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

GB/T 28029.3-2020

**Electronic railway equipment - Train communication network
(TCN) - Part 2-2: Wire Train Bus (WTB) conformance testing**

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7.2 of IEC 61375-2-2..2012).

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1 Scope

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Foreword

GB/T 28029 "Train Communication Network (TCN) for Rail Transit Electronic Equipment" is divided into the following 12 parts.

--- Part 1. Basic structure;

--- Part 2-1. Stranded Train Bus (WTB);

--- Part 2-2. Conformance Test of Wire Train Bus (WTB)

--- Part 2-3. TCN Communication Protocol;

--- Part 2-4. TCN Application Specification;

--- Part 2-5. Ethernet Train Backbone (ETB);

--- Part 2-6. Vehicle-ground communication;

--- Part 2-7. Radio-based Wireless Train Backbone Network (WLTB);

--- Part 3-1. Multifunctional Vehicle Bus (MVB);

--- Part 3-2. Multi-function vehicle bus (MVB) conformance test;

--- Part 3-3. CANopen Marshalling Network (CCN);

--- Part 3-4. Ethernet Marshalling Network (ECN).

This part is part 2-2 of GB/T 28029.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 28029.2-2011 "Traction bus of traction electrical equipment Part 2. Train communication network consistency test

Compared with GB/T 28029.2-2011, the main technical changes in the content of WTB conformance test in the test are as follows.

--- Modify "connection resistance" to "contact resistance" (see 5.3.9.3.4, 2011 version 4.1.2.9.2.3);

--- Modify "test procedure" to "test suite" (see 4.1, 4.2.5.2, 4.3.5, 4.3.6.1, 5.6.2.6, 5.6.2.14, 5.6.3.1, 6.1,

7.3, Chapter 8, B.2.1 ~ B.2.5, B.3.3, B.3.4, B.4.2.2, B.4.3.1, B.4.3.2, C.1, 2011 version 4.1.6.7 ,

4.1.6.14, Chapter 5, 6.3, Chapter 7, A.2, A.3, A.4.2, B.1.1.1).

This part uses the redrafting method to modify the adoption of IEC 61375-2-2:2012 "railway electronic equipment train communication network (TCN)

Part 2-2. Conformance testing of stranded train buses. "

Compared with IEC 61375-2-2:2012, this part has more structural adjustments. Appendix A lists this part and IEC 61375-2-2.

A comparison list of chapter numbers in 2012.

Compared with IEC 61375-2-2:2012, there are technical differences between this part and the clauses involved in these differences have been passed on the outside margin.

The vertical single line (|) in the white position is marked. The specific technical differences and the reasons are as follows.

--- Added the content of "Regulations" in the scope to meet the requirements of GB/T 1.1 (see Chapter 1).

--- With regard to normative quotation documents, this part has been adjusted with technical differences to adapt to China's technical conditions and adjustments

The situation is reflected in Chapter 2 "Regulatory Reference Documents", with specific adjustments as follows.

* Replace ISO /IEC 9646-1:1994 with GB/T 17178.1 equivalent to international standards (see 3.1, 4.1);

* Replace ISO /IEC 9646-7..1995 with GB/T 17178.7 equivalent to international standards (see 4.1);

* Replaced IEC 60571 with GB/T 25119 modified to adopt international standards (see 4.3.8, 5.3.2);

* Replaced IEC 61375-2-1 with modified GB/T 28029.2-2020 adopting international standards (see 3.1, Chapter 4 to Chapter 7 Chapter, Appendix B and Appendix C);

* Added reference to GB/T 28029.4 (see 5.6.3.20);

* ISO 7498 has been deleted.

--- Increase the method of measuring the insertion loss using the network analyzer, after the test verification and analysis, use the network analyzer to measure the insertion

The loss test accuracy is higher, and the test environment has less effect on the test results (see 5.6.1.3.1).

--- Deleted part of the test, because "configuration fixture 1 (configuration fixture 1) and configuration fixture 2 are not defined in the standard

(configurationfixture2) "(see 5.1.5.6.2 and 5.1.5.6.3 of IEC 61375-2-2..2012).

--- Modify the "Note" of Table 29 to paragraph, because the table note contains the requirements (see 5.6.2.12).

--- Modified the content in Table 35, and changed the "user to master device" in lines 3, 4, 6, and 7 to "master device"

P09 change user report request detected "" Master device detected P10 change user report request "" Master device detected P09

"Change user report request" "The master device detected a P10 change user report request" to make the description of the expected results in Table 35 clearer

(See 5.6.3.3).

--- Modified the content of Table 42 and changed the "Check about sink time monitoring status of node P11" on line 4 (checkaboutsinktime

supervisionofnodeP11) "is modified to" the process data polling sent to P11 has no response, corresponding to the sink end of the P11 node

The port refresh monitoring bit is 1 ", and the" check about the sink time monitoring status of node P10 "(checkaboutsinktime

supervisionofnodeP10) "is modified to" the process data polling sent to P10 has no response, corresponding to the sink end of the P10 node

The port refresh monitoring bit is 1 "to make the description of the expected results in Table 42 clearer (see 5.6.3.10).

--- Added the content of Table 45, Step 2, Step 4, Step 6, Step 8, Step 11, Step 13, Step 15, Step 17 were added

Add "Set P01 as weak master", "Set P32 as weak master", "Set P10 as weak master", "Set P32 as weak master", "Set P01 as weak master"

"Main" "Set P32 as weak main" "Set P10 as weak main" "Set P32 as weak main". Because according to IEC 61375-2-2.

In the 2012 step operation, there will be two network couplings with a strong master in step 5, step 9, step 14 and step 18 respectively

In the combined situation, it is expected that the two networks will not couple (see 5.6.3.12).

--- Added the operations in steps 4 and 5 in Table 49 to ensure that P10 is the master device in step 6 (see 5.6.3.16).

--- Deleted the relevant description of PICS form in 7.2, because the relevant PICS expression has been carried out in Chapter 5 (see

7.2 of IEC 61375-2-2..2012).

--- The following description has been added to the "Test of Marshalling Node Type 'Strong Master'". WTB cables (including A and B wires) will be used

Group 1 is connected to tester direction 1 (see 7.3.3.2.3).

--- "The pulse sequence of about 50 μ s should be observed every (25.0 $\pm$ 4.0) ms on the WTBA line and the B line [Pulse-

quences of approximately 50 μ s every 25ms (with a tolerance of $\pm$ 4.0ms) shall be seen on

the WTBA lines A and B.] "is modified to" It should be observed that about every (50.0 $\pm$ 4.0) ms on the WTBA and B lines

There is a pulse sequence of 50 μ s. "Because the WTB bus master sends to the end nodes in direction 1 and direction 2 every 25ms

There is a request frame. After receiving the presence request frame, the end node sends a detection request frame on its auxiliary channel.

For a single end node, the detection request frame transmission period should be 50ms (see 7.3.3.2.2, 7.3.3.2.3, 7.3.3.2.4).

This section also made the following editorial changes.

--- Removed acronyms not used in this section (see Chapter 3);