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Draft IEC 60793-1-41:2024
August 2025

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

मसौदा भारतीय मानक

प्रकाशिक तंतु भाग 1 मापन विधियाँ और परिक्षण प्रक्रियाएँ

अनुभाग 41 बैंडविड्थ

(पहला पुनरीक्षण)

Draft Indian Standard

Optical fibres

Part 1 Measurement Methods and Test Procedures

Section 41 Bandwidth

(first Revision)

ICS 33.180.10

NATIONAL FOREWORD

(Formal clauses will be added later)

This Draft Indian Standard *(first Revision*) which is identical with IEC 60793-1-41: 2024 'Optical fibres — Part 1-41: Measurement Methods and Test Procedures Section 41 Bandwidth issued by the International Electrotechnical Commission (IEC) *will be* adopted by the Bureau of Indian Standards on the recommendation of Fibre Optics, Fibers, Cables and Devices Sectional Committee and approval of the Electronics and Information Technology Division Council.

This standard was originally published in 2013 and was identical with IEC 60793-1-41:2010. The first revision of this standard has been undertaken to align it with the latest version of International Standard IEC 60793-1-41:2024.
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This edition includes the following significant technical changes with respect to the previous edition:
a) the addition of a direct reference for method A and method B.

The text of IEC Standard *may be* approved as suitable for publication as an Indian Standard without deviations. Certain conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appears referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

The technical committee has reviewed the provisions of following International Standards referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

International standards	**Corresponding Indian standards**	**Degree of Equivalence**
IEC 60793-1-20, Optical fibres – Part 1-20: Measurement methods and test procedures – Fibre geometry	IS/IEC 60793-1-20:2014, Optical fibres: Part 1 measurement methods and test procedures: Sec 20 fibre geometry (First Revision)	Identical with 60793-1-20:2014.
IEC 60793-1-43, Optical fibres – Part 1-43: Measurement methods and test procedures –Numerical aperture	IS/IEC 60793-1-43:2015, Optical fibres: Part 1 measurement methods and test procedures: Sec 43 numerical aperture measurement (First Revision)	Identical with IEC 60793-1-43:2015.
IEC 60793-1-49, Optical fibres – Part 1-49: Measurement methods and test procedures –Differential mode delay	IS/IEC 60793-1-49:2006, Optical fibres: Part 1 measurement methods and test procedures: Sec 49 differential mode delay	Identical with IEC 60793-1-49:2006.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2:2022 'Rules for rounding off numerical values *(Second Revision)*'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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SCOPE OF IEC 60793-1-41:2024

This part of IEC 60793 describes three methods for determining and measuring the modal bandwidth of multimode optical fibres (see IEC 60793-2-10, IEC 60793-2-30, and the IEC 60793-2-40 series). The baseband frequency response is directly measured in the frequency domain by determining the fibre response to a sinusoidaly modulated light source.

The baseband response can also be measured by observing the broadening of a narrow pulse of light. The calculated response is determined using differential mode delay (DMD) data. The three methods are:

• Method A – Time domain (pulse distortion) measurement
• Method B – Frequency-domain measurement
• Method C – Overfilled launch modal bandwidth calculated from differential mode delay (OMBc)

Method A and method B can be performed using one of two launches: an overfilled launch (OFL) condition or a restricted mode launch (RML) condition. Method C is only defined for A1-
OM3 to A1-OM5 multimode fibres and uses a weighted summation of DMD launch responses
with the weights corresponding to an overfilled launch condition. The relevant test method and
launch condition is chosen according to the type of fibre.

NOTE 1 These test methods are commonly used in production and research facilities and are not easily
accomplished in the field.

(for example, national) standards.

Note: - The Technical content of this document has not been enclosed as these are identical with the corresponding IEC Standard. For details, please refer to IEC 60793-1-41:2024 or kindly contact.

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