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

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**Fibre optic wavelength switches - Part 1: Generic specification
(English Translation)**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 1 of GB/T 46282 "Fiber Optics Wavelength Switches". GB/T 46282 has the following parts published.

---Part 1: General Specifications.

This document is modified to adopt IEC 62099:2001 "General Specification for Wavelength Switches in Fiber Optics".

This document has undergone significant structural adjustments compared to IEC 62099:2001.A table comparing the structural numbering changes between the two documents is provided.

See Appendix A.

The technical differences between this document and IEC 62099:2001, and the reasons therefor, are as follows.

---GB/T 14733.12 has replaced IEC 60050(731) (see Chapter 3) to adapt to my country's technical conditions;

---4.1.8 removed the scope of international documents that could be referenced by detailed specifications or blank detailed specifications;

---IEC 61748 (which was not actually published) was replaced with IEC TR61930 (see 4.2.1) to facilitate standard implementation;

---GB/T 1182 has replaced ISO 1101, and GB/T 1800.1 has replaced ISO 286-1 (see 4.2.3.3) to adapt to my country's technical standards.

Technical conditions;

---ISO 129-1 has replaced the obsolete ISO 129 (see 4.2.3.3) to facilitate the implementation of the standard;

---GB/T 5169.5 has replaced IEC 60695-2-2 (see 4.4.1.2) to adapt to my country's technical conditions;

---GB/T 7408.1 has replaced ISO 8601-1 (see 4.7.4 and 4.9) to adapt to my country's technical conditions;

---GB/T 2828.1 replaces the obsolete IEC 60410 (see 5.4.3 and 5.8), increasing the standard's operability and compliance with national standards.

Actual internal product;

---The obsolete IEC QC001001 and IEC Guide 102 have been removed;

---The terms "straight-through switch," "self-locking switch," and "non-self-locking switch," along with their definitions, that were not cited in the main text, have been removed.

The following editorial changes have been made to this document.

---The standard name has been changed to "Fiber Optics Wavelength Switches Part 1: General Specification".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the Ministry of Industry and Information Technology of the People's Republic of China.

Introduction

Fiber optic wavelength switches enable the switching of light beams in time, space, and wavelength, and have many applications in optical networks, including optical communication.

Optical fiber is one of the key components in optical fiber communication systems such as optical computers and optical information processing. In recent years, with the dramatic increase in communication network bandwidth, optical fiber...

Communication systems are constantly evolving towards higher capacity and longer distances, and fiber optic wavelength switches are currently and will be used in next-generation intelligent all-optical network communication.

As one of the key components for non-communication applications, it has been mass-produced and commercialized, and has developed into a high-tech industry.

This document is the general specification for fiber optic wavelength switches, aiming to provide a top-level framework for the development of relevant domestic product specifications and testing methods standards.

Guidance and Standard Basis. GB/T 46282 "Fiber Optics Wavelength Switches" is proposed to be divided into the following parts.

---Part 1: General Specifications. The purpose is to establish the requirements and quality assessment procedures for fiber optic wavelength switches.

---Part 2: Specification of Single-Ended Dual-Wavelength Fiber Optic Wavelength Switches. The purpose is to establish single-ended dual-wavelength fiber optic wavelength...

Requirements related to switches.

---Part 3: Specification of Single-Ended Multi-Wavelength Fiber Optic Wavelength Switches. The purpose is to establish single-ended multi-wavelength fiber optic wavelength...

Requirements related to switches.

---Part 4: Standardization of Multi-Terminal Multi-Wavelength Fiber Optic Wavelength Switches. The purpose is to establish the wavelength specifications for multi-terminal multi-wavelength fiber optic switches.

Requirements related to switches.

Fiber Optics Wavelength Switches Part 1: General Specification

1 Scope

This document specifies the requirements and quality assessment procedures for wavelength switches.

This document applies to fiber optic wavelength switches (generally referring to devices, components, and systems with active or passive characteristics) that possess the following characteristics.

(Hereinafter referred to as "wavelength switch").

---The wavelength switch uses an active driving mechanism, while the optical path is passive, meaning it does not include optical amplification and photoelectric conversion.

---The wavelength switch functions only to switch the route of light and does not have power