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

GB/T 32590.2-2024

**Railway applications - Suburban railway and urban guided
transport management and command/control systems - Part 2:
Functional requirements specification
(English Translation)**

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References

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents"

Drafting:

This document is Part 2 of GB/T 32590 "Rail transit - Urban rail and urban rail traffic management and command/control systems":

GB/T 32590 has published the following parts:

- Part 1: System principles and basic concepts;
- Part 2: Functional requirements specification;
- Part 3: System requirements specification:

This document is modified to adopt IEC 62290-2:2014 "Rail transit urban rail transit management and command/control systems Part 2 Part 1: Functional Requirements Specification:

This document has made the following structural adjustments compared to IEC 62290-2:2014:

- Added 5:5:11;
- Added 5:5:12:

This document has many technical differences compared with IEC 62290-2:2014:

These technical differences and their reasons are shown in Appendix A:

The following editorial changes were made to this document:

- To coordinate with the existing standards, the name of the standard will be changed to "Rail Transit, Urban Rail and Urban Rail Transportation Management and Command/Control System Part 2: Functional Requirements Specification";
- "OHMI" and "THMI" in the article are changed to "external OHMI" and "external THMI" and "component elements" are changed to "UGTMS equipment" and "UGTMS equipment train" were changed to "UGTMS train";
- Deleted the description of the external OHMI or external THMI receiving information for "display and recording" in the entire text;

--- Added notes in the scope of Chapter 1;

--- Added a note to the instructions for use of the abbreviation "GOA" (see 3.2):

Introduction

GB/T 32590 specifies the requirements for urban rail transit and train control systems based on communication for urban rail passenger transport lines and networks:

Functional requirements, system requirements and interface requirements of urban rail transportation management and command/control systems of system technology:

In this document, the abbreviation for Urban Rail Transit Management and Command/Control System is UGTMS:

The wide range of operational requirements from automated train operation (GOA1) to unmanned train operation (GOA4):

UGTMS is installed on some lines:

GB/T 32590 does not specifically discuss public safety issues, but the safety requirements proposed are used to ensure the safety of urban rail and urban rail transportation:

Public safety within the system:

The main purpose of GB/T 32590 is to achieve interoperability, interchangeability and compatibility:

GB/T 32590 is a recommended document for the introduction of equipment with interoperability, interchangeability and compatibility:

How to use GB/T 32590 depends on the specific needs of the specific line to meet the special use requirements of this document:

GB/T 32590 is also applicable to upgrading existing signal and command control systems: In this case, only the newly added UGT-the interchangeability and compatibility of MS equipment: The feasibility of upgrading existing equipment and the review of the interconnection level shall be the responsibility of the relevant operators:

The transport management department shall be responsible for this:

The specific application of GB/T 32590 takes into account the differences between various lines in different regions, including operational and regulatory requirements and Different safety cultures:

GB/T 32590 defines a set of UGTMS functional requirements, which are divided into mandatory functions and optional functions based on a given automation level:

Most required functions are executed unconditionally: Some specific functions are required under certain conditions (these conditions are usually related to the supplier provides one

or more generic applications, including all the required functions and all or part of the available Select functions to meet the needs: General applications have interoperability under specific application conditions: Considering the different conditions in different places (such as track configuration and headway requirements), and customize common applications to form specific applications: Transportation management departments and suppliers also Add additional functions beyond general applications or specific applications: These additional functions are not described in GB/T 32590:

According to GB/T 21562, the transport management department is responsible for reaching an agreement with the regulatory department to conduct a comprehensive assessment of each the functional safety level of each specific application needs to be determined by a specific risk analysis:

Terms such as "safety related instructions", "safety conditions", "safe station departure" are mentioned without any hazard analysis:

GB/T 32590 is intended to consist of four parts:

--- Part 1: System principles and basic concepts: The purpose is to explain this series of documents and its basic concepts, system definitions, principles and Introduction to the basic functions of UGTMS; the other three parts correspond to the three steps required to standardize UGTMS (see picture 1):

--- Part 2: Functional requirements specification: The purpose is to provide a functional requirement specification based on the basic functions proposed in Part 1 and the requirements specified in Figure 3 of Part 1:

System boundaries and interfaces, specifying functional requirements: FRS (Functional Requirements Specification) identifies and specifies the urban rail and urban rail transit systems Functions required for operation: Depending on the given automation level, functions are divided into two categories: mandatory functions (such as train occupancy detection) and optional functions:

Unless otherwise noted, requirements for a function have Same category as the feature (Required or Optional):

--- Part 3: System requirements specification: The purpose is to specify the architecture of the system and to allocate the requirements and functions identified in Part 2 to the system:

The SRS (System Requirements Specification) defines the framework of the UGTMS, which contains the necessary and Select UGTMS equipment:

--- Part 4: Interface specification: The purpose is to achieve the interconnection and interchangeability of UGTMS devices identified in Part 3 it specifies the interface definition and the data exchange between them (FIS and FFFIS):

For interfaces between UGTMS devices, logical interfaces or FIS (Functional Interface