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

GB/T 44816.2-2024

**Technical requirements for interoperability of access network
system - Part 2: 10Gbit/s symmetric passive optical networks
(XGS-PON)**

接入网系统互通性技术要求 第2部分：10Gbit/s对称无源光网络（XGS-PON）

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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. This document is Part 2 of GB/T 44816 "Technical Requirements for Interoperability of Access Network Systems". GB/T 44816 has been published as follows part.

1.10 Gbit/s Passive Optical Network (XG-PON);

2.10 Gbit/s symmetrical passive optical network (XGS-PON). Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document is proposed by the Ministry of Industry and Information Technology of the People's Republic of China. This document is under the jurisdiction of the National Communications Standardization Technical Committee (SAC/TC485). This document was drafted by: China Mobile Communications Group Co., Ltd., China Academy of Information and Communications Technology, China Telecom Group Co., Ltd., Huawei Technology Co., Ltd., ZTE Corporation, China Information and Communications Technology Group Corporation, Shanghai Nokia Bell Co., Ltd. Sichuan Tianyi Kanghe Communication Co., Ltd., Putian Information Engineering Design Service Co., Ltd., Guangdong Southern Telecom Planning Consulting and Design Institute Ltd. The main drafters of this document are. Li Junwei, Hu Leya, Liu Qian, Zhang Dezhi, Zhang Dechao, Wu Xuming, Yuan Liquan, Yu Yunnan, Ma Fujian, Deng Dahao and Wei Yu.

At the access network level, it realizes the interoperability deployment of central office equipment and user-side terminals from different manufacturers, which not only effectively

reduces the network construction costs of network operators, but also It can meet the needs of users to use high-speed and economical broadband access services, so it is necessary to formulate the access network central office equipment and user side terminal equipment. GB/T 44816 "Technical requirements for interoperability of access network systems" aims to specify various technical requirements applicable to public telecommunication networks. The interoperability technical requirements for the physical layer, universal transmission convergence layer and ONU management of the passive optical network (PON) system of the technology standard are to be formulated by It consists of two parts.

1.10 Gbit/s Passive Optical Network (XG-PON). The purpose is to specify the interoperability requirements of XG-PON systems.

--- Part 2.10Gbit/s Symmetric Passive Optical Network (XGS-PON). The purpose is to specify the interoperability of XGS-PON systems Require. Technical requirements for interoperability of access network systems Part 2.10Gbit/s Symmetric Passive Optical Network (XGS-PON)

1 Scope

GB/T 44816.2-2024 sets the interoperability requirements for XGS-PON, the 10 Gbit/s symmetric passive optical network that carries much of Chinese gigabit broadband. Interoperability is the whole problem in PON: the OLT in the exchange and the ONU in the subscriber's home are almost always made by different vendors, and a specification that leaves any procedure ambiguous produces equipment that passes conformance testing and then fails in the field. This part therefore fixes the behaviour, not merely the format. It gives the system reference model, then the PMD layer requirements, then the XGTC transmission convergence layer, covering the upstream burst mode overhead, the ONU activation procedure, ranging, the PLOAM messages and their bandwidth allocation and the dynamic bandwidth assignment; then the OMCI protocol, with the rules for creating, deleting and configuring managed entities, the minimum set of MEs at ONU initialisation and fourteen pages of general OMCI procedures; then the service functions configured through OMCI, XGEM connection modes, the multi-service bridging model, downstream broadcast handling, thirteen pages of VLAN functions, QoS, multicast, VoIP and service security; then the performance management statistics, the fault management functions including alarms, remote restart and rogue ONU detection, and the OMCI reference model for gateway devices with TR-069 WAN connection configuration. It applies to the design, development and production of XGS-PON equipment for public telecommunications networks.

This document specifies the physical medium dependency (PMD) layer interconnection of 10Gbit/s symmetrical passive optical network (hereinafter referred to as XGS-PON) system. Communication requirements, transmission convergence (TC) layer intercommunication

requirements, operation management and maintenance (OAM) function intercommunication requirements, optical network terminal management and control interface (OMCI) protocol interoperability requirements and business-related function interoperability requirements. This document is applicable to the design, development, and production of XGS-PON equipment for public telecommunication networks and is for reference in other private telecommunication networks.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document. YD/T 2793-2015 Access Network Technical Requirements ONU Management and Control Interface (OMCI) YD/T 3691.2-2020 Technical requirements for access network 10Gbit/s symmetrical passive optical network (XGS-PON) Part

2.Physical Physical Media Dependent (PMD) layer requirements YD/T 3691.3-2020 Access Network Technical Requirements 10Gbit/s Symmetric Passive Optical Network (XGS-PON) Part

3.Transmission Transmission and Convergence (TC) Layer Requirements IEEE 802.1ad Local and Metropolitan Area Networks Virtual Bridging Supplement

4.Provider Bridges (IEEE Standard for viderBridges) cation(OMCI)] ITU-TG.9807.1(2023) Symmetric

10 Gbit/s Symmetric Passive Optical Network [10-Gigabit-capablesymmetric ITU-TT.38 Procedures for real-time Group 3 fax communications over IP networks

3 Terms and Definitions

There are no terms or definitions that require definition in this document.