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**NATIONAL STANDARD OF THE
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GB 44263-2024

**Safety requirements for electric vehicle conductive charging
system**

电动汽车传导充电系统安全要求

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 "Directives for standardization - Part

1.Rules for the structure and drafting of standardizing documents". Please note that some contents of this document may involve patents. The issuing agency of this document does not assume the responsibility for identifying patents. This document was proposed by AND shall be under the jurisdiction of the Ministry of Industry and Information Technology of the People's Republic of China and the National Energy Administration (responsible according to the division of responsibilities). Safety requirements for electric vehicle conductive charging system

1 Scope

GB 44263-2024 is the Chinese national standard on safety requirements for electric vehicle

conductive charging system, in the field of road vehicles engineering. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 24 July 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 August 2025. Classification: ICS 43.040.99, CCS T 35. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the requirements for the overall safety, charging interface safety, AC charging safety, DC charging safety of electric vehicle conductive charging systems; describes the corresponding test methods. This document is applicable to electric vehicle AC charging systems and electric vehicle DC charging systems, whose rated voltage on the power grid side does not exceed 1000 V (AC) or 1500 V (DC), and the rated maximum voltage on the electric vehicle side does not exceed 1000 V (AC) or 1500 V (DC). It is also applicable to the safety requirements for charging in electric vehicle's charging and discharging systems. This document does not apply to. - Safety requirements related to the maintenance of electric vehicle's conductive charging/charging and discharging systems; - Automatic charging systems such as top contact charging systems.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in the text. For dated references, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies to this document.

GB 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 4208-2017 Degrees of protection provided by enclosure (IP code)

GB/T 11918.1-2014 Plugs, socket-outlets and couplers for industrial purposes - Part

3 Terms and definitions

The terms and definitions as defined in GB/T 18487.1-2023 and GB/T 20234.4, as well as the following terms and definitions, apply to this document.

3.1 Electric vehicle conductive charging system Electric vehicle charging system using conductive charging.

4 Symbols and abbreviations

4.1 Symbols The following symbols apply to this document.

4.2 Abbreviations The following abbreviations apply to this document.

5.1.1 Mode 1 specified in

5.1 of GB/T 18487.1-2023 shall not be used to charge electric vehicles.

5.1.2 When the power supply side uses a 10 A (AC) single-phase two-pole grounded plug that complies with the requirements of GB/T 2099.1 and GB 1002, the output current shall not exceed 8 A (AC).

5.2 Prerequisites for the implementation of this document The prerequisite for the implementation of this document is that the power supply equipment shall comply with the provisions of GB 39752 and the electric vehicle shall comply with the provisions of GB 18384.

6 Charging interface safety

6.1 Charging interface protection level The protection level of the charging interface against dangerous parts shall meet the following requirements.

6.2 Charging interface temperature protection function

6.2.1 AC charging interface temperature protection function The AC charging interface has the following temperature protection functions.

6.2.2 DC vehicle interface temperature protection function The DC vehicle interface has the following temperature protection functions.

7.1 System design safety

7.1.1 Control pilot circuit The AC power supply system has a control pilot function.

7.1.2 Charging cable current carrying capacity detection function Electric vehicles shall have the ability to confirm the rated capacity of the charging cable, by monitoring whether the resistance value between testing point 3 and PE complies with Table A.5 in GB/T 18487.1-2023.

7.1.3 Equipment power supply capacity declaration function The AC power supply equipment shall be able to inform the electric vehicle of the current power supply capacity, by setting the PWM signal duty cycle. The relationship between the duty cycle generated by the AC power supply equipment and the charging current limit shall comply with the requirements of Table A.2 in GB/T 18487.1-2023.

7.1.5 Contact sticking detection function The AC power supply equipment shall have a contactor (or similar device) sticking detection function. When the following contact sticking occurs, the AC power supply equipment shall issue an alarm message at the end of shutdown.

7.1.6 Short circuit protection function The AC power supply equipment shall have a short circuit protection function for the AC output circuit.

7.2 Abnormal charging protection

7.2.4 Vehicle side CP circuit abnormality protection During the energy transmission stage, the electric vehicle shall be able to periodically monitor the PWM signal of testing point 2, to determine the connection status of the vehicle interface. When the PWM signal is interrupted, the electric vehicle shall stop charging and comply with the provisions of A.3.10.4 in GB/T 18487.1-2023.

7.2.5 Power supply network power failure protection During the energy transmission stage, within 1 s after the power supply network is powered off, the voltage value measured between the power lines of the output terminals of the AC power supply equipment or between the power lines and the protective grounding conductor shall be less than or equal to 30 V (AC) (effective value), or the equivalent stored electrical energy shall be less than or equal to

0.2 J.

7.2.6 Output overcurrent protection During the energy transmission stage, the AC power supply equipment shall continuously detect the actual working current of the on-board charger, which shall not exceed the maximum power supply current corresponding to the PWM signal of the AC power supply equipment and the maximum carrying capacity of the power supply equipment components (such as relays and cables).

8.1 System design safety

8.1.1 Control pilot circuit The DC power supply system has control pilot functions.

8.1.2 Short-circuit protection function Electric vehicles and DC power supply equipment shall have short-circuit protection function for the DC power supply circuit. When a short-circuit fault is detected in the DC circuit, the DC power supply equipment shall trigger a fault shutdown and issue an alarm signal.

8.1.3 Capacitive coupling For DC power supply equipment with a rated output voltage not exceeding 500 V (DC), the total capacitance between the DC output positive and negative poles and the ground of each charging interface shall not be greater than 0.5 μF .

8.1.4 Discharge circuit The DC power supply equipment shall be equipped with a discharge circuit. During the insulation self-test stage or when charging is terminated, the DC power