



**NATIONAL STANDARD OF THE
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**Residual direct current detecting device (RDC-DD) to be used
for mode 3 charging of electric vehicles**

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Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 Directives for Standardization - Part 1. Rules for the Structure and Drafting of Standardizing Documents.

This Document used translation method to equivalently adopt IEC 62955.2018 Residual Direct

Current Detecting Device (RDC-DD) to be Used for Mode 3 Charging of Electric Vehicles.

The Chinese documents that have a consistent correspondence with the international documents

normatively cited in this document are as follows.

--- GB/T 2424.2-2005 Environment Tests for Electric and Electronic Products - Guidance for Damp Heat Tests (IEC 60068-3-4.2001, IDT);

--- GB/T 4208-2017 Degrees of Protection Provided by Enclosure (IP Code) (IEC 60529.2013, IDT);

--- GB 4343.1-2018 Electromagnetic Compatibility Requirements for Household Appliances, Electric Tools and Similar Apparatus - Part 1. Emission (CISPR 14-1.2011, IDT);

--- GB/T 5169.10-2017 Fire Hazard Testing for Electric and Electronic Products - Part 10.

Glowing/Hot-Wire Based Test Methods - Glow-Wire Apparatus and Common Test Procedure (IEC 60695-2-10.2013, IDT);

--- GB/T 16895 (all parts) Low-Voltage Electrical Installations [IEC 60364 (all parts)];

--- GB/T 16916.1-2014 Residual Current Operated Circuit-Breakers Without Integral Overcurrent Protection for Household and Similar Uses (RCCB) - Part 1.General Rules (IEC 61008-1.2012, MOD);

--- GB/T 16917.1-2014 Residual Current Operated Circuit-breakers with Integral Overcurrent Protection for Household and Similar Uses (RCBOs) - Part 1.General Rules (IEC 61009-1.2012, MOD);

--- GB/T 18499-2008 Residual Current Operated Protective Devices (RCD) for Household and Similar Use - Electromagnetic Compatibility (IEC 61543.1995, IDT).

This Document made the following editorial modifications.

--- Move the informative references of IEC 60112 and IEC 60664-3 from Clause 2 to Bibliography;

--- Supplement the cross-sectional area of the connectable copper conductors with rated currents of 63A to 125A omitted in Table 7, which is consistent with the relevant standards of residual current protection electrical apparatus;

--- Modify the error of "RDC-MD" into "RDC-DD" in 9.9.3;

--- Modify the error of "after the test of 9.10.3" into "after the test of 9.10.2" in 9.10.3;

--- Modify the error reference of "9.11.2.1 f) i)" into "9.11.2.1 f) 1)" in 9.11.2.1 f) 2);

---Modify the error of "5.1.1" into "5.1.1 in IEC 61543.1995+AMD1.2004" in Table 19 of 9.21.2;

--- Modify the error reference of "see J.3.6" into "see I.3.6" in I.1 of Annex I;

--- Modify the error of "Table 5" into "Table 7" in Table K.2;

--- Modify the error of "performance of RCCB under short-circuit conditions" into "performance of RDC-PD under short-circuit conditions" in Table O.1.

Please note some contents of this Document may involve patents. The issuing agency of this

Document shall not assume the responsibility to identify these patents.

This Document was proposed by China Electrical Equipment Industry Association.

This Document shall be under the jurisdiction of National Technical Committee on Low-Voltage Apparatus of Standardization Administration of China (SAC/TC 189).

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Residual Direct Current Detecting Device (RDC-DD)

to be Used for Mode 3 Charging of Electric Vehicles

1 Scope

This Document specifies the classification, characteristics, marking, conditions of use and installation, technical requirements for structure and operation, and corresponding tests of 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.

GB/T 2423.4-2008 Environmental Testing for Electric and Electronic Products - Part 2.

Test Method - Test Db. Damp Heat, Cyclic (12h+12h Cycle) (IEC 60068-2-30.2005, IDT)

3 Terms, Definitions and Symbols

Monitoring device capable of 6 mA DC residual current detection and mechanical switching.
Protective device with integrated AC, pulsating DC and 6 mA DC detection, evaluation and mechanical switching.

4 Classification of RDC-DD (RDC-MD, RDC-PD)

RDC-M-unit capable of 6mA DC residual current detection and evaluation mechanically coupled to a separate protective device.

5 Characteristics of RDC-DDs

The rated operational voltage (hereafter referred to as "rated voltage") of an RDC-DD is the value of voltage, assigned by the manufacturer, to which its performance is referred.

The rated impulse withstand voltage of an RDC-DD shall be equal to or higher than the standard

values of rated impulse withstand voltage given in Table 4.

6 Marking and Other Product Information

Due to physical reasons, for pulsating DC residual currents, only limited selectivity to upstream

type A or type F RCDs with a rated residual current of 30 mA can be achieved. For this reason,

related information shall be provided by the manufacturer.

7 Standard Conditions for Operation in Service and for Installation

RDC-DDs shall be installed in accordance with the manufacturer's instructions.

RDC-DDs complying with this document are intended for environment with pollution degree 2, i.e., normally, only non-conductive pollution occurs; occasionally, however, a temporary conductivity caused by condensation may be expected.