

ICS 45.060
CCS S 04



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

GB/T 28809-2012

**Railway applications -- Communication, signaling and
processing systems -- Safety related electronic systems for
signaling**

轨道交通 通信、信号和处理系统 信号用安全相关电子系统

(English Translation)

Issued on: November 5, 2012

Implemented on: February 1, 2013

Issued by: Standardization Administration of China

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Foreword

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

This standard uses the translation method identical with IEC 62425:2007 "Railway Communication, signaling and processing systems and signal transmission security Full-related electronic systems. " Consistency correspondence with this standard Normative documents of the following documents.

--- Insulation coordination GB/T 16935.1-2008 within the low-pressure system equipment - Part 1. Principles, requirements and tests (IEC 60664-1:2007, IDT);

--- GB/T 16935.3-2005 within low-voltage systems Insulation coordination for equipment - Part 3. Using the coating, potting or molding for Protection against pollution (IEC 60664-3:2003, IDT);

--- GB/T 16935.5-2008 within low-voltage systems Insulation coordination for equipment - Part 5. no more than 2mm and clearances Determination of creepage distances (IEC 60664-5:2007, IDT);

Functional safety --- GB/T 20438.1-2006 electrical/electronic/programmable electronic safety-related systems - Part 1. General Requirements (IEC 61508-1:1998, IDT);

--- GB/T 21562-2008 rail reliability, availability, maintainability and safety norms and examples (IEC 62278.

2002, IDT);

- GB/T 24338.1-2009 rail Electromagnetic compatibility - Part 1. General (IEC 62236-1:2003, IDT);
- GB/T 24338.3-2009 rail Electromagnetic compatibility Part 3-1. Rolling stock train and vehicle (IEC 62236-3-1:2003, IDT);
- GB/T 24338.4-2009 rail Electromagnetic compatibility Part 3-2. Rolling stock equipment (IEC 62236-3-2. 2003, MOD);
- GB/T 24338.5-2009 rail Electromagnetic compatibility - Part 4. Emission and immunity of the signaling and telecommunications apparatus (IEC 62236-4:2003, IDT);
- GB/T 24338.6-2009 rail Electromagnetic compatibility - Part 5. Anti-ground transmission and power supply units and equipment scrambling Degree (IEC 62236-5:2003, IDT);
- GB/T 24339.1-2009 rail transportation, communications, signaling and processing systems - Part 1. Closed transmission system Safety-related communication (IEC 62280-1:2002, IDT);
- GB/T 24339.2-2009 rail transportation, communications, signaling and processing systems - Part 2. open transmission systems Safety-related communication (IEC 62280-2:2002, IDT);
- GB/T 25119-2010 rail rolling stock electronic devices (IEC 60571:2006, MOD);
- GB/T 28808-2012 rail transportation, communications, signal processing and system control and protection system software (IEC 62279. 2002, IDT).

This standard made the following editorial changes.

- Chapter 2 normative references deleted IEC 62236-4, because of previous IEC 62236 (all parts) column items, including the IEC 62236-4;
- Chapter 2 normative references documents, EN50124, EN50125, EN50155 and has by IEC TC9 CENELEC TC9X cooperation strategy into IEC 60571, the full text is replaced with IEC 60571 EN50155, IEC 62497-1 replaced EN50124-1, IEC 62498-1 instead of EN50125-1, IEC 62498-3 instead of EN50125-3;
- Increased number 5.1 to the next level to meet the Chinese habit of scheduling;
- Appendix E, Table E.1 ~ referenced table E.10 statement removes a number table after table header to simplify reading.

The standard proposed by the People's Republic of China Ministry of Railways.

This standard by the national electric traction equipment and systems Standardization

Technical Committee (SAC/TC278) centralized.

This standard is mainly drafted by. Tongji University, the Ministry of Railways Institute of Standards and Metrology.

Participated in the drafting of this standard. Zhuzhou CSR Times Electric Co., Ltd., Beijing Research and Design Institute whole way communication signals.

Introduction

Safety related electronic signaling system including hardware and software aspects. For the installation of complete safety-related system, the entire system life cycle Period, these two aspects should be taken into account. In this standard defines security-related needs of the entire system hardware and other related needs the IEC standard definition.

Mutual recognition is for general rather than application-specific approval.

As the standard of evidence relates to the acceptance of safety-related systems, such evidence includes. the acceptance phase should be completed before the life cycle of activity; additional planned activities after the acceptance stage also need to perform. Therefore, to prove the safety of the entire life cycle it is met.

This standard is concerned what the evidence submitted. In addition to be recognized as suitable for addition to, this standard does not specify who is to perform the necessary work, because in Under different environmental conditions are not the same.

For an electronic device includes a programmable safety-related systems, software, additional conditions are defined in the IEC 62279.

Additional safety-related data communication needs to be defined in the IEC 62280.

Rail transportation, communications, signaling and processing systems Safety related electronic signal system

1 Scope

This standard applies to rail traffic signal applications in safety-related electronic systems (including subsystems and equipment).

This standard relates to the relationship between the scope of IEC and other international standards is shown in Fig.

This standard applies to all safety-related rail signaling system/subsystem/equipment. But in the IEC 62278 and this standard as defined in Hazard analysis and risk assessment process is necessary for all rail traffic signal system/subsystem/devices, in order to determine security needs begging. If the analysis indicates the presence (ie, non-safety-related case) no security requirements, and if this conclusion is not affected by

subsequent changes Then may terminate this safety standard application.

This standard applies to both the overall signal system specification, design, construction, installation, inspection, operation, maintenance and modification/expansion phase, but also for the overall signaling system of individual subsystems and equipment. Appendix C includes electronic hardware components related procedures.

This standard applies to generic (including application regardless of the type of application and special category) subsystems and equipment, it should also apply to specific with the system/subsystem/equipment.

This standard does not apply to the existing system/subsystem/equipment (ie before they created this standard has been accepted). But as long as reasonable and Reality, change and expansion of existing systems, subsystems and devices of this recommended standard.

This standard applies to rail traffic signal applications specifically designed and manufactured system/subsystem/equipment. As long as reasonable and in line with real Occasion, it should also apply to those as a safety-related system components common signal or industrial equipment (such as power, modem, etc.). to Less, shall provide evidence that.

--- Do not rely on this device to achieve security;

--- This device can be relied upon to implement safety-related functions.

This standard applies to the functional safety of rail traffic signal system, it does not involve personal occupational health and safety issues, this aspect of its His standard discussion.

1 main rail standard application