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

GA/T 1578-2019

**Specifications for construction of public security
communication network for urban rail transit**

城市轨道交通公安通信网络建设规范

(English Translation)

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Foreword

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

This standard was proposed by Shenzhen Zhongan Testing Standard Technology Co., Ltd.

This standard is under the jurisdiction of the Communications Standardization Technical Committee of the Ministry of Public Security.

1 Scope

This standard specifies the general principles, composition and construction requirements for the construction of public security communication networks for urban rail transit.

This standard applies to the planning, design, construction, acceptance and maintenance of urban rail transit public security communication networks.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB/T 26718 Technical requirements for safety protection system of urban rail transit GB/T 28181 Technical requirements for information transmission, exchange and control of public safety video surveillance networking systems GB 50157-2013 Metro Design Code GB 50348 technical specifications for security engineering GB 50382 Code for Quality Acceptance of Urban Rail Transit Communication Engineering GB 50395 Engineering Design Specification for Video Security Monitoring System GB 50490-2009 Technical Specifications for Urban Rail Transit GB 51151 Engineering Technical Specification for Public Safety Prevention System of Urban Rail Transit GA/T 1056 General Technical Specification for Police Digital Trunking (PDT) Communication System Lightning protection technical requirements and test methods of YD/T 944 communication power equipment YD/T 983 Electromagnetic compatibility requirements and measurement methods for communication power equipment YD/T 1095 uninterruptible power supply (UPS) for communication YD/T 1096 router equipment technical requirements edge router YD/T 1099 Ethernet Switch Technical Requirements YD/T 1948.1 Technical requirements for transport network bearer Ethernet (EoT) Part 1. Architecture of the Ethernet layer network YD/T 1948.2 Technical Requirements for Transport Networks Carrying Ethernet (EoT) Part 2. Network Section of Ethernet User Network Interface (UNI) Point Interface (NNI) YD/T 1948.3 Technical Requirements for Transport Networks Carrying Ethernet (EoT) Part 3. Ethernet Service Framework YD/T 1948.4 Technical Requirements for Transport Networks Carrying Ethernet (EoT) Part 4. Ethernet Operation, Management and Maintenance (OAM) YD/T 1948.5 Technical requirements for transport network bearer Ethernet (EoT) Part 5. Ethernet private line (EPL) services and Ethernet virtualization Private line (EVPL) business YD/T 2484 Technical requirements for packet enhanced optical transport network (OTN) equipment YD/T 2486 Enhanced Multi-Service Transport Node (MSTP) equipment technical requirements YD/T 2491 Communication Cable Physical Foam Polyethylene Insulated Vertically Wrapped Copper Tape Outer Conductor Radiation Leakage Coaxial Cable Physical/electrical characteristics of ITU-T G.703 synchronous digital interface ITU-T H.323 packet-based multimedia communication system IEEE 802.3 Information technology. Communication and information exchange between systems. Specific requirements for local and metropolitan area networks. Part 3. CSMA/CD access Mode and physical layer specifications Precision clock synchronization protocol for IEEE 1588 network measurement and control system

3 Terms and definitions

The following terms and definitions apply to this document.

Urban rail transit

Urban public passenger transportation system with dedicated track-oriented operation, including subway, light rail, monorail, tram, maglev, automatic Guiding track, city fast track system.

[GB 50490-2009, definition 2.0.1] 3.2 Public security communication network for urban rail transit A dedicated network for public security wired communications, wireless communications, video transmission, and information transmission in urban rail transit.

Public security wired communication network for urban rail transit A network that provides information transmission channels and VoIP voice services for urban rail transit public security communication networks.

Public security information network for urban rail transit Dedicated network that handles public security information services for urban rail transit and can access the national public security information network 3.5 Public security wireless communication network for urban rail transit A network that provides wireless communication services for urban rail transit public security and can access public security wireless communication systems.

Public security video surveillance network for urban rail transit A network used to transmit public security video images of urban rail transit, assemble video image information systems at all levels, and support public security video image services.

Network.

Police room

Police officers are stationed in rail transportation.

4 Acronyms

The following abbreviations apply to this document.

BMC. Best Master Clock FE. Fast Ethernet GE. Gigabit Ethernet MPLS. Multi-Protocol Label Switching MSTP. Multi-Service Transmission Platform POTS. Plain Old Telephone Service QoS. Quality of Service RAMS. Reliability, Availability, Maintainability and Safety (Reliability, Availability, Maintenanceability, Safety) SDH. Synchronous Digital Hierarchy SIP. Session Initiation Protocol TDM. Time Division Multiplexing UPS. Uninterruptible Power Supply VoIP. Voice over Internet Protocol

5 General

5.1

The construction of the urban rail transit public security communication network should be planned, designed, and constructed simultaneously with the urban rail transit project construction.

Step acceptance.

5.2

The maintenance of the urban rail transit public security communication network shall be synchronized with the maintenance of urban rail transit projects.

5.3

The construction of public security communication network for urban rail transit shall comply with the current national engineering construction standards and related technical specifications.

5.4

The design of the urban rail transit public security communication network should be open, expandable, and flexible to facilitate network updating and transformation.

5.5

The urban rail transit public security communication network equipment shall comply with national standards, public safety industry standards, and related regulations.

5.6

The public security communication network of urban rail transit shall be interconnected with the existing public security communication network.

6 Composition of Public Security Communication Network for Urban Rail Transit

Urban rail transit public security communication network consists of urban rail transit public security wired communication network, urban rail transit public security information network, urban rail the traffic public security wireless communication network, the urban rail transit public security video private network, and ancillary supporting equipment are composed of Figure 1

Figure 1 Composition of the public security communication network of urban rail transit

7.1 Network composition

The urban railway public security wired communication network consists of digital transmission equipment, VoIP systems, and communication optical cables.

7.2.1 Digital transmission equipment

7.2.1.1

Both the Ethernet service interface and the TDM service interface shall be provided.