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Optical amplifiers –
Part 12: Fibre amplifiers for space division multiplexing transmission

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IEC TR 61292-12 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics. It is a Technical Report.

External document OITDA/TP 33/AM [1] [1]has served as a basis for the elaboration of this document.

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1 Numbers in square brackets refer to the Bibliography.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
86C/1807/DTR	86C/1819/RVDTR

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

The language used for the development of this Technical Report is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 61292 series, published under the general title *Optical amplifiers*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

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- withdrawn,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

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INTRODUCTION

Optical amplifiers (OAs) are essential components for designing long-haul optical transmission systems, for which many standards have been published. Recently, research has been conducted to develop higher data rate fibre optic transmission systems using space division multiplexing (SDM) with multi-core and few-mode optical fibres. A development effort is also underway to fabricate optical fibre amplifiers (OFAs) for SDM, which are necessary for extending the transmission distance. The OFAs varieties include multi-core optical fibre amplifiers, few-mode optical fibre amplifiers, and multi-core and few-mode optical fibre amplifiers. This document provides a better understanding of OFAs for SDM fibre transmission systems.

NOTE Few-mode fibres are special types of multimode fibres.

OPTICAL AMPLIFIERS –

Part 12: Fibre amplifiers for space division multiplexing transmission

1 Scope

This part of IEC 61292, which is a Technical Report, provides general information on optical fibre amplifiers for space division multiplexed transmission systems using multi-core, few-mode, and multi-core and few-mode optical fibres. This document describes the classification, concepts, configurations, and implementations of these amplifiers as well as state-of-the-art development technologies, specific features and measurement methods.

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 (IEV) – Part 731: Optical fibre communication*

IEC 61291-1, *Optical amplifiers – Part 1: Generic specification*

IEC TR 61931, *Fibre optic – Terminology*