

Indian Standard OPTICAL FIBRES

PART 1 MEASUREMENT METHODS AND TEST PROCEDURES

Section 31 Tensile Strength

1 Scope

This part of IEC 60793 provides values of the tensile strength of optical fibre samples and establishes uniform requirements for the mechanical characteristic – tensile strength. The method tests individual lengths of uncabled and unbundled glass optical fibre. Sections of fibre are broken with controlled increasing stress or strain that is uniform over the entire fibre length and cross section. The stress or strain is increased at a nominally constant rate until breakage occurs.

The distribution of the tensile strength values of a given fibre strongly depends on the sample length, loading velocity and environmental conditions. The test can be used for inspection where statistical data on fibre strength is required. Results are reported by means of statistical quality control distribution. Normally the test is carried out after temperature and humidity conditioning of the sample. However, in some cases, it may be sufficient to measure the values at ambient temperature and humidity conditions

This method is applicable to types A1, A2, A3, B and C optical fibres.

Warning – This test involves stretching sections of optical fibre until breakage occurs. Upon breakage, glass fragments can be distributed in the test area. Protective screens are recommended. Safety glasses should be worn at all times in the testing area.

2 Normative references

The following referenced documents are indispensable for the application of this document.

For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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