DRAFT TANZANIA STANDARD

(Draft for comments only)

Optical fibre cables - Part 1-24: Generic specification - Basic optical cable test procedures - Electrical test methods

TANZANIA BUREAU OF STANDARDS
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).


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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INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES – Part 1-1: Generic

specification – General

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.

2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

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DISCLAIMER

This Redline version is not an official IEC Standard and is intended only to provide the user with an indication of what changes have been made to the previous version. Only the current version of the standard is to be considered the official document.

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

This fourth edition cancels and replaces the third edition, published in 2011. This edition constitutes a technical revision.

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

a) the expansion of the definitions, graphical symbols, terminology and abbreviations content, with the aim of making this standard the default and reference for all others in the IEC 60794-x series;

b) the inclusion of updated and expanded optical fibre, attenuation and bandwidth sections, with the aim of making this standard the default and reference for all others in the IEC 60794-x series.

The text of this standard is based on the following documents:

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

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.

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

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

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

A bilingual version of this publication may be issued at a later date.

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

The object of this standard is to establish uniform generic requirements for the geometrical, transmission, material, mechanical, ageing (environmental exposure), climatic and electrical properties of optical fibre cables and cable elements, where appropriate.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60189-1, Low-frequency cables and wires with PVC insulation and PVC sheath – Part 1: General test and measuring methods

IEC 60304, Standard colours for insulation for low-frequency cables and wires

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


IEC 60793-1-44, Optical fibres – Part 1-44: Measurement methods and test procedures – Cut-off wavelength

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


IEC 60793-2, Optical fibres – Part 2: Product specifications – General

IEC 60794-1-21, Optical fibre cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical tests methods


IEC TR 61931, Fibre optic – Terminology

ISO 14001, Environmental management systems – Requirements with guidance for use

ISO 14064-1, Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 no change in attenuation

acceptance criterion for attenuation measurement that includes an allowance for measurement uncertainty arising from measurement errors or calibration errors due to a lack of suitable reference standards

Note 1 to entry: For a practical interpretation, see IEC 60794-1-20 the following values shall be used:

a) no change in attenuation, single-mode (Class B): the total uncertainty of measurement shall be ≤ ± 0,05 dB for attenuation or ≤ ± 0,05 dB/km for attenuation coefficient. Any measured value within this range shall be considered as “no change in attenuation”.

The requirement for these parameters is indicated as “No change (≤ ± 0,05 dB or ≤ ± 0,05 dB/km)”. 
Optical fibre cables –
Part 1-1: Generic specification – General

Câbles à fibres optiques –
Partie 1-1: Spécification générique – Généralités
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The French version of this standard has not been voted upon.

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a) no change in attenuation, single-mode (Class B): the total uncertainty of measurement shall be $\leq \pm 0.05$ dB for attenuation or $\leq \pm 0.05$ dB/km for attenuation coefficient. Any measured value within this range shall be considered as “no change in attenuation”

The requirement for these parameters is indicated as “No change ($\leq \pm 0.05$ dB or $\leq \pm 0.05$ dB/km)”. By agreement between customer and supplier, minor deviation from this limit may be accepted at some low frequency, e.g. less than 10%. However for mechanical tests no deviation in excess of 0.15 dB shall be accepted. For environmental tests no deviation in excess of 0.10 dB/km shall be accepted.

b) no change in attenuation, multimode (Category A1): the total uncertainty of measurement shall be $\leq \pm 0.2$ dB for attenuation or $\leq \pm 0.2$ dB/km for attenuation coefficient

Any measured value within this range shall be considered as “no change in attenuation”.

The requirement for these parameters is indicated as “No change ($\leq \pm 0.2$ dB or $\leq \pm 0.2$ dB/km)”. By agreement between customer and supplier, minor deviation from this limit may be accepted at some low frequency, e.g. less than 10%. However for mechanical tests no deviation in excess of 0.5 dB shall be accepted. For environmental tests no deviation in excess of 0.5 dB/km shall be accepted.

c) no change in attenuation, plastic optical fibre (Category A4): the total uncertainty of measurement for this standard shall be $\leq 2$ % of maximum specified attenuation in IEC 60793-2-40 Annex A to G

Any measured value within this range shall be considered as “no change in attenuation”.

3.2 allowable change in attenuation
<during mechanical and environmental tests> change in attenuation that may be a value larger than the no change limits, depending on fibre category, single-mode or multimode, cable design and application