



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

GB/T 7424.21-2021

**Optical fibre cable generic specification - Part 21: Basic optical
cable test procedures - Mechanical test methods**

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Foreword

GB/T 7424 is divided into the following 9 parts.

- Optical Cable General Specification Part 1.General;
- General Specification for Optical Cables Part 20.General Principles and Definitions of Basic Test Methods for Optical Cables;
- General Specification for Optical Cables Part 21.Basic Test Methods for Optical Cables, Mechanical Performance Test Methods;
- General Specification for Optical Cables Part 22.Basic Test Methods for Optical Cables, Environmental Performance Test Methods;
- General Specification for Optical Cables Part 23.Basic Test Methods for Optical Cables Test Methods for Optical Cable Components;
- General Specification for Optical Cables Part 24.Basic Test Methods for Optical Cables, Electrical Test Methods;
- Optical Cable Part 3.Sectional Specification for Outdoor Optical Cable;
- Optical Cable Part 4.Sectional Specification Optical Fiber Composite Overhead Ground Wire;
- Optical Cable Part 5.Sectional Specification for Miniature Optical Cables and Optical Fiber Units for Air Blown Installation.

This part is Part 21 of GB/T 7424.

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

GB/T 7424.20~GB/T 7424.24 jointly replace GB/T 7424.2-2008 "Optical Cable General Specification Part 2.Optical Cable Basic

experiment method". This part replaces Chapter 5 to Chapter 20 in GB/T 7424.2-2008.This part and GB/T 7424.2-2008

Compared with Chapter 5 to Chapter 20, the main technical changes are as follows.

- E1 revised the steering pulley and chuck diameter requirements [see 3.3b) and 3.3d),

the.2008 edition of 5.3a) 1)];

--- E1 added "The distribution of monitoring fibers should be representative, such as evenly distributed in different loose tubes and skeleton grooves, or different

Optical fiber ribbon, or the middle and edge of optical fiber ribbon" [see 3.4.1g),.2008 edition of 5.4];

--- In E1, the stretching speed is modified to "When the optical cable is one back and forth (such as 2x25m), the stretching speed of the stretching machine should be

5mm/min~10mm/min, for optical cables with a small tensile modulus of elasticity, other larger tensile rates can also be used" [see

3.4.1d), 5.4 of the.2008 edition];

---E1 has added stretching program 1 and sorted out the program order of the.2008 edition and named it program 2 (see 3.4.2,.2008 edition

5.4);

--- E1 deleted Figure 4 "Example of relationship between elongation and load function of optical fiber and optical cable" (see Figure 4 of the.2008 edition);

---E2A modified the wear movement length from (10+/-1)mm to (40+/-1)mm (see 4.3.1, 6.1.3 in the.2008 edition);

--- E2 has added the requirement that "E2B is not applicable to color bars and other sheath marks formed by extrusion" (see 4.1);

--- E2A has added a 1.0mm steel needle diameter (see 4.3.1, 4.4.1.1, 6.1.3 and 6.2.3.1 in the.2008 edition);

--- E2 adds the requirement that the load is 4N in E2A and E2B method 1 (see 4.3.2);

--- E2 adds the requirement of 5N load in E2B method 2 (see 4.4.2.3);

--- E2 added the requirement that the width of wool felt "should be 40mm", and added a note on the description of wool felt [see 4.4.1.2b)];

--- After the E2A test is deleted in E2, the optical fiber should maintain the requirements of optical continuity (see 4.3.3, 6.1.5 of the.2008 edition);

--- E2 adds the requirement that the number of wear cycles in E2B method 1 is 4 (see 4.4.2.2);

--- In E2, the sample placement method in E2B Method 2 is modified as "The optical cable sample containing the mark should be placed between the two wool felts.

Sometimes between the wool felt and the supporting surface" (see 4.4.2.3, 6.2.4.2 of the.2008 edition);

--- E2 deleted the "Method 1" in E2B for hard logo types, such as embossed, embossed and fused structure logos, method

2 Applicable to the "marks other than the above types" (see 6.2.1 of the.2008 edition);

---E3A and E3B names are added to E3, E3A is plate/plate, E3B is mandrel/plate (see 5.3, 5.4);

---E3B mandrel/plate flattening method has been added to E3 (see 5.4);

--- In E3, the flattening holding time of E3A is modified to "Typical flattening holding time is 1min or 10min" (see 5.3.2,

7.4 in.2008);

---E4 modified the requirements of punch shape (see 6.3, 8.3 of the.2008 edition);

--- Deleted the stability of the peel force of the E5 cabled fiber and moved to GB/T 7424.23 (see Chapter 9 of the.2008 edition);

--- E6 deleted the repeated bending test of the optical cable in Figure 9 (see 10.3 of the.2008 edition);

--- E6 adds the requirement that the bending radius should not be greater than 20 times the diameter of the optical cable or the minimum mandrel radius (see 7.3);

--- E6 added "The mandrel with radius R should be rotated when bending" (see 7.3);

--- E7 added "Table 1 Typical Test Maximum Torsion Length" (see 8.4);

--- E7 added "or 90° (torsion length is 50% of Table 1)" (see 8.4);

--- E7 deleted "Tension imposed by Table 1" (see 11.4 of the.2008 edition);

---E8 added the description "This is a special test for special optical cables, such as elevator optical cables or similar optical cables" (see 9.1);

---E8 has increased the diameter requirements of pulley A and pulley B, and the requirements for the distance between each other (see 9.3);

--- E10 has added the calculation formula (1) of the equivalent ring diameter (see 10.4);

---E11 has added the double helix winding method in the curved E11A winding (see 11.4.1);

---E11 added "Figure 14 bending test device" (see 11.3);

--- Deleted "E12 cut-through resistance" (see Chapter 15 of the.2008 edition);

---E13 deletes the requirements of No. 4 or No. 7 bullets [see the.2008 edition of 16.3.2c),