

ICS 33.180.10
CCS M 33



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

GB/T 15972.48-2026

Replacing GB/T 15972.48-2016

**Specifications for optical fibre test methods - Part 48:
Measurement methods and test procedures for transmission
characteristics - Polarization mode dispersion**

光纤试验方法规范 第48部分：传输特性的测量方法和试验程序 偏振模色散
(English Translation)

Issued on: April 30, 2026

Implemented on: November 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative References	
3 Terms and Definitions	
4 Abbreviations and Symbols	
5 General Principles	
6 Experimental Apparatus 7.	
7 Samples and Sample Preparation 8.	
8 Measurement steps	
9 Calculation or presentation of results	
10 Results	
11 Detailed Information	
Appendix A (Informative) A list of structural designations in this document compared to IEC 60793-1-48:2017	
Appendix B (Normative) Stokes Parameter Determination Method	
Appendix C (Normative) Interference Method	
Appendix D (Normative) Fixed Analyzer Method	
Appendix E (Informative) Method for determining the root mean square (RMS) width from the fringe envelope	
References	

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 48 of GB/T 15972 "Specification for Test Methods of Optical Fibers". GB/T 15972 has the following parts published.

---Part 10: General Principles of Measurement Methods and Test Procedures;

---Part 20: Measurement methods and test procedures for dimensional parameters; fiber optic geometric parameters;

- Part 21: Measurement methods and test procedures for dimensional parameters; Geometric parameters of the coating;
- Part 22: Measurement methods and test procedures for dimensional parameters;
- Part 30: Measurement methods and test procedures for mechanical properties; Fiber optic screening test;
- Part 31: Methods and procedures for measuring mechanical properties; Tensile strength;
- Part 32: Methods and procedures for measuring mechanical properties; Coating peelability;
- Part 33: Methods and procedures for measuring mechanical properties and stress corrosion susceptibility parameters;
- Part 34: Measurement methods and test procedures for mechanical properties; fiber optic warping;
- Part 40: Measurement methods and test procedures for transmission characteristics attenuation;
- Part 41: Measurement methods and test procedures for transmission characteristics (bandwidth);
- Part 42: Measurement methods and test procedures for transmission characteristics; wavelength dispersion;
- Part 43: Measurement methods and test procedures for transmission characteristics; Numerical aperture;
- Part 44: Measurement methods and test procedures for transmission characteristics; cutoff wavelength;
- Part 45: Measurement methods and test procedures for transmission characteristics; Model field diameter;
- Part 46: Measurement methods and test procedures for transmission characteristics; Transmittance variation;
- Part 47: Measurement methods and test procedures for transmission characteristics - Macrobending loss;
- Part 48: Measurement methods and test procedures for transmission characteristics; polarization mode dispersion;
- Part 49: Measurement methods and test procedures for transmission characteristics; Differential modulus delay;
- Part 50: Methods of measurement and test procedures for environmental performance

under constant humidity and heat;

--- Part 51: Methods and procedures for measuring and testing environmental performance (dry heat);

--- Part 52: Methods of measuring and test procedures for environmental performance; temperature cycling;

--- Part 53: Methods and procedures for measuring and testing environmental performance (immersion);

--- Part 54: Methods of measurement and test procedures for environmental performance; Gamma irradiation;

--- Part 55: Methods for measuring and testing environmental performance (hydrogen aging).

This document replaces GB/T 15972.48-2016 "Fiber Optic Test Methods Specification Part 48: Measurement of Transmission and Optical Characteristics".

The method and experimental procedure for polarization mode dispersion, compared with GB/T 15972.48-2016, mainly involves structural adjustments and editorial changes.

The techniques have changed as follows.

a) Added "symbols" (see 4.2);

b) The method for calculating the polarization state (SOP) in the Stokes parameter determination method has been removed (see 5.1.1 and Appendix A of the 2016 edition).

A.4.4);

c) The applicability description has been changed (see 5.3, 2016 edition of 5.3);

d) The requirement has been added that "for optical fibers specified in GB/T 9771, the normalized unit of PMD value is ps/km^{1/2}" (see Chapter 9);

e) Added "Detailed Information" (see Chapter 11).

This document is modified to adopt IEC 60793-1-48:2017 "Fiber optics - Part 1-48.Measurement methods and test procedures for polarization mode dispersion".

Compared with IEC 60793-1-48:2017, this document has undergone many structural adjustments. A comparison of the structural numbering changes between the two documents is provided below.

See Appendix A for the table of contents.

The technical differences between this document and IEC 60793-1-48:2017, and the reasons therefor, are as follows.

---Change the type of single-mode fiber in the scope of application to "Category B un-cabled and cabled single-mode fiber as specified in GB/T 9771".

(See Chapter 1), which clarifies the applicability of the document and increases its operability;

--- Instead of referencing ITU-T G.650.2 for terms and definitions, list each specific term and definition (see section 3).

Chapter), enhancing the readability of the document;

Appendix B) aligns with the method names in existing telecommunications industry standards and adapts to my country's technical conditions;

---The method for calculating the polarization state (SOP) has been removed (see B.3.4) to maintain consistency with the overall technical content of the paper;

---The average PMD value is now uniformly expressed as "PMDAVG" and "PMDMEAN" as "PMDAVG" (see full text) for easier use throughout the document.

The following editorial changes have been made to this document.

---To maintain consistency with the existing GB/T 15972 series standards, the name will be changed to "Fiber Optic Testing Methods Specification Part 48".

Part 1: Measurement methods and experimental procedures for transmission characteristics; Polarization mode dispersion.

---The URLs for the ISO and IEC terminology databases have been removed;

---To facilitate domestic usage habits, the three PMD measurement methods have been numbered, including "Stokes Parameter Measurement (SPE)".

The "method" is Method 1, the "interference method" is Method 2, and the "fixed analyzer method" is Method 3.

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

The characteristic parameters of optical fibers include geometric dimensions, mechanical properties, transmission characteristics, and environmental performance. Each category further includes...

There are multiple parameters, and these parameters are tested using different principles, equipment, and programs. Therefore, they need to be divided according to their respective