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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 15972.42-2021

Specifications for optical fibre test methods - Part 42: Measurement methods and test procedures for transmission characteristics - Chromatic dispersion

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Foreword

GB/T 15972 "Specifications for Optical Fiber Test Methods" consists of several parts, and its expected structure and corresponding international standards are.

---Part 10.General principles of measurement methods and test procedures (corresponding to IEC 60793-1-1);

---Part 20~Part 29.Measurement methods and test procedures of dimensional parameters (corresponding to IEC 60793-1-20 to IEC 60793-

1-29);

---Part 30~Part 39.Measurement methods and test procedures of mechanical properties (corresponding to IEC 60793-1-30 to IEC 60793-

1-39);

---Part 40~Part 49.Measurement methods and test procedures of transmission characteristics (corresponding to IEC 60793-1-40 to IEC 60793-

1-49);

---Part 50~Part 59.Environmental performance measurement methods and test procedures

(corresponding to IEC 60793-1-50 to IEC 60793-

1-59).

Among them, GB/T 15972.40~49 consists of the following parts.

---Part 40.Measurement methods and test procedures for transmission characteristics attenuation;

---Part 41.Measurement methods of transmission characteristics and test procedure bandwidth;

---Part 42.Measurement methods and test procedures for transmission characteristics. Wavelength dispersion;

---Part 43.Measurement methods of transmission characteristics and test procedures numerical aperture;

---Part 44.Measurement methods of transmission characteristics and test procedures cut-off wavelength;

---Part 45.Measurement methods and test procedures for transmission characteristics; Mode field diameter;

---Part 46.Measurement methods of transmission characteristics and test procedures for light transmittance changes;

---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.Differential modulus delay for measurement methods and test procedures of transmission characteristics.

This part is part 42 of GB/T 15972.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 15972.42-2008 "Specification for optical fiber test methods Part 42.Measurement of transmission characteristics and optical characteristics

Methods and test methods wavelength dispersion. Compared with GB/T 15972.42-2008, the main technical changes in this part are as follows.

---Modified the name of the standard;

---Modified the applicable fiber types and corresponding methods, test devices and calculations of this part (see Chapter 1, Chapter 3, Chapter 4 and Chapter 4).

Chapter 7, Chapter 1, Chapter 3, Chapter 4 and Chapter 7 of the.2008 edition);

---Deleted method D---interference method (see 3.4 and Appendix D of the.2008 edition);

---Modified the FWHM requirements of filtered light-emitting diodes (see C.1, C.1 of the.2008 edition);

--- Added dispersion fitting (see Appendix D).

This part uses the redrafting method to modify and adopt IEC 60793-1-42.2013 "Optical Fiber Part 1-42.Measurement Methods and Tests"

Procedural Wavelength Dispersion.

Compared with international standards, the main structural changes of this part are as follows.

---According to the layout format and presentation requirements of my country's standards, part of the content of Chapter 1 in the IEC document is adjusted to Chapter 3 of this part;

Merged Chapter 4 of the IEC file into Chapter 3 of this part; combined the symbols and symbols in the fitting formula in Chapter 7 of the IEC file

The meaning of the number is adjusted to Appendix D of this section.

Compared with IEC 60793-1-42.2013, the main technical differences and the reasons for this part are.

---Regarding normative reference documents, this section has made adjustments with technical differences to adapt to my country's technical conditions and adjustments

It is concentratedly reflected in Chapter 2 "Normative Reference Documents", and the specific adjustments are as follows.

* IEC 60793-2 is deleted, and GB/T 9771 (all parts) and GB/T 12357.1 are added accordingly;

* Replace IEC 60793-1-1 with GB/T 15972.10 which is modified to adopt international standards;

* Replace IEC 60793-1-41.2001 with GB/T 15972.41-2008 modified to adopt international standards.

---In order to be consistent with the classification code of the optical fiber in the national standard, the scope of the IEC document "B1 single-mode fiber" is changed to "B1.1,

B1.2 and B1.3 category single-mode fiber"; considering the practical application of B6.b2 and B6.b3 sub-category bending-insensitive single-mode fiber

The same method is used for testing, so the scope of the IEC document "B6.a1 and B6.a2 sub-type single-mode fiber" is expanded to "B6 single-mode fiber"

Mode fiber".

This section has made the following editorial changes.

--- Modify the standard name to "Specification for Optical Fiber Test Methods Part 42.Measurement Methods and Test Procedures for Transmission Characteristics Wavelength

Dispersion;

---Corrected the wrong direction of A.1.3 Note 1;

---Corrected the quotation errors in chapters A.3.2 and B.3.2.

1 Scope

This part of GB/T 15972 specifies the test method of optical fiber wavelength dispersion, and establishes the test equipment, sample and sample preparation, process

Uniform requirements for sequence, calculation and results.

This section applies to the following categories of optical fibers and cables specified in the GB/T 12357 and GB/T 9771 series of standards.

---A1 type multimode fiber;

---A4f, A4g and A4h sub-class multimode fiber;

---B1.1, B1.2, B1.3, B2, B4, B5 and B6 category single-mode fiber.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 9771 (all parts) Single-mode optical fiber for communication

GB/T 12357 (all parts) Multimode optical fiber for communication

GB/T 15972.10 Optical fiber test method specification Part 10.General rules of measurement methods and test procedures (GB/T 15972.10-

2021, IEC 60793-1-1.2017, MOD)

GB/T 15972.41-2008 Optical fiber test method specification Part 41.Transmission characteristic and optical characteristic measurement method and test

Program bandwidth (IEC 60793-1-41.2001, MOD)