

JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS C 6822 : 2024
(JSA)

**Test methods for structural parameters of
optical fibers — Dimensional
characteristics**

ICS 33.180.20

Reference number: JIS C 6822 : 2024 (E)

Date of Establishment: 1989-01-01

Date of Revision: 2024-02-20

Date of Public Notice in Official Gazette: 2024-02-20

Developed by: Japanese Standards Association

Investigated by: JIS Development Committee on Electronics

JIS C 6822 : 2024, First English edition published in 2026-01

Translated and published by: Japanese Standards Association
Mita Avanti, 3-11-28, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2026

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

HN

Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	1
3 Terms, definitions and symbols	2
4 Classification of optical fibers	5
5 Test conditions	6
6 Measurement of optical fiber dimensions	6
6.1 Introduction	6
6.2 Overview of method	6
6.3 Reference test method	10
6.4 Apparatus	10
6.5 Sampling and specimens	10
6.6 Procedure	10
6.7 Calculations	10
6.8 Results	10
6.9 Specification information	11
7 Measurement of coating geometry	11
7.1 Overview of method	11
7.2 Reference test method	12
7.3 Apparatus	12
7.4 Specimen	12
7.5 Procedure	12
7.6 Calculations	12
7.7 Results	12
7.8 Specification information	12
8 Measurement of length	13
8.1 Overview of method	13
8.2 Reference test method	14
8.3 Apparatus	14
8.4 Specimen	14
8.5 Procedure	14
8.6 Calculations	14
8.7 Results	14
8.8 Specification information	15
Annex A (normative) Method 1-A — Refracted near-field method	16

Annex B (normative)	Requirements specific to Method 1-B — Transmitted near-field method	23
Annex C (normative)	Edge detection and edge table construction	31
Annex D (normative)	Edge table ellipse fitting and filtering	37
Annex E (informative)	Fitting multimode fiber core near-field data to a power law model	40
Annex F (informative)	Mapping multimode fiber core diameter measurements	47
Annex G (normative)	Requirements specific to Method 2-A — Side-view light distribution method	48
Annex H (normative)	Requirements specific to Method 2-B — Mechanical measurement method	52
Annex I (normative)	Requirements specific to Method 3-A — Delay measuring method	55
Annex J (normative)	Requirements specific to Method 3-B — Backscattering method	60
Annex K (normative)	Requirements specific to Method 3-C — Fiber elongation method	67
Annex L (normative)	Requirements specific to Method 3-D — Mechanical length method	71
Annex M (normative)	Requirements specific to Method 3-E — Phase shift method	72
Annex JA (informative)	Comparison table between JIS and corresponding International Standards	79

Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry based on the provision of Article 14, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act in response to a proposal for revision of Japanese Industrial Standard with a draft being attached, submitted by Japanese Standards Association (JSA), an accredited standards development organization. This edition replaces the previous edition (**JIS C 6822 : 2009**), which has been technically revised.

This **JIS** document is protected by the Copyright Act.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, published patent application or utility model rights. The relevant Minister is not responsible for identifying any of such patent rights, published patent application or utility model rights.

Blank

Test methods for structural parameters of optical fibers — Dimensional characteristics

Introduction

This Japanese Industrial Standard has been prepared based on **IEC 60793-1-20 : 2014, Edition 2**, **IEC 60793-1-21 : 2001, Edition 1**, and **IEC 60793-1-22 : 2001, Edition 1**, with some modifications of the technical contents.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies the test methods for structural parameters related to the dimensions of multimode optical fibers, silica glass single-mode optical fibers, and intraconnection optical fibers that are either primary-coated or jacketed (hereafter generically referred to as optical fibers or simply as fibers).

NOTE The International Standards corresponding to this Standard and the symbol of degree of correspondence are as follows.

IEC 60793-1-20 : 2014 *Optical fibres — Part 1-20: Measurement methods and test procedures — Fibre geometry*

IEC 60793-1-21 : 2001 *Optical fibres — Part 1-21: Measurement methods and test procedures — Coating geometry*

IEC 60793-1-22 : 2001 *Optical fibres — Part 1-22: Measurement methods and test procedures — Length measurement* (overall evaluation: MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standards and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

2 Normative references

Part or all of the provisions of the following standards, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS C 6820 *General rules of optical fibers*

JIS C 6823 *Measuring methods for attenuation of optical fibers*

NOTE Normative reference in the corresponding International Standard: IEC 60793-1-40 *Optical fibres — Part 1-40: Measurement methods and test procedures — Attenuation*