Doc No.: LITD 11 (28617)
Draft IEC 60793-1-34:2021
August 2025

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

मसौदा भारतीय मानक

प्रकाशिक तंतु भाग 1 मापन विधियाँ और परिक्षण प्रक्रियाएँ

अनुभाग 34 तन्तु कर्ल

(पहला पुनरीक्षण)

Draft Indian Standard

Optical fibres

Optical fibres: Part 1 measurement methods and test procedures: Sec 34 fibre curl

(first Revision)

ICS 33.180.10

LITD 11 (Fibre Optics, Fibers, Cables and Devices Sectional Committee) | **Last date of Comments 28 October 2025**

NATIONAL FOREWORD

(Formal clauses will be added later)

This Draft Indian Standard *(first Revision*) which is identical with IEC 60793-1-34: 2021 'Optical fibres — Optical fibres: Part 1 measurement methods and test procedures: Sec 34 fibre curl' 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 60793-1-34:2006. The first revision of this standard has been undertaken to align it with the latest version of International Standard IEC 60793-1-41:2021.
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This edition includes the following significant technical changes with respect to the previous edition:
a) modification of several derivation equations for laser scattering;
b) change of angular increment from 10° to 30° to 10° to 45°;
c) change of Annex B from informative to normative.

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 (all parts), Optical fibres	IS/IEC 60793 (all parts), Optical fibres	

International Standards	Title
IEC 60793 (all parts), Optical fibres	Fibre Optics, Fibers, Cables and Devices Sectional Committee

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 60793-1-34:2021

This part of IEC 60793 establishes uniform requirements for the mechanical characteristic: fibre curl or latent curvature in uncoated optical fibres, i.e. a specified length of the fibre has been stripped from coating. Fibre curl has been identified as an important parameter for minimizing the splice loss of optical fibres when using passive alignment fusion splicers or active alignment mass fusion splicers. Two methods are recognized for the measurement of fibre curl, in uncoated optical fibres:
• method A: side view microscopy;
• method B: laser beam scattering.

Both methods measure the radius of curvature of an uncoated fibre by determining the amount of deflection that occurs as an unsupported fibre end is rotated about the fibre's axis. Method A uses visual or digital video methods to determine the deflection of the fibre while method B uses a line sensor to measure the maximum deflection of one laser beam relative to a reference laser beam.

By measuring the deflection behaviour of the fibre as it is rotated about its axis and understanding the geometry of the measuring device, the fibre's radius of curvature can be calculated from simple circular models, the derivation of which are given in Annex C.

Both methods are applicable to type B optical fibres as described in IEC 60793 (all parts).

Method A is the reference test method, used to resolve disputes.

(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 60793-1-34:2021 or kindly contact.

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