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

GB/T 32960.4-2025

**Technical specifications for remote service and management
system for electric vehicles - Part 4: Conformance test**

电动汽车远程服务与管理系统技术规范 第4部分：一致性测试

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1 Scope

This document specifies the conformance test requirements for the protocol structure, communication connection, data packet structure and definition, as well as data unit format and definition for remote service and management system for electric vehicles, and describes the corresponding test methods.

This document applies to vehicle-to-platform communication testing for remote service and management system for electric vehicles.

2 Normative references

GB/T 19596

GB/T 32960.1

GB/T 32960.2

GB/T 32960.3-2025

3 Terms and definitions

For the purposes of this document, the following terms and definitions, as well as those given in GB/T 19596, GB/T 32960.1, GB/T 32960.2, GB/T 32960.3-2025, apply.

3.1 test platform

A remote service and management platform for the test data receiver during data interaction.

3.2 null value rate; NVR

The proportion of null data units in the test data.

Note. One or more null data unit(s) in a data item shall be counted as one null value data item.

3.3 abnormal value rate; AVR

The proportion of abnormal data units in the test data.

Note. One or more abnormal data units in a data item shall be counted as one abnormal data item.

3.4 invalid value rate; IVR

The proportion of invalid data units in the test data.

Note. One or more invalid data unit(s) in a data item shall be counted as one invalid data item.

3.5 packet loss rate; PLR

The proportion of data transmission loss in the test data.

4 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply. CAN. Controller Area Network DBC. Database CAN OBD. Onboard Diagnostic System SOC. State of Charge

5.2.3 Data resend

After resuming communication after being offline, the vehicle shall resend the data collected during the offline period immediately and upload them to the test platform.

The time period for resending the information reporting shall not exceed 30 seconds.

5.2.4 Alarm resend

If the communication link between the vehicle and the test platform is normal and the real-time information transmission time is greater than 1 minute, make the vehicle offline. When the offline time lasts for more than 5 minutes, any of the level 3 failure alarms or level 4 thermal event failure alarms specified in 7.2.4.9 of GB/T 32960.3- 2025 shall be triggered during the offline period. After successful re-logins, the vehicle shall immediately resend data during the offline period upload them to the test platform.

The data sampling period from 30 seconds before the level 3 or level 4 failure alarm point to the alarm release shall not exceed 1 second. The time period for resending information reporting during the rest of the time shall not exceed 30 seconds.

5.2.5 Vehicle charging

When the communication link between the vehicle and the test platform is normal, the vehicle is subjected to charging test. If the charging time is greater than 15 minutes, or the vehicle SOC reaches 100% after charging for more than 5 minutes, test the data upload protocol conformance.

5.2.6 Power-off monitoring

When the communication link between the vehicle and the test platform is normal, and after the vehicle completes driving or charging and then turns off the high voltage, it shall continue to monitor and report the power battery-related data specified in 7.2.4.2 and 7.2.4.3 of GB/T 32960.3-2025. Within 1 hour after power-off, it shall continue to monitor at a monitoring frequency of not less than 1 Hz, and report the power battery- related data specified in 7.2.4.2 and 7.2.4.3 of GB/T 32960.3-2025 within 59 minutes and 30 seconds to 1 hour (including at least 1 data). During the 1-hour monitoring period, when level 3 or level 4 failure alarms in Table 24 of GB/T 32960.3-2025 are detected, the first frame after the on-board terminal is started shall be used as the failure alarm time point. All data items included in the vehicle model specified in 7.2.4 of GB/T 32960.3-2025 shall be reported within 30 s after the failure alarm time point, and the information sampling period shall not exceed 1s. The format and definition of level 3 failure alarm data shall meet the requirements of Table 23 of GB/T 32960.3-2025.

5.2.7 Platform login and logout

The client platform logs in and out of the test platform, during which the client platform forwards the vehicle's real-time information to the test platform.

The forwarding test is divided into. vehicle login and logout, failure alarm, data resend, alarm resend, vehicle charging, and enterprise platform login and logout.

6.2.1 Vehicle login and logout test

The vehicle sends a vehicle login message to the test platform to determine whether the vehicle login data format and definition meet the requirements of Table 6 of GB/T 32960.3-2025. After successful login, the vehicle reports real-time information to the test platform to determine whether the real-time information reporting data format and definition meet the requirements of 7.2 of GB/T 32960.3-2025. The time for real-time information reporting shall be greater than 1 minute and the maximum reporting cycle shall not exceed 30 seconds. Before the vehicle goes into hibernation, it sends a vehicle logout message to the test platform to determine whether the vehicle logout message data format and definition meet the requirements of Table 28 in GB/T 32960.3-2025.

Repeat the above steps 3 times. For the vehicle login and logout tests, conduct direct connection test and forwarding test, respectively.

6.2.2 Failure alarm test

When the communication link between the vehicle and the test platform is normal, trigger a level 3 or 4 failure alarm 1 minute after real-time information transmission;

determine whether the alarm data format and definition meet the requirements of Table

23 In GB/T 32960.3-2025; determine whether the alarm flag definition meets the

requirements of Table 24 in GB/T 32960.3-2025, and the alarm level is level 3 or 4;

determine whether the vehicle reports all data items included in the vehicle model from 30 seconds before the failure occurrence to the alarm release time period, and the information sampling period is no more than 1 second, and the data before the failure occurs is transmitted in the form of resending. For the failure alarm test, conduct direct connection test and forwarding test, respectively.

6.2.3 Data resend test

When the communication link between the vehicle and the test platform is normal, if the real-time information transmission exceeds 1 minute, the vehicle is triggered to go offline. When the vehicle remains offline for more than 5 minutes, and after the vehicle resumes communication, the data during the offline period shall be uploaded to the test platform in the form of resending. Determine whether the data format meets the requirements of Table 7 in GB/T 32960.3-2025, and whether the information type meets the requirements of Table 9 in GB/T 32960.3-2025. The maximum time period for resending information reporting shall not exceed 30 seconds. For the data resend test, conduct direct connection test and forwarding test, respectively.