ICS 29.020, 29.120.50, 33.100.10

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STN	**Prúdové chrániče pre domácnosť a na podobné použitie (RCD) Elektromagnetická kompatibilita**	**STN EN IEC 61543** 35 4183

Residual current-operated protective devices (RCDs) for household and similar use - Electromagnetic compatibility

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. 09/23

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EN IEC 61543

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English Version

Residual current-operated protective devices (RCDs) for household and similar use - Electromagnetic compatibility (IEC 61543:2022)

Dispositifs différentiels résiduels (DDR) pour usages domestiques et analogues - Compatibilité électromagnétique
(IEC 61543:2022)

Fehlerstromschutzeinrichtungen (RCDs) für Hausinstallationen und ähnliche Verwendung - Elektromagnetische Verträglichkeit
(IEC 61543:2022)

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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/1268/FDIS, future edition 2 of IEC 61543, 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 61543:2023.

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) 2024-04-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-04-19

This document supersedes EN 61543:1995 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.

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Endorsement notice

The text of the International Standard IEC 61543:2022 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 standard indicated:

IEC 60364-4-44	NOTE	Approved as HD 60364-4-444
IEC 61000-6-1:2016	NOTE	Approved as EN IEC 61000-6-1:2019 (not modified)
IEC 61000-6-2:2016	NOTE	Approved as EN IEC 61000-6-2:2019 (not modified)
IEC 61008 (series)	NOTE	Approved as EN 61008 (series)
IEC 61009 (series)	NOTE	Approved as EN 61009 (series)
IEC 61540	NOTE	Approved as HD 639 S1
IEC 62423	NOTE	Approved as EN 62423
IEC 62606	NOTE	Approved as EN 62606
IEC 62640	NOTE	Approved as HD 62640
IEC 62752	NOTE	Approved as EN 62752
IEC 63024	NOTE	Approved as EN 63024
IEC 63052	NOTE	Approved as EN IEC 63052

IEC 61543

Edition 2.0 2022-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Residual current-operated protective devices (RCDs) for household and similar use – Electromagnetic compatibility

Dispositifs différentiels résiduels (DDR) pour usages domestique et analogues – Compatibilité électromagnétique

IEC 61543:2022-10(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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RESIDUAL CURRENT-OPERATED PROTECTIVE DEVICES (RCDs) FOR HOUSEHOLD AND SIMILAR USE – ELECTROMAGNETIC COMPATIBILITY

FOREWORD

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IEC 61543 has been prepared by subcommittee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This second edition cancels and replaces the first edition published in 1995, Amendment 1:2004 and Amendment 2:2005. This edition constitutes a technical revision.

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

a) some editorial modifications were introduced to comply to the ISO/IEC Directives Part 2:2021, e.g. introduction of Clause 3 – Terms and Definitions and renumbering of the whole document. In particular, the numbering of performance criteria has been changed (5.1.1, 5.1.2 become A, B, etc.);
b) some technical improvements:
   - Modification of scope and addition of Clause 6 and Clause 7 to enable the use of this document as a guideline for the preparation of EMC requirements and tests for other product standards under the scope of SC 23E;
   - Requirements for voltage dips and interruptions added;

- Repetition rate for burst-test, defined at 5 kHz;
- Surge test: Specifying impulse voltage application point and adding of voltages 2 kV, 1 kV and 0,5 kV to test T 5b;
- Radiated radio-frequency electromagnetic field: Adding of frequency range 1,4 GHz to 6 GHz and specifying frequencies for the test at 1,25 $I_{\Delta n}$;
- Conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz: Specifying frequencies for the test at 1,25 $I_{\Delta n}$;
- Electrostatic discharges: Change of performance criteria from 5.1.3 to B.

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

Draft	Report on voting
23E/1268/FDIS	23E/1305/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under 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.

INTRODUCTION

IEC 61543 is product family standard for RCDs Electromagnetic Compatibility and, more generally it is used as a guide for other devices of IEC Subcommittee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

RESIDUAL CURRENT-OPERATED PROTECTIVE DEVICES (RCDs) FOR HOUSEHOLD AND SIMILAR USE – ELECTROMAGNETIC COMPATIBILITY

1 Scope

This international standard provides specific emission and immunity requirements, tests and performance criteria for residual current-operated protective devices (RCDs), for household and similar use, for rated voltages not exceeding 440 V.

Household and similar use corresponds to the description given in the generic standard IEC 61000-6-1 for residential, commercial, and light-industrial electromagnetic environments.

This document is intended to be referred to by RCD product standards and is not intended to be used as a standalone document.

Residual current-operated protective devices are:

- Residual current operated circuit-breakers without integral overcurrent protection for household and similar use (RCCBs) covered by the IEC 61008 series and IEC 62423;
- Residual current operated circuit-breakers with integral overcurrent protection for household and similar use (RCBOs) covered by the IEC 61009 series and IEC 62423;
- Residual current devices with or without overcurrent protection for socket-outlets (SRCDs) covered by IEC 62640;
- Portable residual current devices without integral overcurrent protection (PRCDs) covered by IEC 61540;
- Devices with an RCD functionality for household and similar use according product standards following the group safety publications for general safety requirements for RCDs, IEC 60755.

This edition applies if it is referred to as a dated reference in the relevant product standard.

This document is also intended to be used as a guideline in the preparation of EMC requirements and tests for other product standards under the scope of IEC Subcommittee 23E. It also specifies generic performance criteria intended to be transformed into specific performance criteria by the relevant product standard.

NOTE Examples of other product standards under the scope of SC 23E are:

- IEC 62020-1, Electrical accessories – Residual current monitors (RCMs) – Part 1: RCMs for household and similar uses
- IEC 62606, General requirements for arc fault detection devices
- IEC 63024, Requirements for automatic reclosing devices (ARDs) for circuit breakers, RCBOs-RCCBs for household and similar uses
- IEC 63052, Power frequency overvoltage protective devices (POPs) for household and similar applications
- IEC 62752, In-cable control and protection device for mode 2 charging of electric road vehicles (IC-CPD)
- IEC 62955, Residual direct current detecting device (RDC-DD) to be used for mode 3 charging of electric vehicles

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 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 61000-4-5:2014, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*
IEC 61000-4-5:2014/AMD1:2017

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

IEC 61000-4-8, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase*

IEC 61000-4-16:2015, *Electromagnetic compatibility (EMC) – Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz*

IEC 61000-4-19, *Electromagnetic compatibility (EMC) – Part 4-19: Testing and measurement techniques – Test for immunity to conducted, differential mode disturbances and signalling in the frequency range 2 kHz to 150 kHz at a.c. power ports*

CISPR 14-1, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission*