DRAFT TANZANIA STANDARD

(Draft for comments only)

Optical fibre cables – Part 1-23: Generic specification –
Basic optical cable test procedures – Cable element test methods

TANZANIA BUREAU OF STANDARDS

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First Edition 2019
1 National Foreword

This draft Tanzania Standard is being prepared by the Telecommunications and Information Technology Technical Committee, under the supervision of the Electrotechnical divisional standards committee (EDC)

This draft Tanzania Standard is an adoption of the International Standard IEC 60794-1-23:2017 Optical fibre cables – Part 1-23: Generic specification – Basic optical cable test procedures – Cable element test methods. Which has been prepared by the International Electrotechnical Commission.

2 Terminology and conventions

Some terminologies and certain conventions are not identical with those used in Tanzania standards; attention is drawn especially to the following:

1) The comma has been used as a decimal marker for metric dimensions. In Tanzania Standards, it is current practice to use “full point” on the baseline as the decimal marker.

2) Where the words “International Standard(s)” appear, referring to this standard they should read “Tanzania Standard(s)”. 
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FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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This Redline version is not an official Standard and is intended to provide the user with an indication of what changes have been made to the previous version. Only the IEC International Standard provided in this package is to be considered the official Standard.

This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.
International Standard IEC 60794-1-23 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2012. It constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of a new test method G9: Bleeding and evaporation (formerly known as method E15 in IEC 60794-1-21:2015);
b) addition of a new test method G10A: Stripping force stability of cabled optical fibres (formerly known as method E5A in IEC 60794-1-21:2015);
c) addition of a new test method G10B: Strippability of optical fibre ribbons (formerly known as method E5B in IEC 60794-1-21:2015);
d) addition of a new test method G10C: Strippability of buffered optical fibres (formerly known as method E5C in IEC 60794-1-21:2015);
e) addition of a new test method G11A: Tensile strength and elongation of buffer tubes (included in IEC 60811-501);
f) addition of a new test method G11B: Elongation of buffer tubes at low temperature (included in IEC 60811-505);
g) clarification of the sample preparation procedure in method G5: Ribbon tear (separability);

The text of this International Standard is based on the following documents:

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Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60794 series, published under the general title *Optical fibre cables*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

**IMPORTANT** – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.
OPTICAL FIBRE CABLES

Part 1-23: Generic specification – Basic optical cable test procedures – Cable element test methods

1 Scope and object

This part of IEC 60794 describes test procedures to be used in establishing uniform requirements for the geometrical, material, mechanical, environmental properties of optical fibre cable elements.

This document applies to optical fibre cables for use with telecommunication equipment and devices employing similar techniques, and to cables having a combination of both optical fibres and electrical conductors.

Throughout the document, the wording "optical cable" may can also include optical fibre units, microduct fibre units, etc.

NOTE The environmental testing of optical fibre ribbon would be valuable for some applications. Useful information about suitable test methods can be found in the optical fibre standards IEC 60793-1-50, IEC 60793-1-51, IEC 60793-1-52, and IEC 60793-1-53.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60794-1-2, Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedures – General guidance


IEC 60793-1-40, Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation measurement methods


IEC 60793-1-46, Optical fibres – Part 1-46: Measurement methods and test procedures – Monitoring of changes in optical transmittance
3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at http://www.iso.org/obp

4 General requirements

IEC 60794-1-2 is the reference guide to test methods of all types. It shall be considered for general requirements and definitions.

5 Method G1: Bend test for optical cable elements

5.1 Object

The purpose of this test is to characterize cable elements for splicing purposes by determining the attenuation increase of an optical cable element (fibre, ribbon, core tube, breakout unit, etc.) element when bent within a splice closure or similar device.

5.2 Sample

The length of the sample of optical cable element shall be sufficient to carry out the testing specified.

5.3 Apparatus

The apparatus consists of

a) a mandrel having a smooth surface with diameter as stated in the detail specification, and
b) an attenuation measuring apparatus for the determination of attenuation change (see according to the test methods of IEC 60793-1-40 and IEC 60793-1-46).

5.4 Procedure

The element to be tested shall be loosely wound on the mandrel at minimal tension; the number of turns shall be stated in the detail specification.

In order to measure the attenuation increase caused by bending, allowance should be made for the intrinsic attenuation of the fibre.

5.5 Requirements

Any increase in attenuation shall comply with the limits shown in the detail specification.

5.6 Details to be specified

The detail specification shall include the following:

a) optical test wavelength;
b) diameter of the mandrel;
Optical fibre cables –
Part 1-23: Generic specification – Basic optical cable test procedures – Cable element test methods

Câbles à fibres optiques –
Partie 1-23: Spécification générale – Procédures fondamentales d’essai des câbles optiques – Méthodes d’essai des éléments de câble
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FOREWORD

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International Standard IEC 60794-1-23 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2012. It constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of a new test method G9: Bleeding and evaporation (formerly known as method E15 in IEC 60794-1-21:2015);

b) addition of a new test method G10A: Stripping force stability of cabled optical fibres (formerly known as method E5A in IEC 60794-1-21:2015);

c) addition of a new test method G10B: Strippability of optical fibre ribbons (formerly known as method E5B in IEC 60794-1-21:2015);

d) addition of a new test method G10C: Strippability of buffered optical fibres (formerly known as method E5C in IEC 60794-1-21:2015);
e) addition of a new test method G11A: Tensile strength and elongation of buffer tubes (included in IEC 60811-501);
f) addition of a new test method G11B: Elongation of buffer tubes at low temperature (included in IEC 60811-505);
g) clarification of the sample preparation procedure in method G5: Ribbon tear (separability);

The text of this International Standard is based on the following documents:

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Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60794 series, published under the general title *Optical fibre cables*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under ”http://webstore.iec.ch” in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

**IMPORTANT –** The ‘colour inside’ logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.
1 Scope

This part of IEC 60794 describes test procedures to be used in establishing uniform requirements for the geometrical, material, mechanical, environmental properties of optical fibre cable elements.

This document applies to optical fibre cables for use with telecommunication equipment and devices employing similar techniques, and to cables having a combination of both optical fibres and electrical conductors.

Throughout the document, the wording "optical cable" can also include optical fibre units, microduct fibre units, etc.

NOTE The environmental testing of optical fibre ribbon would be valuable for some applications. Useful information about suitable test methods can be found in the optical fibre standards IEC 60793-1-50, IEC 60793-1-51, IEC 60793-1-52, and IEC 60793-1-53.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60794-1-2, Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedures – General guidance


IEC 60793-1-40, Optical fibres – Part 1-40: Attenuation measurement methods

IEC 60793-1-46, Optical fibres – Part 1-46: Measurement methods and test procedures – Monitoring of changes in optical transmittance


3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses: