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Överlastskydd för bruksföremål och liknande

Circuit breakers for equipment (CBE)

Som svensk standard gäller europastandarden EN IEC 60934:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60934:2019.

Nationellt förord

Europastandarden EN IEC 60934:2019

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60934, Fourth edition, 2019 - Circuit breakers for equipment (CBE)**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60934, utgåva 3, 2001, SS-EN 60934/A1, utgåva 1, 2007 och SS-EN 60934/A2, utgåva 1, 2013, gäller ej fr o m 2022-09-20.

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English Version

**Circuit breakers for equipment (CBE)
(IEC 60934:2019)**

Disjoncteurs pour équipement (DPE)
(IEC 60934:2019)

Geräteschutzschalter (GS)
(IEC 60934:2019)

This European Standard was approved by CENELEC on 2019-03-06. 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 CEN-CENELEC Management Centre or to any CENELEC member.

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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

European foreword

The text of document 23E/1084/FDIS, future edition 4 of IEC 60934, prepared by SC 23E "Circuit-breakers and similar equipment for household use" of IEC/TC 23 "Electrical accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60934:2019.

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) 2020-03-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-09-20

This document supersedes EN 60934:2001 and all of its amendments and corrigenda (if any).

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

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.

Endorsement notice

The text of the International Standard IEC 60934:2019 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 60038:2009	NOTE	Harmonized as EN 60038:2011
IEC 60112:2003	NOTE	Harmonized as EN 60112:2003 (not modified)
IEC 60112:2003/A1:2009	NOTE	Harmonized as EN 60112:2003/A1:2009 (not modified)
IEC 60269 (series)	NOTE	Harmonized as EN 60269 (series)
IEC 60664 (series)	NOTE	Harmonized as EN 60664 (series)
IEC 60947-1:2007	NOTE	Harmonized as EN 60947-1:2007 (not modified)
IEC 61543:1995	NOTE	Harmonized as EN 61543:1995 (not modified)
IEC 61543:1995/A2:2005	NOTE	Harmonized as EN 61543:1995/A2:2006 (not modified)

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 60060-1	2010	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60068-2-20	-	Environmental testing - Part 2-20: Tests - Test T: Test methods for solderability and resistance to soldering heat of devices with leads	EN 60068-2-20	2008
IEC 60227	series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V		-
IEC 60417	1973 ¹	Graphical symbols for use on equipment. - Index, survey and compilation of the single sheets.		-
IEC 60529	2013 ¹	Degrees of protection provided by enclosures (IP Code)		-
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60664-3	-	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2017
IEC 60695-2-10	-	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2013
IEC 60898-1 (mod)	2015	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for a.c. operation	EN 60898-1	2019

¹ Dated as no equivalent European Standard exists.

EN IEC 60934:2019 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2008 ¹	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test		-
IEC 61000-4-4	-	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	-	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2014
			+ A1	2017
IEC 61000-6-1	-	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments	EN IEC 61000-6-1	2019
CISPR 32	-	Electromagnetic compatibility of multimedia equipment - Emission requirements	EN 55032	2015

CONTENTS

FOREWORD	8
1 Scope	10
2 Normative references	11
3 Terms and definitions	12
3.1 Definitions related to protection and switching devices	12
3.2 General terms	13
3.3 Definitions related to current	15
3.4 Definitions related to voltage	16
3.5 Definitions related to constructional elements of a CBE	16
3.6 Definitions related to releases in CBEs	18
3.7 Definitions related to insulation coordination	20
3.8 Definitions related to operation of CBEs	22
3.9 Definitions related to the operating characteristic of CBEs	23
3.10 Definitions related to characteristic quantities	23
3.11 Definitions concerning coordination of CBEs and SCPDs associated in the same circuit	24
3.12 Definitions related to terminals and terminations	25
3.13 Definitions related to tests	28
4 Classification	28
4.1 General	28
4.2 Quantity of poles	28
4.3 Method of mounting	28
4.4 Method of connection	29
4.5 Method of operation	29
4.6 Mode of tripping	29
4.6.1 CBEs tripping by current (overcurrent)	29
4.6.2 CBEs tripping by voltage	29
4.7 Influence of the ambient temperature	30
4.8 Trip-free behaviour	30
4.9 Influence of the mounting position	30
4.10 Electrical performance	30
4.11 Suitability for isolation	30
5 Characteristics of CBEs	30
5.1 List of characteristics	30
5.2 Rated quantities	30
5.2.1 General	30
5.2.2 Rated voltages	30
5.2.3 Rated current (I_n)	31
5.2.4 Rated frequency	31
5.2.5 Rated switching capacity (rated making and breaking capacity)	31
5.2.6 Rated conditional short-circuit current (I_{nc})	32
5.2.7 Rated short-circuit capacity (I_{cn})	32
5.3 Standard and preferred values	32
5.3.1 Preferred values of rated voltage	32
5.3.2 Standard rated frequencies	32
5.3.3 Standard values of rated conditional short-circuit current	32

6	Marking and other product information.....	33
7	Standard conditions for operation in service	34
7.1	General.....	34
7.2	Ambient air temperature.....	34
7.2.1	Reference ambient air temperature T for calibration.....	34
7.2.2	Limits of ambient air temperature for operation in service	34
7.3	Altitude	34
7.4	Atmospheric conditions	35
8	Requirements for construction and operation.....	35
8.1	Mechanical design	35
8.1.1	General	35
8.1.2	Mechanism	35
8.1.3	Clearances and creepage distances (see Annex B)	36
8.1.4	Screws, current-carrying parts and connections.....	39
8.1.5	Screw-type and screwless terminals	40
8.1.6	Solder terminations.....	43
8.1.7	Flat quick-connect male tabs (Figures E.6 to E.13)	43
8.2	Protection against electric shock.....	46
8.3	Temperature-rise	46
8.3.1	Temperature-rise limits	46
8.3.2	Ambient air temperature	47
8.4	Dielectric properties	47
8.4.1	Dielectric strength at power frequency	47
8.4.2	Clearances for insulation coordination	47
8.5	Conditions for automatic operation.....	48
8.5.1	Standard time-current zone	48
8.5.2	Tripping characteristic	48
8.5.3	Operating limits of overvoltage releases	49
8.5.4	Operating limits of undervoltage and zero-voltage releases	49
8.5.5	Electrical endurance of undervoltage releases	49
8.6	Electrical performance and behaviour at rated short-circuit capacity	49
8.7	Performance under conditional short-circuit current conditions.....	50
8.8	Resistance to mechanical shock and impact	50
8.9	Resistance to heat	50
8.10	Resistance to abnormal heat and to fire	50
8.11	Resistance to tracking.....	50
8.12	Resistance to rusting	50
9	Tests	52
9.1	Type tests and sequences	52
9.2	Test conditions	53
9.3	Test of indelibility of marking	54
9.4	Test of reliability of terminals, current-carrying parts and connections.....	54
9.4.1	Screw type and screwless terminals	54
9.4.2	Solder terminations.....	56
9.4.3	Flat quick-connect male tabs	56
9.5	Test of reliability of terminals for external conductors (see 3.12.15)	57
9.6	Test of protection against electric shock	58
9.7	Test of dielectric properties.....	59

9.7.1	Resistance to humidity.....	59
9.7.2	Insulation resistance of the main circuit	59
9.7.3	Dielectric strength of the main circuit	60
9.7.4	Dielectric strength of the auxiliary circuits.....	60
9.7.5	Value of test voltage	60
9.7.6	Test for the verification of insulation coordination by impulse withstand voltage test.....	61
9.8	Test of temperature-rise.....	62
9.8.1	Ambient air temperature	62
9.8.2	Test procedure	62
9.8.3	Measurement of the temperature of parts	63
9.8.4	Temperature-rise of a part	63
9.9	28-day test.....	63
9.10	Test of tripping characteristics	63
9.10.1	General	63
9.10.2	Test of time-current characteristic.....	64
9.10.3	Test of instantaneous tripping (of the magnetic release)	64
9.10.4	Test of effect of single-pole loading on the tripping characteristic of multi-pole CBEs.....	64
9.10.5	Test of effect of ambient temperature on the tripping characteristic	64
9.11	Verification of electrical operational capability.....	64
9.11.1	General requirements	64
9.11.2	Behaviour at rated current (or under low overloads for R-type and J- type CBEs)	66
9.11.3	Behaviour at rated switching capacity	66
9.11.4	Behaviour at rated short-circuit capacity	66
9.11.5	Test of overvoltage releases at operating limits	68
9.11.6	Behaviour of undervoltage and zero-voltage releases	68
9.12	Conditional short-circuit current tests	68
9.12.1	General	68
9.12.2	Values of test quantities	69
9.12.3	Tolerances on test quantities	69
9.12.4	Test procedure	69
9.13	Test of resistance to mechanical shock and impact.....	71
9.14	Tests of resistance to heat	71
9.15	Test of resistance to abnormal heat and to fire	72
9.16	Test of resistance to tracking	72
9.17	Test of resistance to rusting	73
Annex A (normative)	Time-current zone (see 9.10 and Table 9).....	79
Annex B (normative)	Determination of clearances and creepage distances	80
Annex C (normative)	Test sequences and number of samples to be submitted for certification purposes.....	82
C.1	Test sequences	82
C.2	Number of samples to be submitted for full test procedure	83
C.3	Number of samples to be submitted for simplified test procedure in case of submitting simultaneously a series of CBEs of the same basic design.....	83
Annex D (normative)	Correspondence between ISO and AWG copper conductors	85
Annex E (normative)	Examples of terminals.....	86
Annex F (informative)	Coordination between a CBE and a short-circuit protective device (SCPD) associated in the same circuit.....	95

F.1	General.....	95
F.2	Overview.....	95
F.3	General requirements for co-ordination of a CBE with an associated SCPD	96
F.3.1	General considerations	96
F.3.2	Requirements concerning back-up protection	96
F.3.3	Requirements concerning discrimination.....	96
F.3.4	Required information	96
F.4	Verification of coordination.....	97
F.4.1	General considerations including the conditions for verification by desk study	97
F.4.2	Verification of discrimination	97
F.4.3	Verification of coordinated back-up protection	98
F.5	Examples of verification of coordination by desk study.....	99
Annex G (normative)	Electromagnetic behaviour of CBEs	107
G.1	General.....	107
G.2	Immunity	107
G.2.1	CBEs not incorporating electronic circuits.....	107
G.2.2	CBEs incorporating electronic circuits.....	107
G.3	Emission	108
G.3.1	CBEs not incorporating electronic circuits.....	108
G.3.2	CBEs incorporating electronic circuits.....	108
Annex H (normative)	Correlation between nominal voltage of the supply systems and the line-to-neutral voltage relevant for determining the rated impulse voltage	109
Annex I (normative)	Routine or statistical tests	110
I.1	General.....	110
I.2	Verification of the tripping characteristic	110
I.3	Verification of dielectric strength	110
Annex J (normative)	Additional requirements for electrical performance of E-type CBEs	112
Annex K (normative)	Additional requirements for CBEs suitable for isolation	113
K.1	General.....	113
K.6	Marking and other product information	113
K.8	Requirements for construction and operation	113
Bibliography	117
Figure 1	– Thread-forming screw	74
Figure 2	– Thread-cutting screw.....	74
Figure 3	– Test circuits for overcurrent tests of CBEs	75
Figure 4	– Standard test finger (see IEC 60529)	76
Figure 5	– Ball pressure apparatus	77
Figure 6	– Arrangements and dimensions of the electrodes for the tracking test	77
Figure 7	– Test circuits for verification of the conditional short-circuit current.....	78
Figure A.1	– Time-current zone.....	79
Figure B.1	– Illustrations of the application of the recommendations for creepage distances	81
Figure E.1	– Examples of pillar terminals	86
Figure E.2	– Examples of screw terminals and stud terminals	87

Figure E.3 – Examples of saddle terminals	88
Figure E.4 – Examples of lug terminals	88
Figure E.5 – Examples of screwless terminals	89
Figure E.6 – Dimensions of male tabs	90
Figure E.7 – Dimensions of round dimple detents of male tabs (see Figure E.6)	91
Figure E.8 – Dimensions of rectangular dimple detents of male tabs (see Figure E.6)	91
Figure E.9 – Dimensions of hole detents of male tabs (see Figure E.6)	91
Figure E.10 – Dimensions of male tabs	92
Figure E.11 – Dimensions of male tabs	92
Figure E.12 – Dimensions of male tabs	92
Figure E.13 – Dimensions of male tabs for two different sizes of female connectors (see 8.1.7.1)	93
Figure E.14 – Dimensions of female connectors for male tabs	94
Figure F.1 – Thermal only CBE, backed up by thermal magnetic circuit-breaker	100
Figure F.2 – Thermal only CBE, backed up by a fuse	101
Figure F.3 – Thermal-magnetic CBE backed up by thermal-magnetic circuit-breaker	102
Figure F.4 – Hydraulic-magnetic CBE backed up by thermal-magnetic circuit-breaker	103
Figure F.5 – Thermal CBE backed up by a hydraulic-magnetic circuit-breaker	103
Figure F.6 – Energy-limiting CBE, backed up by thermal-magnetic circuit-breaker	104
Figure F.7 – Energy-limiting CBE, backed up by a fuse	105
Figure F.8 – Examples illustrating proper and improper coordination	106
Table 1 – Minimum clearances for basic and reinforced insulation	37
Table 2 – Minimum creepage distances	38
Table 3 – Connectable cross-sectional areas of external copper conductors for screw- type and screwless terminals	40
Table 4 – Minimum distance between clamping screw and the end of conductor when fully inserted	42
Table 5 – Dimensions of tabs in millimetres – Dimensions <i>A, B, C, D, E, F, J, M, N, P</i> and <i>Q</i>	44
Table 6 – Dimensions of tabs in millimetres – Dimensions <i>H, I, T, K, R, G, L, S</i> and <i>U</i>	45
Table 7 – Dimensions in millimetres of combined male tabs for two different sizes of female connectors	45
Table 8 – Temperature-rise values for CBEs for different reference ambient air temperatures (<i>T</i>)	47
Table 9 – Time-current operating characteristics	48
Table 10 – Operating limits of undervoltage and zero-voltage releases (for AC and DC)	49
Table 11 – Test conditions for electrical performance for CBEs intended for general use, including inductive circuits	51
Table 12 – Test conditions for electrical performance of CBEs used in essentially resistive circuits only (see Clause 6, item d)	52
Table 13 – List of type tests	53
Table 14 – Standard cross-sections of copper conductors corresponding to the rated currents	54
Table 15 – Screw-thread diameter and applied torques	55
Table 16 – Insertion and withdrawal forces	56

Table 17 – Push/pull force	57
Table 18 – Pulling forces	57
Table 19 – Make-up of conductors for the test of 9.5.4.....	58
Table 20 – Test voltages.....	61
Table 21 – Impulse withstand test voltages for verification of insulation coordination	62
Table 22 – Power factor and time constant of test circuit	69
Table C.1 – Test sequences	82
Table C.2 – Number of samples for full test procedure.....	83
Table C.3 – Reduction of samples for simplified test procedure	84
Table D.1 – Correspondence between ISO and AWG conductor cross-sections	85
Table G.1 – Minimum EMC immunity performances of CBEs.....	108
Table H.1 – Nominal voltages and corresponding rated impulse voltages.....	109
Table K.1 – Minimum clearances for CBEs suitable for isolation, between live parts separated when the contacts are in the open position, as a function of the rated impulse withstand voltage	114
Table K.2 – Minimum creepage distances for CBEs suitable for isolation, between live parts separated when the contacts are in the open position	114
Table K.3 – Test voltages for verifying isolation across the open contacts, as a function of the rated impulse withstand voltage and the altitude where the test is carried out	116

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CIRCUIT-BREAKERS FOR EQUIPMENT (CBE)**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 60934 has been prepared by subcommittee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
23E/1084/FDIS	23E/1104/RVD

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

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

This fourth edition cancels and replaces the third edition published in 2000, Amendment 1:2007 and Amendment 2:2013. This edition constitutes a technical revision.

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

a) clarifications for type testing purposes.

In this standard, the following print types are used:

- Requirements proper: in roman type.
- *Test specifications: in italic type.*
- Explanatory matter: in smaller roman type.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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

CIRCUIT-BREAKERS FOR EQUIPMENT (CBE)

1 Scope

This document is applicable to mechanical switching devices designed as "circuit-breakers for equipment" (CBE) for household and similar applications. CBEs according to this document are intended to provide protection to circuits within electrical equipment including its components (e.g. motors, transformers, internal wiring). This document covers also CBEs applicable for protection of electrical equipment in case of undervoltage and/or overvoltage. This document also covers CBEs which are suitable for isolation.

NOTE The term "equipment" includes appliances.

CBEs are not applicable for overcurrent protection of wiring installations of buildings.

CBEs according to this document have:

- a rated voltage not exceeding 440 V AC (between phases) and/or DC not exceeding 250 V;
- a rated current not exceeding 125 A;
- a short-circuit capacity (I_{cn}) of at least $6 \times I_n$ (AC types) and $4 \times I_n$ (DC types) but not exceeding 3 000 A.

CBEs may have a conditional short-circuit current (I_{nc}) rating in association with a specified short-circuit protective device (SCPD). A guide for coordination of a CBE associated in the same circuit with a SCPD is given in Annex F.

For CBEs having a degree of protection higher than IP20 according to IEC 60529, for use in locations where hazardous environmental conditions prevail (e.g. excessive humidity, heat or cold or deposition of dust) and in hazardous locations (e.g. where explosions are liable to occur), special constructions may be required.

This document contains all the requirements necessary to ensure compliance with the operational characteristics required for these devices by type tests. It also contains the details relative to test requirements and methods of testing necessary to ensure reproducibility of test results.

This document states:

- a) the characteristics of CBEs;
- b) the conditions with which CBEs shall comply, with reference to:
 - 1) their operation and behaviour in normal service;
 - 2) their operation and behaviour in case of overload;
 - 3) their operation and behaviour in case of short-circuits up to their rated short-circuit capacity;
 - 4) their dielectric properties;
- c) the tests intended for confirming that these conditions have been met and the methods to be adopted for the tests;
- d) the data to be marked on the devices;
- e) the test sequences to be carried out and the number of samples to be submitted for certification purposes (see Annex C);

- f) the routine tests to be carried out to reveal unacceptable variations in material or manufacture, likely to affect safety (see Annex I).

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 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60417, *Graphical symbols for use on equipment* (available at <http://www.graphical-symbols.info/equipment>)

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

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

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

IEC 60695-2-10, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure*

IEC 60898-1:2015, *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation*

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

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

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

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

IEC 61000-6-1, *Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity standard for residential, commercial and light-industrial environments*

CISPR 32, *Electromagnetic compatibility of multimedia equipment – Emission requirements*