TECHNICAL REPORT

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Optical amplifier technical reports –

Part 2:
Theoretical background for noise figure evaluation using the electrical spectrum analyzer

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OPTICAL AMPLIFIER TECHNICAL REPORTS –

Part 2: Theoretical background for noise figure evaluation using the electrical spectrum analyzer

FOREWORD

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IEC 61292-2, which is a technical report, has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
86C/418/DTR	86C/474/RVC

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

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 2008. At this date, the publication will be

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- withdrawn;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

INTRODUCTION

This Technical Report should be read in conjunction with IEC 61290-3-2. To enhance the clarity of this document, some of the text in document 61290-3-2 is repeated here. Definitions of many terms and parameters contained in this Technical Report can be found in IEC 61291-1.

Each abbreviation introduced in this Technical Report is generally explained in the text the first time it appears. However, for an easier understanding of the whole text, a list of the abbreviations used in this Technical Report is given in Annex A.

OPTICAL AMPLIFIER TECHNICAL REPORTS –

Part 2: Theoretical background for noise figure evaluation using the electrical spectrum analyzer

1 Scope and object

This Technical Report applies to all commercially available optical amplifiers (Oas) including optical fibre amplifiers (OFAs) using active fibres and semiconductor optical amplifiers (SOAs) using semiconductor gain media.

The object of this Technical Report is to provide the theoretical background to Clause 6 (Calculation) of IEC 61290-3-2.

2 Normative references

The following referenced documents are indispensable for the application 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 61290-3: *Optical fibre amplifiers – Basic specification – Test methods for noise figure parameters*

IEC 61290-3-2: *Optical fibre amplifier test methods – Part 3-2: Noise figure parameters – Electrical spectrum analyzer method*

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