

# **DRAFT TANZANIA STANDARD**

## (Draft for comments only)

## **Optical amplifiers - Part 1: Generic specification**

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### **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 61291-1:2018 Optical amplifiers - Part 1: Generic specification, 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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### **OPTICAL AMPLIFIERS –**

### Part 1: Generic specification

#### 1 Scope

This part of IEC 61291 applies to all commercially available optical amplifiers (OAs) and optically amplified assemblies. It applies to OAs using optically pumped fibres (OFAs based either on rareearth doped fibres or on the Raman effect), semiconductors (SOAs), and waveguides (POWAs).

The object of this document is

- to establish uniform requirements for transmission, operation, reliability and environmenta properties of OAs, and
- to provide assistance to the purchaser in the selection of consistently high-quality OA products for his particular applications.

Parameters specified for OAs are those characterizing the transmission, operation, reliability and environmental properties of the OA seen as a "black box" from a general point of view. In the sectional and detail specifications a subset of these parameters will be specified according to the type and application of the particular OA device or assembly.

#### 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 60050-731, International Electrotechnical Vocabulary – Chapter 731: Optical fibre communication (available at http://www.electropedia.org)

IEC 61290 (all parts), Optical amplifiers - Test methods

IEC 61290-1-1, Optical amplifiers – Test methods – Part 1-1: Power and gain parameters – Optical spectrum analyzer method

IEC 61290-1-2, Optical amplifiers – Test methods – Part 1-2: Power and gain parameters – Electrical spectrum analyzer method

IEC 61290-1-3, Optical amplifiers – Test methods – Part 1-3: Power and gain parameters – Optical power meter method

IEC 61290-3-1, Optical amplifiers – Test methods – Part 3-1: Noise figure parameters – Optical spectrum analyzer method

IEC 61290-3-2, Optical amplifiers – Test methods – Part 3-2: Noise figure parameters – Electrical spectrum analyzer method

IEC 61290-4-1, Optical amplifiers – Test methods – Part 4-1: Gain transient parameters – Two wavelength method

IEC 61290- 4-2, Optical amplifiers – Test methods – Part 4-2: Gain transient parameters – Broadband source method

IEC 61290-4-3, Optical amplifiers – Test methods – Part 4-3: Power transient parameters – Single channel optical amplifiers in output power control

IEC 61290-5-1, Optical amplifiers – Test methods – Part 5-1: Reflectance parameters – Optical spectrum analyzer method

IEC 61290-5-2, Optical amplifiers – Test methods – Part 5-2: Reflectance parameters – Electrical spectrum analyzer method

IEC 61290- 5-3, Optical fibre amplifiers – Basic specification– Part 5-3: Test methods for reflectance parameters – Reflectance tolerance using an electrical spectrum analyzer

IEC 61290-6-1, Optical fibre amplifiers – Basic specification – Part 6-1: Test methods for pump leakage parameters – Optical demultiplexer

IEC 61290-7-1, Optical amplifiers – Test methods – Part 7-1: Out-of-band insertion losses – Filtered optical power meter method

IEC 61290-10 -1, Optical amplifiers – Test methods – Part 10-1: Multichannel parameters – Pulse method using an optical switch and optical spectrum analyzer

IEC 61290-10 -2, Optical amplifiers – Test methods – Part 10-2: Multichannel parameters – Pulse method using a gated optical spectrum analyzer

IEC 61290-10-3, Optical amplifiers – Test methods – Part 10-3: Multichannel parameters – Probe methods

IEC 61290-10-4, Optical amplifiers – Test methods – Part 10-4: Multichannel parameters – Interpolated source subtraction method using an optical spectrum analyzer

IEC 61290- 10-5, Optical amplifiers – Test methods – Part 10-5: Multichannel parameters – Distributed Raman amplifier gain and noise figure

IEC 61290 -111, Optical amplifiers – Test methods – Part 11-1: Polarization mode dispersion parameter – Jones matrix eigenanalysis (JME)

IEC 61290 -11-2, Optical amplifiers – Test methods – Part 11-2: Polarization mode dispersion parameter – Poincaré sphere analysis method

IEC 61291-5 -2, Optical amplifiers – Part 5-2: Qualification specifications – Reliability qualification for optical fibre amplifiers

IEC TR 61931, Fibre optic – Terminology

#### Terms, definitions and abbreviated terms 3

#### 3.1 **Overview**

The definitions listed in 3.2 refer to the meaning of the terms used in the specifications of OAs. Only those parameters listed in the appropriate specification template, as in IEC 61291-2 and IEC 61291-4, are intended to be specified.

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