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**Information technology - Telecommunications and information
exchange between systems - Technical requirements**

信息技术 系统间远程通信和信息交换 实时以太网适配时间敏感网络技术要求

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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: Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents: This document is proposed and managed by the National Information Technology Standardization Technical Committee (SAC/TC28): This document was drafted by: Chongqing University of Posts and Telecommunications, China Institute of Electronic Technology Standardization, Industrial Internet Research Institute of Chongqing University of Posts and Telecommunications, Shenzhen Shenzhen Saixi Information Technology Co., Ltd., Jiangsu Saixi Technology Development Co., Ltd., Beijing Dongtu Technology Co., Ltd., Beijing Saixi Technology Development Co., Ltd: Exhibition Co., Ltd., State Grid Hubei Electric Power Co., Ltd: Electric Power Research Institute, Shanghai Green Times Technology Development Co., Ltd., Beijing Guyuan Network Technology Co., Ltd., Gongyinte (Chongqing) Technology Co., Ltd., Beijing Zhixin Microelectronics Technology Co., Ltd., Anhui Telecom Planning and Design Co., Ltd: Limited liability company, Shenzhen Huixin Communication Technology Co., Ltd., EVOC Intelligent Technology Co., Ltd: The main drafters of this document: Wang Hao, Guo Xiong, Wang Ting, Huang Xuwei, Yang Hong, Zhuo Lan, Xue Baihua, Huang Xueda, Liu Yang, Wei Min, Huang Qingqing, Wang Ping, Cheng Yuan, Wang Jin, Luo Changliang, Zhang Yan, Shi Wenqiang, Zhou Siyuan, Liao Yinyu, Liu Qiong, Chen Chao, Liu Yong, Xu Mingwei: Telecommunication and information exchange between information technology systems Real-time Ethernet adapts to time-sensitive network technical requirements

1 Scope

China's national standard giving technical requirements for telecommunications and information exchange between systems. The series it belongs to is the one that carries the local and metropolitan area networking standards into the Chinese national system, and its function is largely one of adoption and alignment: the protocols that matter here are international, developed in the IEEE and ISO committees, and a national standard's job is to bring them into a form that Chinese procurement, certification and regulation can reference. What such a document adds beyond the underlying protocol is the national context - the frequency allocations, the conformance requirements, the profiles that specify which optional features must be implemented, and the security provisions that domestic regulation requires. Without that layer, a specification that says only comply with the international standard leaves too much unsettled for a procurement to be enforceable.

This document specifies the network adaptation frame mapping requirements, network adaptation functional requirements and network adaptation with bridging requirements: This document is suitable for time-sensitive network industrial applications that require deterministic latency and heterogeneous interconnection, and is used to guide real-time Ethernet access Adaptive frame design, priority mapping and time synchronization for time-sensitive networks:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document: GB/T 15629:

3 Telecommunications and Information Exchange between Information Technology Systems Specific Requirements for Local Area Networks and Metropolitan Area Networks No:

3 Part: Access method and physical layer specification for carrier sense multiple access with collision detection (CSMA/CD)

GB/T 42404 Information technology inter-system telecommunication and information exchange time-sensitive local area network and metropolitan area network bridging local area network Timing and Synchronization for Sensing Applications ISO /IEC /IEEE8802-1Q:2020 Telecommunications and information exchange between information technology systems Local area network and metropolitan area network bridged networks)

3 Terms and Definitions

The following terms and definitions apply to this document: 3:1 bridging Work at the LAN data link layer, link two or more similar or identical LANs through bridges, and realize data exchange process:

Note: Including functional components such as MAC or VLAN: 3:2 clock source clocksource
A clock device that provides standard time in a time-sensitive network domain: 3:

3 Real-time Ethernet real-timeethernet Real-time communication network conforming to
GB/T 15629:3:

Note: Such as PROFINET, SERCOS, EPA, EtherCAT, etc: 3:

4 Based on a set of data link layer protocols formulated by the IEEE802:1TSN task group, it
supports time synchronization and deterministic scheduling, etc: Mechanism of Ethernet: