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**Electric vehicle wireless power transfer - Part 10: Conformance
test for communication protocols**

电动汽车无线充电系统 第10部分：通信协议一致性测试

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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. This document is Part 10 of GB/T 38775 Electric vehicle wireless power transfer. GB/T 38775 has issued the following parts.

- 1.General requirements;
- 2.Communication protocols between on-board charger and wireless power transfer device;
- 3.Specific requirements;
- 4.Limits and test methods of electromagnetic environment;
- 5.Electromagnetic compatibility requirements and test methods;
- 6.Interoperability requirements and testing - Ground side;
- 7.Interoperability requirements and testing - Vehicle side;
- 8.Specific requirements of commercial vehicle;
- 9.Communication protocols between on-board charger and wireless power transfer device -

Application layer and data link layer;

10. Conformance test for communication protocols. Please note that certain contents of this document may involve patents. The institution issuing this document assumes no responsibility for identifying such patents. This document was proposed by and shall be under the jurisdiction of China Electricity Council. The drafting organizations of this document. China Electric Power Research Institute; China Electricity Council; ZTE Corporation; Etronicon (Zhejiang) Electronic Technologies Co., Ltd.; CATARC New Energy Vehicle Test Center (Tianjin) Co., Ltd.; China FAW Group Co., Ltd.; State Grid Jiangsu Electric Power Co., Ltd.; Electric Power Research Institute of State Grid Jiangsu Electric Power Co., Ltd.; Shanghai Testing & Inspection Institute for Electrical Equipment Co., Ltd.; State Radio Monitoring Center Testing Center; XJ Power Co., Ltd.; State Grid Smart Internet of Vehicles Co., Ltd.; Electric Power Research Institute of State Grid Beijing Electric Power Company; Shenzhen Topband Co., Ltd.; SAIC Motor Corporation Limited; Institute of Electrical Engineering, Chinese Academy of Sciences; Beijing Automotive Technology Center Co., Ltd.; Dongfeng Motor Group Co., Ltd.; Hefei InvisPower Co., Ltd.; Anjie Wireless Technology (Suzhou) Co., Ltd.; Beijing Huashang Sanyou New Energy Technology Co., Ltd.; Nanjing Guangxian Technology Co., Ltd. Electric Vehicle Wireless Power Transfer - Part 10. Conformance Test for Communication Protocols

1 Scope

GB/T 38775.10-2025 is the Chinese national standard covering testing that a wireless charging pad and a vehicle actually speak the same protocol - the pairing and alignment messages, the power negotiation, the foreign object and living object detection reports and the termination, exercised case by case. Part 10 of the series, first edition, 25,000 words. It was issued on 31 December 2025 and has been in force since 1 July 2026, as a first edition. 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 conformance test requirements, conformance test system architecture, and conformance test methods for the communication protocols used to implement wireless charging control between the communication service unit (CSU) and the in-vehicle unit (IVU), as well as between the CSU and the wireless charging control management system (WCCMS), within the electric vehicle wireless power transfer. This document is applicable to Class A and Class B static magnetically coupled wireless power transfers; other types of systems may refer to this document for guidance. The maximum rated input voltage of the system power supply is 1 000 V AC or 1 500 V DC, and the maximum rated output voltage is 1 000 V AC or 1 500 V DC.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 19596 Terminology of electric vehicles

GB/T 38775.1-2020 Electric vehicle wireless power transfer - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 19596, GB/T 38775.1-2020, GB/T 38775.2-2020, GB/T 38775.3-2020, and GB/T 38775.9-2025, as well as the following terms and definitions, are applicable to this document.

3.1 Abstract Test Case A complete and independent specification of the actions required to achieve a specific testing objective, defined at the abstraction level of a particular abstract test method. It begins and ends in a stable test state. [Source: GB/T 17178.1-1997, 3.3.3]

3.2 Abstract Test Suite; ATS A test suite composed of abstract test cases. [Source: GB/T 17178.1-1997, 3.3.6]

3.3 Conformance Test The degree of conformance implementation achieved by the IUT during testing. [Source: GB/T 17178.1-1997, 3.3.23]

3.4 Test Case An abstract or executable test case. [Source: GB/T 17178.1-1997, 3.3.107]

4 Abbreviations

The following abbreviations are applicable to this document. CI. Interface between CSU and IVU (CSU-IVU) CSU. Communication Service Unit CW. Interface between CSU and WCCMS (CSU-WCCMS) IUT. Implementation Under Test IVU. In-Vehicle Unit WCCMS. Wireless Charging Control Management System

5.1 Test System Requirements

5.1.1 Overview The conformance test for the CI interface verifies whether the IUT meets the requirements of GB/T 38775.9-2025-specifically, it verifies the degree of the IUT's compliance with the standard in terms of protocol implementation. The conformance test system architecture for communication protocols is shown in Figure 1. Figure 1 -- Conformance Test System Architecture for CI Interface Communication Protocols

5.1.2 Test message time error requirements The IUT transmits messages periodically during communication and simultaneously receives messages from the other party. If no message is received from the other party or no correct message is received within the

timeout period, a timeout will be determined and an error message will be transmitted. Message timeout time and periodic time error requirements are shown in Table 1.

5.1.3 Test case coding rules The coding rules for conformance test items of communication protocols are shown in Figure 2. Figure 2 -- Coding Rules for Conformance Test Items of CI Communication Protocols The tests are conducted in order of increasing complexity, from positive to negative tests. In the negative test, the test system will either not transmit a message or transmit a message that does not conform to a certain message type definition. The "non-conformance" includes incorrect message command codes, incorrect message content (transmitting reserved bits, missing messages, or extra messages), etc. Coding rule example. CIP.2001. This test case code represents a positive test case for a CI interface, the test phase is the charging initiation phase, and the test sequence number is 001.