

**RIKKEVOOLUKAITSELÜLITID KASUTAMISEKS
MAJAPIDAMISES JA MUUDEL TAOLISTEL JUHTUDEL.
ELEKTROMAGNETILINE ÜHILDUVUS**

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

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN IEC 61543:2023+A11:2023 sisaldab Euroopa standardi EN IEC 61543:2023 ja selle muudatuse A11:2023 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 61543:2023+A11:2023 consists of the English text of the European standard EN IEC 61543:2023 and its amendment A11:2023.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.06.2023, muudatused A11 30.06.2023.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 30.06.2023, for A11 30.06.2023.
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ICS 29.020; 29.120.50; 33.100.10

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EN IEC 61543 + A11

NORME EUROPÉENNE

EUROPÄISCHE NORM

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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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Comité Européen de Normalisation Electrotechnique
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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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-04-19

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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

A11 Amendment A11 European foreword

This document (EN IEC 61543:2023/A11:2023) has been prepared by CLC/TC 23E "Circuit breakers and similar devices for household and similar applications".

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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



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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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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.

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- reconfirmed,
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- replaced by a revised edition, or
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INTRODUCTION

IEC 61543 is product family standard for RCDs Electromagnetic Compatibility and, more generally it is used as a guide ^[A11] (see Annex A) ^[A11] for other devices of IEC Subcommittee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

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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.

A11 deleted text **A11**

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*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Electromagnetic emission of RCDs

Emission tests are required only for RCDs containing a continuously operating oscillator. The requirements of CISPR 14-1 apply.

RCDs other than those containing a continuously operating oscillator do not usually generate continuous or transient disturbances except during their switching process. The frequency, the level and the consequences of such emissions are considered as part of the normal electromagnetic environment of low-voltage installations.

NOTE Annex A of this document provides guidance for EMC requirements and tests for electromagnetic emission of product within the scope of SC 23E, other than RCDs.

5 Electromagnetic immunity of RCDs

5.1 General

Unless otherwise stated, the tests are made at rated voltage without load, and, for residual current devices fitted with an FE, the FE is connected to the supply neutral.