator's manual

**7.12** Add the following:

The instructions shall state the substance of the following:

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge unless they have been given initial supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

### 8 Protection against access to live parts

**8.1.1** Renumber the existing note as Note 1.

Add the following note after the third paragraph of the test specification.

NOTE 2 "Without appreciable force" is considered to be a force not exceeding 1 N.

**8.1.2** *Renumber the existing note as Note 1.*

*Add the following note after the first paragraph of the test specification.*

NOTE 2 "Without appreciable force" is considered to be a force not exceeding 1 N.

**8.1.3** *Add the following note after the first paragraph of the test specification.*

NOTE 1 "Without appreciable force" is considered to be a force not exceeding 1 N.

*Renumber the existing note as Note 2.*

**8.1.4** *Add the following dashed item to the second paragraph of the requirement.*

- for voltages having a peak value over 15 kV, the energy in the discharge shall not exceed 350 mJ.

*Replace the third sentence of the second paragraph of the test specification by the following.*

*The quantity of electricity and energy in the discharge is measured using a resistor having a nominal non-inductive resistance of 2 000  $\Omega$ .*

**10 Power input and current****10.1** *Add the following to the requirement.*

The permissible deviations apply for both limits of the range for appliances marked with a **rated voltage range** having limits differing by more than 10 % of the arithmetic mean value of the range.

*In the second paragraph of the test specification, replace "mean value" by "arithmetic mean value".*

*Delete Notes 2 and 3.*

*Add the following to the test specification.*

*The test is carried out at both the upper and lower limits of the ranges for appliances marked with one or more **rated voltage ranges**, unless the marking of the **rated power input** is related to the arithmetic mean value of the relevant voltage range, in which case the test is carried out at a voltage equal to the arithmetic mean value of that range.*

**10.2** *Add the following to the requirement.*

The permissible deviations apply for both limits of the range for appliances marked with a **rated voltage range** having limits differing by more than 10 % of the arithmetic mean value of the range.

*In the second paragraph of the test specification, replace "mean value" by "arithmetic mean value".*

*Delete Notes 2 and 3.*

Add the following to the test specification.

The test is carried out at both the upper and lower limits of the ranges for appliances marked with one or more **rated voltage ranges**, unless the marking of the **rated current** is related to the arithmetic mean value of the relevant voltage range, in which case the test is carried out at a voltage equal to the arithmetic mean value of that range.

## 11 Heating

**Table 3**

In the first entry, replace the terms “class A, class E, class B, class F and class H” by the terms “class 105, class 120, class 130, class 155 and class 180” respectively.

Replace the fifth entry by the following:

Rubber, polychloroprene or polyvinyl chloride insulation of internal and external wiring, including <b>supply cords</b> :	
– without temperature rating	50
– with temperature rating (T) <sup>j</sup>	T-25

Add the following footnote:

- <sup>j</sup> IEC 60245 Types 53, 57 and 87 **supply cords** have a T rating of 60 °C;  
 IEC 60227 Types 52 and 53 **supply cords** have a T rating of 70 °C;  
 IEC 60227 Types 56 and 57 **supply cords** have a T rating of 90 °C.

## 14 Transient overvoltages

Replace the second paragraph of the test specification by the following:

The impulse test voltage has a no-load waveshape corresponding to the 1,2/50  $\mu$ s standard impulse specified in IEC 61180-1. It is supplied from a generator having a conventional impedance not exceeding 42  $\Omega$ . The impulse test voltage is applied three times for each polarity with intervals of at least 1 s.

Delete Note 3.

## 16 Leakage current and electric strength

**16.3** Replace the first paragraph of the test specification by the following.

Immediately after the test of 16.2, the insulation is subjected to a voltage having a frequency of 50 Hz or 60 Hz for 1 min, in accordance with IEC 61180-1. The values of the test voltage for different types of insulation are given in Table 7.

Delete the penultimate paragraph of the test specification.

## 19 Abnormal operation

**19.11.2** In the first paragraph of the test specification, add the following after Note 2:



- g) *failure of an electronic power switching device in a partial turn-on mode with loss of gate control. During this test, winding temperatures shall not exceed the values given in 19.7.*

NOTE 3 This mode may be simulated by disconnecting the electronic power switching device gate terminal and connecting an external adjustable power supply between the gate and source terminal of the electronic power switching device. The power supply is then varied so as to achieve a current that will not damage the electronic power switching device but give the most onerous conditions of test.

NOTE 4 Examples of electronic power switching devices are IGBT's and FET's.

**19.11.4** *In the first paragraph, replace “switch” by “device” in three places.*

*Add the following paragraph before the last paragraph:*

*Appliances incorporating a **protective electronic circuit** that relies upon a programmable component to function correctly are subjected to the test 19.11.4.8. The test is carried out after removal of all batteries and other components intended to maintain the programmable component supply voltage during mains supply voltage dips, interruptions and variations.*

*In the last paragraph, replace “arresters” by “protective devices”.*

*Add the following new subclause:*

**19.11.4.8** *The appliance is supplied at **rated voltage** and operated under **normal operation**. After approximately 60 s, the power supply voltage is reduced to a level such that the appliance ceases to respond to user inputs or parts controlled by the programmable component cease to operate, whichever occurs first. This value of supply voltage is recorded.*

*The appliance is supplied at **rated voltage** and operated under **normal operation**. The voltage is then reduced to a value of approximately 10 % less than the recorded voltage. It is held at this value for approximately 60 s and then increased to **rated voltage**.*

*The appliance shall then continue to operate normally from the same point in its operating cycle at which the voltage decrease occurred, or a manual operation shall be required to restart it.*

**NOTE OF THE SECRETARY:** It is proposed to specify that the rate of decrease and increase of the power supply voltage be approximately 10 V/s.

National committees are invited to comment if they disagree.

**19.13** *Replace the second paragraph by the following:*

*After the tests and when the appliance has cooled to approximately room temperature, compliance with Clause 8 shall not be impaired and the appliance shall comply with 20.2 if it can still be operated.*

*Add the following immediately before the penultimate paragraph.*

*After the operation or interruption of a control, **clearances** and **creepage distances** across the **functional insulation** shall withstand the electric strength test of 16.3, the test voltage, however, being twice the **working voltage**.*

*Replace the last paragraph by the following:*

*Appliances tested with an electronic switch in the **off position**, or in the stand-by mode, shall*  
*- not become operational, or*