

ICS 33.180.99
CCS M 33



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

GB/T 46385.21-2025

**Optical circuit boards - Part 2-1: Basic test and measurement
procedures - Optical attenuation and isolation measurements**

光路板 第2-1部分：基本试验和测量程序 光衰减与隔离度测量

(English Translation)

Issued on: October 31, 2025

Implemented on: May 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative References	
3 Terms and Definitions	
4 Precautions	
5 Equipment	
5.1 Injection conditions and light source (S)	
5.2 Optical Power Meter (D)	
5.3 Optical Fiber (OF)	
5.4 Filter Membrane (MF)	
5.5 Optical Steering Device (OD)	
5.6 Temporary Joint (TJ)	
6 Program	
6.1 Preprocessing	
6.2 Visual Inspection	
6.3 Continuity check	
6.4 OCB Structure and Measurement Methods	
6.5 Optical Attenuation Measurement	
6.6 Isolation Measurement	
6.7 Prism Loss Measurement	
7 Details to be specified	
Reference	

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 2-1 of GB/T 46385 "Optical Circuit Boards". GB/T 46385 has already published the following parts.

---Part 1: General Provisions;

---Part 2: Basic Test and Measurement Procedures - Guidelines for Optical Property Measurement Conditions;

---Part 2-1.Basic Test and Measurement Procedures for Optical Attenuation and Isolation Measurement;

---Part 2-2.Basic Test and Measurement Procedures for Dimensional Measurement;

---Parts 2-4.Basic Test and Measurement Procedures for Optical Transmission Tests Without Input/Output Pigtail Optical Circuit Boards this document is equivalent to IEC 62496-2-1:2011 "Optical circuit boards - Part 2-1.Measurement of optical attenuation and isolation".

This document includes a new chapter on "Terms and Definitions".

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

---To harmonize with existing standards, the standard name has been changed to "Optical Pathboards Part 2-1.Basic Test and Measurement Procedures for Optical Attenuation".

"Measurement of Isolation"

---The phrase "5.4.1" in "IEC 61300-3-4 5.4.1" has been deleted from 6.5.2.1.

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

High-density optical interconnects are a significant trend in high-capacity, low-latency communication networks. As a typical product of high-density optical interconnect technology, optical circuit boards are based on an integrated structure of optical fiber or optical waveguide, which carries optical devices and enables optical interconnection between optical devices or systems, is crucial for supercomputing.

This provides a new board-level optical interconnect solution for fields such as computers, data centers, and broadband communications. GB/T 46385 "Optical Circuit Board" aims to standardize optical...

The terminology and definitions, technical requirements, measurement procedures, and test methods for circuit boards are essential for improving the standardization of domestic fiber optic interconnect devices and passive devices.

Establishing a standardized system for the development and testing of optical circuit boards (OCBs) is of great significance, as is guiding the technological and industrial development of OCBs. This is crucial for meeting the needs of OCB production...

To meet industry demands, GB/T 46385 is proposed to consist of the following parts.

---Part 1: General Provisions. The purpose is to standardize the terminology and product classification of optical circuit boards, and to clarify common technical requirements and testing methods.

And quality evaluation.

---Part 2: Basic Test and Measurement Procedures Guidelines for Measuring the Optical Properties of Optical Circuit Boards. The purpose is to determine the optical properties of optical circuit boards.

The coding rules and information for characteristic measurement conditions.

---Part 2-1. Basic Test and Measurement Procedures for Optical Attenuation and Isolation Measurement. The purpose is to standardize the optical attenuation and isolation of optical circuit boards.

Methods for measuring separation.

---Part 2-2. Basic Test and Measurement Procedures for Dimensional Measurement. The purpose is to standardize the methods for measuring the dimensions of optical circuit boards.

---Parts 2-4. Basic Test and Measurement Procedures for Optical Transmission Without Input/Output Pigtail Optical Circuit Boards. The purpose is to standardize...

A method for measuring the optical transmission performance of fiber optic circuit boards without input/output pigtails.

---Parts 2-5. Basic Test and Measurement Procedures for Flexural Testing of Flexible Optoelectronic Composite Panels. The aim is to standardize the testing procedures for flexible optoelectronic composite panels.

Methods for flexural testing of plywood.

---Part 3: General Performance Principles and Guidelines. The purpose is to standardize the general performance requirements and evaluation methods for optical circuit boards.

---Part 3-1. Performance of Glass Fiber Optic Pigtail Flexible Optical Circuit Boards. The purpose is to standardize glass fiber optic pigtail flexible optical circuit boards.

Performance requirements and evaluation methods.

---Part 4: Interface General Principles and Guidelines. The purpose is to standardize the general interface requirements for optical circuit boards.

---Part 4-1. Waveguide-type optical circuit board assembly with single-row twelve-channel PMT connectors for interface termination. The purpose is to standardize the termination.

Interface requirements for waveguide-type optical circuit board assemblies with single-row twelve-channel PMT connectors.

---Part 4-214.Waveguide-type optical circuit board assembly with single-row 32-channel PMT connectors at the interface termination. The purpose is to standardize...

Interface requirements for waveguide-type optical circuit board assemblies that terminate with single-row 32-channel PMT connectors.

Optical Circuit Board Part 2-1.Basic Test and Measurement Procedures Measurement of optical attenuation and isolation

1 Scope

This document describes various methods for measuring optical attenuation and isolation of optical circuit boards (OCBs).

This document applies to the measurement of OCB optical attenuation and isolation.

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.

IEC 60793-2-10 Optical Fibers Part 2-10.Product Specifications Category A1 Multimode Fibers (Optical Fibers-Part 2-) Note. GB/T 12357.1-2024 Multimode optical fiber for communication - Part 1: Characteristics of Category A1 multimode optical fiber (IEC 60793-2-10:2022, MOD) IEC 60793-2-50 Optical Fibers - Part 2-50.Product Specifications - Category B Single-mode Fiber Specifications Note. GB/T 7247.1-2024 Safety of laser products - Part 1: Classification and requirements of equipment (IEC 60825-1:2014, IDT) IEC 61300-1 Basic test and measurement procedures for fiber optic interconnects and passive devices - Part 1: General principles and guidelines duces-Part 1: Generalandguidance) Note. GB/T 18309.1-2001 Basic Test and Measurement Procedures for Fiber Optic Interconnects and Passive Devices Part 1: General Principles and Guidelines (IEC) 61300-1.1995, IDT) IEC 61300-3-1:2003 Fiber optic interconnects and passive devices - Basic test and measurement procedures - Part 3-1.Inspection and Note. GB/T 18311.1-2003 Basic Test and Measurement Procedures for Fiber Optic Interconnects and Passive Devices - Part 3-1.Inspection and Measurement of Appearance Inspection (IEC 61300-3-1:1995, IDT) IEC 61300-3-4 Fiber optic interconnects and passive devices - Basic test and measurement procedures - Part 3-4.Inspection and measurement Note. GB/T 18311.4-2003 Basic Test and Measurement Procedures for Fiber Optic Interconnects