

ICS 33.180.99
CCS M 33



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

GB/T 46385.2-2025

**Optical circuit boards - Part 2: Basic test and measurement
procedures - General guidance for definition of measurement
conditions for optical characteristics**

光路板 第2部分：基本试验和测量程序 光学特性测量条件导则

(English Translation)

Issued on: October 31, 2025

Implemented on: February 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms and Definitions
4 Optical circuit board measurement system
4.1 General Rules
4.2 Measurement System Requirements
4.3 Measurement Standards
4.4 Injection and Receiving Locations
4.5 Injection and Reception Directions
5 Measurement Identification Code
5.1 Overview
5.2 Measurement Identification Code Composition
5.3 Extended Measurement Identifier Code 11 with Custom Parameters
5.4 Reference Measurement
5.5 AAA Coordinate Table --- Light Source Characteristics
5.6 BBB Coordinate Table --- Injection Condition
5.7 CCC Coordinate Table --- Input Coupling Conditions
5.8 DDD Coordinate Table --- Output Coupling Conditions
5.9 EEE Coordinate Table --- Receiving Conditions
5.10 Setup Example
Appendix A (Informative) Recent Advances in Optical Interconnect Technology
A.1 Diversity of Optical Interconnect Technologies
A.2 Laminated fiber optic board
A.3 Polymer Optical Waveguide
A.4 Planar Glass Waveguide
A.5 Free Space Light
A.6 Target Application Scenarios
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 2 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 62496-2:2017 "Essential test and measurement procedures for optical circuit boards - Part 2: Measurement of optical properties of optical circuit boards".

Quantity Condition Guidelines.

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

---To maintain harmony among the standards, the standard title has been changed to "Optical Pathboards Part 2: Basic Test and Measurement Procedures - Optical Properties" Measurement Conditions Guidelines;

---Corrected a printing error in the expression for the refractive index distribution of optical guide media in section 3.3.

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

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 domestic production of fiber optic interconnect devices and passive devices.

Establishing a standard system, regulating the development and testing of optical circuit boards, and guiding the technological and industrial development of optical circuit boards are of great significance. This is to meet the needs of optical circuit board manufacturers.

Industry demand, 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 Optical Characteristic Measurement Conditions. The purpose is to determine the optical characteristics measurement conditions for optical path plates.

The encoding rules and information of quantity 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: Basic Test and Measurement Procedures Guidelines for Optical Property Measurement Conditions

1 Scope

This document describes a method for defining measurement conditions for the optical properties of an optical path plate. This method uses a coding table to identify the measurement environment.

Same key information. The values extracted from the table are used to construct a measurement identification code, which itself contains sufficient measurement information to ensure independent measurement.

The consistency of the results is within an acceptable range, and preferred measurement conditions are specified to minimize the uncertainty of independent measurement results.

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.