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**Safety Requirements of Electric Vehicle Conductive
Supply Equipment**
电动汽车供电设备安全要求

(English Translation)

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Safety Requirements of Electric Vehicle Conductive Supply Equipment

1 SCOPE

This document specifies the requirements for safety elements of electric vehicle conductive supply equipment (hereinafter referred to as “supply equipment”), establishes the general principles of testing, and describes their respective test methods.

Note: The independent electrical attachments and auxiliary materials of the supply equipment, e.g., connection set, cables and insulating materials, etc., should comply with the requirements of specific product standard in combination with this document.

This document is applicable to various types of supply equipment with a rated output voltage up to 1,000V AC (including) or 1,500V DC (including), including the supply equipment in Mode 2, Mode 3, and Mode 4.

This document doesn't involve the following information:

- Functional and performance requirements for supply equipment, which are not related to safety;
- Information safety requirements;
- Safety requirements concerning transport package and improper application;
- Safety requirements arisen from deliberate destruction and other purposive behavior;
- Safety requirements for supply equipment that can discharge;
- Safety requirements for supply equipment that can charge automatically or in a manner of top contact charging.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

GB/T 2423.1	Environmental testing - Part 2: Test methods - Tests A: Cold
GB/T 2423.2	Environmental testing - Part 2: Test methods - Tests B: Dry heat
GB/T 2423.4	Environmental testing for electric and electronic products - Part 2: Test method - Test Db: Damp heat, cyclic (12h+12h cycle)
GB/T 2423.17	Environmental testing for electric and electronic products - Part 2: Test method - Test Ka: Salt mist
GB/T 2423.55-2023	Environmental testing - Part 2: Test methods - Test Eh: Hammer tests
GB 2894	Safety signs and guideline for the use
GB/T 4208	Degrees of protection provide by enclosure (IP code)
GB/T 5169.11	Fire hazard testing for electric and electronic products—Part 11: Glowing/hot-wire based test methods—Glow-wire flammability test method for end-products (GWEPT)
GB/T 5169.21	Fire hazard testing for electric and electronic products—Part 21: Abnormal heat—Ball pressure test method
GB/T 12113	Methods of measurement of touch current and protective conductor current
GB/T 14048.2	Low-voltage switchgear and controlgear—Part 2: Circuit-breakers
GB/T 16422.2	Plastics—Methods of exposure to laboratory light sources—Part 2:

	Xenon-arc lamps
GB/T 16895.21	Low-voltage electrical installations - Part 4-41: Protection for safety—Protection against electric shock
GB/T 16916.1	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB)—Part 1: General rules
GB/T 16917.1	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)—Part 1: General rules
GB/T 16935.1-2023	Insulation coordination for equipment within low-voltage supply systems—Part 1: Principles, requirements and tests
GB/T 18487.1-2023	Electric vehicle conductive charging system—Part 1: General requirements
GB/T 18487.2	Electric vehicle conductive charging system—Part 2: EMC requirements for off-board electric vehicle supply equipment
GB/T 20138	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)
GB/T 22794	Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses
GB/T 29317-2021	Terminology of electric vehicle charging/battery swap infrastructure
GB/T 41589-2022	In-cable control and protection device for mode 2 charging of electric road vehicles (IC-CPD)
GB 44263-2024	Safety requirements for electric vehicle conductive charging system
GB 50016	Code of Design on Building Fire Protection and Prevention
GB 50054	Code for design of low voltage electrical installations
GB 50067	Code for fire protection design of garage, motor-repair-shop and parking-area
GB 50217	Standard for design of cables of electric power engineering
GB 55037	General specification for building fire protection

3 TERMS AND DEFINITIONS

For the purpose of this document, the terms and definitions established in GB/T 18487.1-2023 and GB/T 29317-2021, as well as the following apply.

3.1 EV energy transfer equipment

The equipment connected between EV and supply network (mains) to achieve energy flow

[Source: GB/T 18487.1-2023, 3.1.6, modified]

3.2 Enclosure

housing affording the type and degree of protection suitable for the intended application

Note: a part of the equipment intended to minimize the spread of fire or flame in the equipment; a mechanical part intended to reduce any damage or hazard arisen from mechanical hazard and other physical hazard; a part of the equipment intended to prevent from exposure to any part or component which may have hazardous voltage or hazardous energy level; a part providing one or more functions.

[Source: GB 4943.1-2022, 3.3.2.2, modified]

3.3 Tool



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