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Electric toys - Safety

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 06/20

Obsahom tejto normy nie je IEC 62115: 2017/Cor. 1: 2019, pretože sa týka iba francúzskej verzie.

Obsahuje: EN IEC 62115:2020, IEC 62115:2017

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EUROPEAN STANDARD

EN IEC 62115

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2020

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Supersedes EN 62115:2005 and all of its amendments
and corrigenda (if any)

English Version

**Electric toys - Safety
(IEC 62115:2017 + COR1:2019)**Jouets électriques - Sécurité
(IEC 62115:2017 + COR1:2019)Elektrische Spielzeuge - Sicherheit
(IEC 62115:2017 + COR1:2019)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 62115:2020 (E)**European foreword**

The text of document 61/5319/FDIS, future edition 2 of IEC 62115, prepared by IEC/TC 61 "Safety of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62115:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-08-21
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-02-21

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For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of EN 62115:2020/A11:2020.

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The text of the International Standard IEC 62115:2017+COR1:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60086-1	NOTE	Harmonized as EN 60086-1
IEC 60086-2	NOTE	Harmonized as EN 60086-2
IEC 60335-2-82	NOTE	Harmonized as EN 60335-2-82
IEC 60598-2-10	NOTE	Harmonized as EN 60598-2-10

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-75	2014	Environmental testing - Part 2-75: Tests Test Eh: Hammer tests	-EN 60068-2-75	2014
IEC 60086	series	Primary batteries - Part 1: General	EN 60086	series
IEC 60086-2	2015	Primary batteries - Part 2: Physical electrical specifications	andEN 60086-2	2016
IEC 60335-1 (mod)	2010	Household and similar electrical appliances - Safety - Part 1: General requirements	EN 60335-1 +A11 +A12 +AC +A14 +A13 +prA15 +prA16	2012 2014 2017 2014 2019 2017
IEC 60335-2-29	2016	Household and similar electrical appliances - Safety - Part 2-29: Particular requirements for battery chargers	FprEN 60335-2-29	2016
IEC 60384-14	-	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	-
IEC 60417	-	Graphical symbols for use on equipment. Index, survey and compilation of the single sheets.	HD 243 S12 +HD S12:1995/corrigendum Oct. 1995	- 2431995
IEC 60529	1989	Degrees of protection provided enclosures (IP Code)	byEN 60529 +EN 60529:1991/corrigendum May 1993	1991 1993

EN IEC 62115:2020 (E)

Publication	Year	Title	EN/HD	Year
IEC 60695-2-11	-	Fire hazard testing - Part 2-11:EN 60695-2-11 Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products (GWEPT)		-
IEC 60695-2-13	-	Fire hazard testing - Part 2-13:EN 60695-2-13 Glowing/hot-wire based test methods - Glow-wire ignition temperature (GWIT) test method for materials		-
IEC 60695-10-2	-	Fire hazard testing -- Part 10-2: Guidance- and test methods for the minimization of the effects of abnormal heat on electrotechnical products involved in fires - Method for testing products made from non-metallic materials for resistance to heat using the ball pressure test		-
IEC 60695-11-5	2004	Fire hazard testing -- Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2005
IEC 60695-11-10	-	Fire hazard testing_- Part_11-10: Test- flames_- 50_W horizontal and vertical flame test methods		-
IEC 60730 (mod)	series	Automatic electrical controls for household and similar use -- Part 1: General requirements	EN 60730	series
			+prAC	
			+A15	2007
			+A16	2007
			+A12	2003
			+prA	
			+A11	2002
			+A14	2005
			+A13	2004
			+EN	60730-2007
			1:2000/corrigendum	
			Aug. 2007	
IEC 60730-1 (mod)	2013	Automatic electrical controls - Part 1: General requirements	EN 60730-1	2016
			+prA	
IEC 60738-1	-	Thermistors - Directly heated positive temperature coefficient - Part 1: Generic specification	EN 60738-1	-
IEC 60990	2016	Methods of measurement of touch current and protective conductor current	EN 60990	2016
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) - Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
IEC 61000-4-4	2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012
IEC 61000-4-5	2014	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2014

EN IEC 62115:2020 (E)

Publication	Year	Title	EN/HD	Year
IEC 61000-4-6	2013	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2014
+A1	2017		+A1	2017
IEC 61000-4-13	2002	Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	EN 61000-4-13	2002
IEC 61032	-	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	-
IEC 61058-1	2016	Switches for appliances - Part 1: General requirements	EN IEC 61058-1	2018
IEC 61058-1-1	2016	Switches for appliances - Part 1-1: Requirements for mechanical switches	EN 61058-1-1	2016
IEC 61058-1-2	2016	Switches for appliances - Part 1-2: Requirements for electronic switches	+EN 61058-1-1:2016/AC:2019-02 EN 61058-1-2	2016
IEC 61180	-	High-voltage test techniques for low-voltage equipment - Definitions, test and procedure requirements, test equipment	EN 61180	-
IEC 61558-2-7 (mod)	-	Safety of power transformers, power supplies, reactors and similar products - Part 2-7: Particular requirements and tests for transformers and power supplies for toys	EN 61558-2-7	-
IEC 61558-2-16	-	Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V - Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units	EN 61558-2-16	-
IEC 62133	-	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications	EN 62133	-
IEC 62233 (mod)	2005	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure	EN 62233	2008
			+EN 62233:2008/corrigendum Aug. 2008	2008
			+prA	
IEC 62471 (mod)	2006	Photobiological safety of lamps and lamp systems	EN 62471	2008
ISO 3864-1	-	Graphical symbols - Safety colours and safety signs - Part 1: Design principles for safety signs and safety markings		-
ISO 7000	-	Graphical symbols for use on equipment - Registered symbols		-
ISO 8124-1	2014	Safety of toys - Part 1: Safety aspects-related to mechanical and physical properties		-

EN IEC 62115:2020 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 9772	-	Cellular plastics -- Determination of horizontal burning characteristics of small specimens subjected to a small flame		-
IEC/TR 60083	-	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC		-



IEC 62115

Edition 2.0 2017-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Electric toys – Safety

Jouets électriques – Sécurité





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IEC 62115

Edition 2.0 2017-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Electric toys – Safety

Jouets électriques – Sécurité

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	8
2 Normative references	10
3 Terms and definitions	12
4 General requirement.....	16
5 General conditions for tests	16
6 Criteria for reduced testing	19
7 Marking and instructions.....	20
8 Power input	27
9 Heating and abnormal operation.....	28
10 Electric strength	33
11 Electric toys used in water, electric toys used with liquid and electric toys cleaned with liquid.....	34
12 Mechanical strength	35
13 Construction.....	36
14 Protection of cords and wires.....	42
15 Components	42
16 Screws and connections	44
17 Clearances and creepage distances	45
18 Resistance to heat and fire	46
19 Radiation and similar hazards.....	47
Annex A (normative) Experimental sets	48
Annex B (normative) Needle-flame test.....	50
Annex C (normative) Automatic controls and switches	51
Annex D (normative) Electric toys with protective electronic circuits.....	53
Annex E (normative) Safety of electric toys incorporating optical radiation sources.....	55
Annex F (informative) Flowcharts showing the assessment of optical radiation safety of LEDs in electric toys	70
Annex G (informative) Examples of calculations on LEDs	73
Annex H (informative) Explanation of the principles used for the requirements of Annex E.....	78
Annex I (informative) Electric toys generating electromagnetic fields (EMF).....	86
Annex J (normative) Safety of remote controls for electric ride-on toys	87
Annex K (informative) Flow charts showing the application of Clause 9.....	92
Bibliography.....	95
Index of defined terms and definitions.....	96
Figure 1 – Examples of battery compartment markings	21
Figure 2 – Example of an electronic circuit with low-power points	31
Figure F.1 – Flow chart addressing UVB and UVC emissions.....	70
Figure F.2 – Flow chart addressing UVA emissions.....	70
Figure F.3 – Flow chart addressing visible emissions.....	71

Figure F.4 – Flow chart addressing IR emissions < 1 000 nm.....	71
Figure F.5 – Flow chart addressing IR emissions ≥ 1 000 nm.....	72
Figure G.1 – Visible light AEL in cd.....	77
Figure H.1 – Blue light AEL in cd	82
Figure H.2 – Blue light AEL in Wsr^{-1}	82
Figure H.3 – Visible light AEL in cd.....	83
Figure H.4 – Visible light AEL in Wsr^{-1}	84
Table 1 – Temperature rise limits for accessible parts.....	33
Table 2 – Quantity of water per battery	39
Table 3 – Torque for testing screws and nuts.....	44
Table E.1 – Relaxation factor A for UVA AEL.....	62
Table E.2 – AEL of visible light in candela	63
Table E.3 – AEL of visible light in Wsr^{-1}	65
Table H.1 – ICNIRP ELVs	84

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC TOYS – SAFETY

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62115 has been prepared by subcommittee IEC technical committee 61: Safety of household and similar electrical appliances.

This second edition cancels and replaces the first edition published in 2003, Amendment 1 (2004) and Amendment 2 (2010). This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- the general conditions for tests has been rewritten and modified (Clause 5);
- the criteria for reduced testing has been modified (Clause 6);
- warnings for toys using button batteries or coin batteries have been added (7.3.3.2, 7.3.3.3);
- warnings on ride-on toys have been added (7.5);
- the requirements concerning accessibility of batteries have been updated (13.4.1 and 13.4.2);
- added requirements to cover toys placed above a child (13.4.4);

- added requirements to cover toys connected to other equipment (13.9);
- modified the requirements for safety of toys incorporating optical radiation sources (Annex E), to include requirements for using the technical LED data sheet for checking compliance with the specified accessible emission limits (AEL);
- updated the details for measurements of the optical radiation from the toy (Annex E);
- introduced an informative Annex I concerning measurement methods for toys with an integrated field source generating EMF;
- included a normative Annex J concerning safety of remote controls for electric ride-on toys.

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

FDIS	Report on voting
61/5319/FDIS	61/5371/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

NOTE 1 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.

The committee has decided that the contents of this publication will remain unchanged until the stability date 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

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- replaced by a revised edition, or
- amended.

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It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

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INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people.

As a general rule, electric toys are designed and manufactured for particular categories of children. Their characteristics are related to the age and stage of development of the children and their intended use presupposes certain capabilities.

Accidents are frequently due to an electric toy either being given to a child for whom it is not intended or being used for a purpose other than for which it was designed. This standard does not eliminate parental responsibility for the appropriate selection of electric toys. It is assumed that when choosing an electric toy or a game, account is taken of the physical and mental development of the child who will be playing with it.

The aim of this standard is to reduce risks when playing with electric toys, especially those risks that are not evident to users. However, it has to be recognized that some electric toys have risks inherent in their use that cannot be avoided. Consideration has been given to reasonably foreseeable use, bearing in mind that children are not generally as careful as adults.

While this standard applies to new electric toys, it nevertheless takes into account the wear and tear of electric toys in use.

The fact that an electric toy complies with this standard does not absolve parents and other persons in charge of a child from the responsibility of supervising the child. Supervision is also necessary when children of various ages have access to the same electric toy.

This standard covers the whole range of electric toys from small button battery or coin battery operated lights to large ride-on electric toys powered by rechargeable batteries. This results in different requirements and tests according to the type of electric toy. For some electric toys, testing can be reduced if particular criteria are met (see Clause 6).

Other safety aspects of electric toys are described in the ISO 8124 series of standards.

An electric toy that complies with the text of this standard will not necessarily be judged to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

A electric toy employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the standard.

Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent.

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ELECTRIC TOYS – SAFETY

1 Scope

This International Standard specifies safety requirements for **electric toys** that have at least one function dependant on electricity, **electric toys** being any product designed or intended, whether or not exclusively, for use in play by children under 14 years of age.

NOTE 1 Examples of **electric toys** also within the scope of this standard are

- **constructional sets**;
- **experimental sets**;
- functional **electric toys** (an **electric toy** that performs and is used in the same way as a product, appliance or installation intended for use by adults, and which may be a scale model of such product, appliance or installation);
- **electric toy** computers;
- a doll's house having an interior lamp.

Additional requirements for **experimental sets** are given in Annex A.

Additional requirements for **electric toys** incorporating optical radiation sources are given in Annex E.

Measurement methods for **electric toys** generating electromagnetic fields (EMF) are given in Annex I.

Additional requirements for the safety of **remote controls** for **electric ride-on toys** are given in Annex J.

If the packaging is intended to have play value then it is considered to be part of the **electric toy**.

This International Standard only covers the safety aspects of **electric toys** that relate to an electrical function.

NOTE 2 The ISO 8124 series of standards address other aspects of the safety of **electric toys**. Other horizontal product standards may also apply to **electric toys**.

This standard covers the safety of **electric toys** taking power from any source, such as batteries, transformers, solar cells and inductive connections.

NOTE 3 **Transformers for toys** (IEC 61558-2-7 for linear types or IEC 61558-2-7 and IEC 61558-2-16 for switch mode types), **battery chargers** (IEC 60335-2-29) and **battery chargers** for use by children (IEC 60335-2-29 Annex AA:) are not considered to be part of an **electric toy** even if supplied with an **electric toy**.

NOTE 4 This standard is not intended to assess the safety of batteries however it does address the safety of the **electric toy** with the batteries inserted.

This International Standard does not apply to the following products:

- automatic playing machines, whether coin operated or not, intended for public use (IEC 60335-2-82);
- **toy** vehicles equipped with combustion engines;
- **toy** steam engines;
- slings and catapults;
- electric decorative robots;

- decorative objects for festivities and celebrations;
- sports equipment, including roller skates, inline skates, and skateboards intended for children with a body mass of more than 20 kg;
- bicycles with a maximum saddle height of more than 435 mm, measured as the vertical distance from the ground to the top of the seat surface, with the seat in a horizontal position and with the seat pillar set to the minimum insertion mark;
- scooters and other means of transport designed for sport or which are intended to be used for travel on public roads or public pathways;
- electrically driven vehicles which are intended to be used for travel on public roads, public pathways, or the pavement thereof;
- aquatic equipment intended to be used in deep water, and swimming learning devices for children, such as swim seats and swimming aids;
- puzzles with more than 500 pieces;
- guns and pistols using compressed gas, with the exception of water guns and water pistols, and bows for archery over 120 cm long;
- products and games using sharp-pointed missiles, such as sets of darts with metallic points;
- functional educational products, such as electric ovens, irons or other functional products operated at a nominal voltage exceeding 24 V which are sold exclusively for teaching purposes under adult supervision;
- fireworks, including percussion caps which are not specifically designed for **electric toys**;
- products intended for use for educational purposes in schools and other pedagogical contexts under the surveillance of an adult instructor, such as science equipment;
- electronic equipment, such as personal computers and game consoles, used to access interactive software and their associated peripherals, unless the electronic equipment or the associated peripherals are specifically designed for and targeted at children and have a play value on their own, such as specially designed personal computers, key boards, joy sticks or steering wheels;
- interactive software, intended for leisure and entertainment, such as computer games, and their storage media, such as CDs;
- fashion accessories for children which are not for use in play;
- babies soothers;
- personal protective equipment including swimming goggles, sunglasses and other eye protectors as well as bicycle and skateboard helmets;
- products for collectors, provided that the product or its packaging bears a visible and legible indication that it is intended for collectors of 14 years of age and above.

EXAMPLES of this category are

- detailed and faithful scale models,
 - kits for the assembly of detailed scale models,
 - folk dolls and decorative dolls and other similar articles,
 - historical replicas of **electric toys**, and
 - reproductions of real firearms.
- equipment intended to be used collectively in playgrounds;
 - amusement machines and personal service machines (IEC 60335-2-82);
 - professional **electric toys** installed in public places (such as shopping centres and railway stations);
 - products containing heating elements intended for use under the supervision of an adult in a teaching context;
 - portable luminaries for children (IEC 60598-2-10);

- blowers for inflatable activity **toys** (such as blowers for bouncy castles);

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-75:2014, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

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

IEC 60086-2: 2015, *Primary batteries – Part 2: Physical and electrical specifications*

IEC 60086 (all parts), *Primary batteries*

IEC 60335-1:2010, *Household and similar electrical appliances – Safety – Part 1: General requirements*

IEC 60335-1:2010/AMD1: 2013

IEC 60335-1:2010/AMD2:2016¹⁾

IEC 60335-2-29:2016, *Household and similar electrical appliances – Safety – Part 2-29: Particular requirements for battery chargers*

IEC 60384-14, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60417, *Graphical symbols for use on equipment*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529/AMD1:1999

IEC 60529/AMD2:2013²⁾

IEC 60695-2-11, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 60695-2-13, *Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials*

IEC 60695-10-2, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*

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

IEC 60695-11-10, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60730 (all parts), *Automatic electrical controls*

1 There exists a consolidated edition 5.2 (2016) that includes edition 5 and its Amendment 1 and Amendment 2.

2 There exists a consolidated edition 2.2 (2013) that includes edition 2 and its Amendment 1 and Amendment 2.

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– 11 –

IEC 60730-1:2013, *Automatic electrical controls – Part 1: General requirements*
IEC 60730-1:2013/AMD1:2015³⁾

IEC 60738-1, *Thermistors – Directly heated positive temperature coefficient – Part 1: Generic specification*

IEC 60990:2016, *Methods of measurement of touch current and protective conductor current*

IEC 61000-4-2: 2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*
IEC 61000-4-3/AMD1:2007
IEC 61000-4-3/AMD2:2010⁴⁾

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:2014, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6:2013, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

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

IEC 61000-4-13:2002, *Electromagnetic compatibility (EMC) – Part 4-13: Testing and measurement techniques – Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests*
IEC 61000-4-13/AMD1:2009
IEC 61000-4-13/AMD2:2015⁵⁾

IEC 61032, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61058-1:2016, *Switches for appliances – Part 1: General requirements*

IEC 61058-1-1:2016, *Switches for appliances – Part 1-1: Requirements for mechanical switches*

IEC 61058-1-2:2016, *Switches for appliances – Part 1-2: Requirements for electronic switches*

IEC 61180, *High-voltage test techniques for low-voltage equipment – Definitions, test and procedure requirements, test equipment*

IEC 61558-2-7, *Safety of power transformers, power supplies, reactors and similar products – Part 2-7: Particular requirements and tests for transformers and power supplies for toys*

3 There exists a consolidated edition 5.1 (2015) that includes edition 5 and its Amendment 1.

4 There exists a consolidated edition 3.2 (2010) that includes edition 3 and its Amendment 1 and Amendment 2.

5 There exists a consolidated edition 1.2 (2015) that includes edition 1 and its Amendment 1 and Amendment 2.

IEC 61558-2-16, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units*

IEC 62133, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications*

IEC 62233:2005, *Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure*

IEC 62471:2006, *Photobiological safety of lamps and lamp systems*

ISO 3864-1, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs and safety markings*

ISO 8124-1:2014, *Safety of toys – Part 1: Safety aspects related to mechanical and physical properties*

ISO 7000, *Graphical symbols for use on equipment – Registered symbols*

ISO 9772, *Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN