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

GB/T 28029.2-2020

**Electronic railway equipment - Train communication network
(TCN) - Part 2-1: Wire Train Bus (WTB)**

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2 5.5.2.3, 2011 version of Figure 147, Table 2, 4.7.2.2).

2 "(see 4.2.4).

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3.1 Terms and definitions

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);
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- Part 3-3. CANopen Marshalling Network (CCN);
- Part 3-4. Ethernet Marshalling Network (ECN).

This part is Part 2-1 of GB/T 28029.

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

This part replaces the first part of GB/T 28029.1-2011 "Train Bus for Traction Electrical Equipment Part 1. Train Communication Network"

Chapter 2 "Real-time Protocol", Chapter 4 "Stranded Train Bus (WTB)" and Chapter 5 "Train Network Management" (except 5.3.3 and 5.4.3) etc.

Content, compared with GB/T 28029.1-2011, the main technical changes are as follows.

- Modified the content of "Scope" (see Chapter 1, Version 1.1 of.2011).
- Modify the "normative reference documents" (see Chapter 2, version 1.2 of.2011).
- Modify "terms, definitions, abbreviations and conventions" (see Chapter 3,.2011 edition 1.3, 1.4, 1.5).
- Modify the "TCNWTB device configuration options" figure (see Figure 8,.2011 version of Figure 7).
- Modify the "resistor load value of the heavy load test circuit in the transmitter test circuit diagram from" 0.42Rt "to" 0.75Rt "(see Figure 24, (Figure 128 of the.2011 edition).
- Modify the "characteristic period of node request, expressed as 2n times of the basic period T_bp. N = 0 ~ 128" is "the characteristic of node request
The sign period is expressed as 2n times the basic period T_bp. n = 0 ~ 7. "(see 5.5.2.2, 4.7.2.1 of the.2011 edition).
- Modified the meaning of "LS_REGULAR_SLAVE. the node is in REGULAR_SLAVE state or TEACHING_
The meaning of "MASTER status" is "LS_REGULAR_SLAVE. the node is in the conventional slave device or the node is in the learning slave
Status "(see Table 20, 4.8.4.2.2 of the.2011 edition).
- Added "gateway station" related content (see 6.3.2.4).
- Modified "/ * bit0 * /" to "/ * bit7 * /" and "/ * bit1 * /" to "/ * bit6 * /" (see 6.3.10.2.4,.2011 edition
2.3.10.2.4).
- Added "application layer" related content (see Chapter 7).
- Modify "g0 ~ g7, g8 ~ g15, etc." from ascending order to descending order, modify to "g7 ~ g0, g15 ~ g8, etc." (see Figure 263, (Figure 264,.2011 version of 5.4.6.7.3, 5.4.6.8.2).
- Modified the content layout of "Call Write Group Index" (see 8.4.5.8.2, 5.4.6.8.2 of the.2011 edition).
- Modified the content layout of "Response Write Group Index" (see 8.4.5.8.3, 5.4.6.8.3 in

the.2011 edition).

--- Modified all the graphical bit ordering in the full text. the bit order 0 ~ 7 ascending order is modified to 7 ~ 0 descending order; the bit order 0 ~

Change the 15 arrangement to 15 ~ 0 arrangement; modify the text (0) ~ (7) ascending order to the descending order (7) ~ (0) (see Figure 43, table

2 5.5.2.3,.2011 version of Figure 147, Table 2, 4.7.2.2).

This part uses the redrafting method to modify and adopt the IEC 61375-2-1..2012 "Train Communication Network (TCN) for Rail Transit Electronic Equipment

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

Compared with IEC 61375-2-1..2012, this part has more structural adjustments. Appendix A lists this part and IEC 61375-2-

The list of chapter numbers in 1..2012 is compared.

Compared with IEC 61375-2-1..2012, there are technical differences between this part and the clauses related to these differences have been adopted

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.

- * Replaced ITU-TV.24 with GB/T 3454 equivalent to international standards;
- * Replaced ISO /IEC 13239 with GB/T 7421 which is equivalent to international standards;
- * Replace ISO /IEC 10646 with GB/T 13000 equivalent to international standards;
- * Replace ISO 8859-1 with GB/T 15273.1 which is equivalent to international standards;
- * Replace ISO /IEC 8802-2 with GB/T 15629.2 equivalent to international standards;
- * Replaced ISO /IEC 8824 (all parts) with GB/T 16262 (all parts), the agreement between the parts of the two standards

The degree of sex is as follows.

- * GB/T 16262.1-2006 Information Technology Abstract Syntax Notation One (ASN.1) Part 1.

Basic Notation Regulations

Fan (ISO /IEC 8824-1..2002, IDT);

* GB/T 16262.2-2006 Information Technology Abstract Syntax Notation One (ASN.1) Part 2. Information Object Regulations

Fan (ISO /IEC 8824-2..2002, IDT);

* GB/T 16262.3-2006 Information Technology Abstract Syntax Notation One (ASN.1) Part 3. Constraint Specification

(ISO /IEC 8824-3..2002, IDT);

* GB/T 16262.4-2006 Information Technology Abstract Syntax Notation One (ASN.1) Part 4. ASN.1 Specification

Parameterization (ISO /IEC 8824-4..2002, IDT).

* Replaced IEC 60571 with GB/T 25119 modified to adopt international standards;

* Replaced IEC 61375-2-2..2012 with GB/T 28029.3-2020, which adopts international standards.

* Replaced IEC 61375-3-1 with GB/T 28029.9 modified to adopt international standards;

* Deleted IEC 61375-1, ISO /IEC 8825 and ISO /IEC 9646.

--- Deleted terms and definitions not used in the text (see Chapter 3 of IEC 61375-2-1..2012);

--- Removed the abbreviations "AVA, BER, DIN, EIA, EP, ERRI, LLC, ORE, PICS, PTA, RIC" (see IEC

61375-2-1. 3.2 of.2012);

--- Modified the external resistance load value of the heavy-duty test circuit in the "transmitter test circuit diagram" from "0.42Rt" to "0.75Rt"

The resistive load value of the heavy-duty test circuit in the transmitter test circuit diagram is the parallel value of the terminator resistance and the external resistance.

When the resistance value is 0.75Rt, the resistive load value of the heavy load test circuit is about 0.42Rt, which meets the standard requirements (see Figure 24);

--- Modify the "characteristic period of node request, expressed as 2n times the basic period T_bp. N = 0 ~ 128" is

The characteristic period is expressed as 2n times the basic period T_bp. n = 0 ~ 7. ", as listed in the program notes, the special characteristics of the node request

The sign period is 1 ~ 128 times of the basic period, that is, 2n = 1 ~ 128, corresponding to