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**Safety Requirements of Conductive Charging and
Discharging for Electric Vehicles**
电动汽车传导充放电安全要求

(ISO 17409: 2020, Electrically propelled road vehicles-Conductive power transfer-Safety requirements, MOD)

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Safety Requirements of Conductive Charging and Discharging for Electric Vehicles

1 SCOPE

This document specifies the safety requirements for conductive connection of electric vehicles (hereinafter referred to as “EV” or “Vehicle”) to external electric power supplies or external electric loads for conductive charging and discharging.

This document is applicable to the vehicles which use the vehicle inlet (case B and case C connection) conforming to GB/T 20234.2 and/or GB/T 20234.3 and the plug (case A connection) conforming to GB/T 1002 and/or GB/T 20234.2.

This document is applicable to the off-vehicle-chargeable/dischargeable vehicles of which the vehicle power supply circuit is of voltage class B, while the vehicles of which the vehicle power supply circuit is of voltage class A may use this document as a reference.

This document is applicable to the charging modes 2, 3 and 4 defined in GB/T 18487.1-2023. For charging mode 4, this document is applicable to the conductive charging by connection to an isolated off-board charger.

Note 1: This document doesn't give the requirements for charging mode 1.

Note 2: The external electric power supply is not a part of vehicle.

This document is applicable to the onboard sections of vehicle power supply circuits, and also applies to charging and discharging control functions used for conductive connection of the vehicle to an external electric power supply or an external electric load.

This document is not applicable to the comprehensive safety precautions for manufacturing, maintenance and repair personnel.

Note 3: See GB 18384 for the general safety requirements for vehicles.

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 1002	Single phase plugs and socket-outlets for household and similar purposes—Types, basic parameters and dimensions
GB/T 2099.1	Plugs and socket-outlets for household and similar purposes—Part 1: General requirements (GB/T 2099.1-2021, IEC 60884-1:2013, MOD)
GB/T 12113	Methods of measurement of touch current and protective conductor current (GB/T 12113-2023, IEC 60990:2016, IDT)
GB/T 16842	Protection of persons and equipment by enclosures—Probe for verification (GB/T 16842-2016, IEC 61032:1997, IDT)
GB/T 16895.3	Low-voltage electrical installations—Part 5-54: Selection and erection of electrical equipment—Earthing arrangements and protective conductors (GB/T 16895.3-2017, IEC 60364-5-54:2011, IDT)
GB/T 16895.5-2012	Low-voltage electrical installations - Part 4-43: Protection for safety - Protection against overcurrent (IEC 60364-4-43:2008, IDT)
GB/T 16895.21	Low-voltage electrical installations—Part 4 - 41: Protection for safety—Protection against electric shock (GB/T 16895.21-2020, IEC 60364-4-41:2017, IDT)
GB/T 16895.23	Low-voltage electrical installations—Part 6: Verification (GB/T 16895.23-



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