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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 22200.5-2025

**Reliability of low-voltage apparatus - Part 5: Reliability test
method for residual current operated circuit-breakers for
household and similar uses**

低压电器可靠性 第5部分：家用和类似用途的剩余电流动作断路器可靠性试验方法

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 5 of GB/T 22200 "Reliability of Low-Voltage Electrical Appliances". GB/T 22200 has already published the following parts.

- 1.General Rules;
 - 2.Reliability Test Methods for Molded Case Circuit Breakers;
 - 3.Reliability Test Methods for Overload Relays;
 - 4.Reliability test methods for overcurrent protection circuit breakers used in household and similar applications;
 - 5.Reliability Test Methods for Residual Current Operated Circuit Breakers for Household and Similar Purposes;
 - 6.Reliability Test Methods for Contactor Relays;
 - 7.Test methods for contactor reliability. This document replaces GB /Z 22202-2016 "Reliability Test Methods for Residual Current Operated Circuit Breakers for Household and Similar Purposes". Compared with GB /Z 22202-2016, apart from structural adjustments and editorial changes, the main technical changes are as follows:
 - The reliability metrics have been changed, merging "Residual Current Protection Success Rate" and "Residual Current Protection Success Rate after Environmental Testing" into a single "Residual Current Protection Success Rate". The "Residual Current Protection Success Rate" combines the "Short Circuit Protection Success Rate" and "Overload Protection Success Rate" into a single "Overcurrent Protection Success Rate" (see [link]).
- 4.1 (
- 4.1 in the.2016 version);
- A "sub-level 5" operational failure rate rating has been added (see 4.2);
- The test conditions for the residual current protection reliability test after environmental testing have been added (see 5.1.4.2.2);
- The requirement for the number of reliability tests for residual current protection has been increased (see 5.4.2);

1 Scope

GB/T 22200.5-2025 is the Chinese national standard covering the reliability of an RCD. An RCD that has silently stopped tripping is worse than no RCD, because the household believes it is protected; the reliability test exists for exactly that failure mode. The part fixes the test conditions and the operating cycles, the failure criteria, the sample size and the statistical treatment that turns a number of failures into a reliability figure with a confidence level attached. It is one of the parts of GB/T 22200 issued together, and it is a first edition. It was issued on 31 December 2025 and has been in force since 1 July 2026, as a first edition. The document is under the responsibility of the China Electrical Equipment Industry Association. This page is published from the official record of the 2025 edition; the clause

text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the reliability of residual current operated circuit breakers (hereinafter referred to as "residual current operated circuit breakers") for household and similar applications. Indicators, reliability test methods, reliability verification test plans and procedures, test records, and reliability test methods under live operation. step. This document applies to reliability test methods conforming to GB/T 16916.1 or GB/T 16917.1, and is applicable to AC 50Hz. 60Hz or 50Hz/60Hz, rated voltage not exceeding 440V, rated current not exceeding 125A, rated short-circuit capacity not exceeding 25000A, dynamic Residual fuel cells for domestic and similar applications with or without overcurrent protection, whose function is independent of or dependent on the power supply voltage. Residual current operated circuit breakers. The reliability levels and test methods for residual current circuit breakers conforming to standards such as GB/T 14048.2 are detailed in this document. The relevant content.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 2900.18-2008 Electrical Engineering Terminology - Low-Voltage Electrical Appliances

GB/T 2900.99-2016 Reliability of Electrical Engineering Terminology

GB/T 2424.2 Guidelines for Environmental Testing of Electrical and Electronic Products - Damp Heat Test

GB/T 2423.4 Environmental testing of electrical and electronic products - Part