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**Fibre optic fixed filters - 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 46349 "Fiber Optic Fixed Filters". GB/T 46349 has the following parts published.

---Part 1: General Specifications.

This document adopts IEC 61977:2020 "General specification for fiber optic fixed filters and interconnect devices and passive devices".

The following minimal editorial changes have been made to this document.

---The standard name has been changed to "Fiber Optics Fixed Filters 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 filters are one of the important components in optical communication systems. By using fiber optic filters, multipath propagation can be selectively filtered out.

Scattered signals and other co-frequency interference signals generated during propagation improve signal transmission quality and the reliability of communication systems, and are widely used in spectral analysis.

Fiber optic filters are used in multiple fields such as optical image processing and optical communication, and are mainly divided into fiber optic fixed filters and fiber optic tunable filters. With the development of fiber optics...

With the continuous improvement of the performance of fixed filter products, mass production and commercialization have been achieved, developing into a high-tech industry. (International Electrotechnical Commission) the IEC has to date developed and published IEC 61977, "Fiber Optic Interconnects and Passive Devices - General Specifications for Fiber Optic Fixed Filters".

The "Specification" is an essential international standard supporting the design, production, inspection, and acceptance of fiber optic fixed filter products.

This document is the general specification for fiber optic fixed filters, aiming to provide a benchmark for the development of relevant product specifications and test methods standards in China.

Layer guidance and standard basis. GB/T 46349 "Fiber Optic Fixed Filters" is proposed to be divided into the following parts.

---Part 1: General Specifications. The purpose is to establish uniform requirements for the optical, mechanical, and environmental performance of fiber optic fixed filters.

---Part 2: Standardized Shortwave Pass Filters. The purpose is to establish the relevant requirements for shortwave pass filters.

---Part 3: Standard Long-Pass Filters. The purpose is to establish the relevant requirements for long-pass filters.

---Part 4: Standard Bandpass Filters. The purpose is to establish the relevant requirements for bandpass filters.

---Part 5: Specification of Notch Filters. The purpose is to establish the relevant requirements for notch filters.

---Part 6: Sub-standard Gain Flat Filters. The purpose is to establish the relevant requirements for gain flat filters.

Fiber Optic Fixed Filters Part 1: General Specification

1 Scope

This document specifies uniform requirements for the optical, mechanical, and environmental performance of fiber optic fixed filters.

This document applies to fiber optic fixed filters that possess all of the following general characteristics.

- a) It is passive and does not contain photoelectric or other conversion elements that process the optical signal injected into the input terminal.
- b) It has wavelength selectivity, and can change the spectral intensity distribution to select certain specific wavelengths and suppress other wavelengths.
- c) It possesses fixed properties; changes in the spectral intensity distribution are fixed and cannot be adjusted.
- d) It has input and output ports or general-purpose ports for optical power transmission (with both input and output functions), and the ports are made of optical fiber or...

Fiber optic connector.

- e) Based on their different characteristics, they are divided into the following types or combinations thereof.

- 1) Shortwave pass (only wavelengths below or equal to a given value can pass);
- 2) Long-wavelength pass (only wavelengths higher than or equal to a given value can pass);
- 3) Bandpass (allows only one optical window);
- 4) Notch filter (suppresses only one optical window);
- 5) Gain flattening (spectral profile of the compensation device).

This document contains the terminology of the IEC 61753-04x series standards. Published IEC 61753-04x series standards are listed in the references.

List.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

ISO 129-1 Technical Product Documentation (TPD) - Representation of Dimensions and Tolerances - Part 1: General Principles ISO 286-1 Product Geometry Specification (GPS) - Linear Dimensional Tolerances - ISO Notation System - Part 1: Tolerances, Deviations and Fits Part 1: Basis of tolerances, deviations and fits] Note. GB/T 1800.1-2020 Product Geometric Specification (GPS) - Linear Dimensional Tolerances - ISO Notation System - Part 1: Tolerances, Deviations and Fits the basis (ISO 286-1:2010, MOD) ISO 1101 Product Geometric Specification (GPS) - Geometric Tolerances. Shape, Orientation, Position and Runout Tolerances run-out Note. GB/T 1182-2018 Product Geometric Specification (GPS) - Geometric Tolerances - Shape, Orientation, Position and Runout Tolerances (ISO 1101:2017) MOD) ISO 8601-1 Representations for the exchange of date and time information - Part 1: Fundamental rules Note. GB/T 7408.1-2023 Representation for the Interchange of Date and Time Information - Part 1: Fundamental Principles (ISO 8601-1:2019, IDT)