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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 34658-2025

Replacing GB/T 34658-2017

**Conformance test for communication protocols between
off-board conductive charger and battery management system
for electric vehicle**

电动汽车非车载传导式充电机与电池管理系统之间的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 replaces GB/T 34658-2017 "Conformance test for communication protocols between off-board conductive charger and battery management system for electric vehicle". Compared with GB/T 34658-2017, the main technical changes, apart from structural adjustments and editorial modifications, are as follows.

- a) CHANGE the scope (see Chapter 1; Chapter 1 of the 2017 edition);
- b) CHANGE the test case numbering rules and other requirements, adding the requirements related to Class B and Class C systems (see 5.5 and 5.6; 7.1 and 7.3 of the 2017 edition);

c) CHANGE the test cases for Class A systems, including physical layer test cases, data link layer test cases, application layer test cases (see Chapter 6; 7.4 and 7.5 of the 2017 edition);

d) ADD the "Class B system test cases" and "Class C system test cases" (see Chapters 7 and 8).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and shall be under the jurisdiction of the China Electricity Council.

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1 Scope

This document specifies the test architecture, test requirements, test cases for the conformance testing of the communication protocol between the Electric Vehicle Off-board Conductive Charger Communication Controller (SECC) and the Electric Vehicle Communication Controller (EVCC), establishing the test procedure.

This document applies to the SECC and EVCC conformance testing of Class A and Class B systems as specified in GB/T 27930-2023, as well as the systems as specified in GB/T 27930.2-2024 (hereinafter referred to as "Class C systems"). It also applies to the conformance testing of communication controllers that declare compliance with Class A, Class B, Class C system requirements.

2 Normative references

GB/T 17178.1-1997

GB/T 18487.1-2023

GB/T 18487.5-2024

GB/T 20234.3

GB/T 27930-2023

GB/T 27930.2-2024

20234.3 Protocol implementation extra information for testing

Additional information on the implementation related to conformance testing of a given protocol specification.

[Source. GB/T 17178.1-1997, 3.3.81]

3.12 Test case

An abstract or executable specification.

[Source. GB/T 17178.1-1997, 3.3.107, modified]

3.13 Test laboratory

An organization that performs conformance testing.

[Source. GB/T 17178.1-1997, 3.3.113, modified]

4 Abbreviations

The following abbreviations apply to this document.

BCL. BMS charging request message BCP. Vehicle charging parameter message BCS. BMS charging status message BEM. BMS error message BHM. BMS handshake message BMS. Battery management system BMT. BMS temperature information message BMV. BMS voltage information message BRM. BMS recognition message BRO. BMS readiness status message BSD. BMS statistical data message BSM. BMS status message BSP. BMS status reserved message BST. BMS stopping charging message CAN. Controller area network (CLAN) CCS. Charger charging status message CEM. Charger error message CHM. Charger handshake message CML. Charger maximum/minimum output parameter message CRM. Charger recognition message CRO. Charger readiness status message CSD. Charger statistical data message CST. Charger stopping charging message CTS. Charger time synchronization message EVCC. Electric vehicle communication controller

ICS. Implementation conformance statement IUT. Implementation under test PICS. Protocol implementation conformance statement PIXIT. Protocol implementation extra information for testing SECC. Supply equipment communication controller

5.1 Test objective

Protocol conformance testing is to verify whether the IUT meets the requirements of GB/T 27930-2023 or GB/T 27930.2-2024, that is, to verify the degree of conformity of the IUT in protocol implementation with the standard.

5.2.1 Reference model

The reference model of the protocol conformance test system is shown in Figure 1.

5.2.2 Abstract test suite

The abstract test suite specified in this document is a collection of abstract test cases covering all technical requirements of GB/T 27930-2023 and GB/T 27930.2-2024.

5.2.3 Static documentation

Static documentation includes PICS and PIXIT. PICS shall be provided by the IUT provider, outlining the capabilities implemented by the IUT and the implementation of options and add-ons; PIXIT shall include all information related to the IUT and its test environment (except for the information provided in PICS).

Static document templates for Class A systems are detailed in Appendix A; for Class B systems, in Appendix B; for Class C systems, in Appendix C.

5.2.4 Executable test suite

The test cases specified in this document are abstract test cases. The testing laboratory shall combine the parameters and additional information provided in the static documentation, to screen and organize the abstract test cases into executable test cases, finally assemble them into an executable test suite for testing.

5.2.5 Implementation under test (IUT)

The IUT is a product conforming to the CAN physical layer, data link layer, transport layer (Class B and Class C systems), application layer as specified in GB/T 27930-2023 or GB/T 27930.2-2024.

The IUTs specified in this document include Class and Class B systems as specified in GB/T 27930-2023, as well as SECC and EVCC of Class C systems as specified in GB/T 27930.2-2024.