

STN	Optické zosilňovače. Skúšobné metódy. Časť 3-3: Parametre šumového čísla. Pomer výkonu signálu k celkovému výkonu ASE.	STN EN 61290-3-3 35 9271
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Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Obsahuje: EN 61290-3-3:2014, IEC 61290-3-3:2013

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61290-3-3

February 2014

ICS 33.180.30

English version

**Optical amplifiers -
Test methods -
Part 3-3: Noise figure parameters -
Signal power to total ASE power ratio
(IEC 61290-3-3:2013)**

Amplificateurs optiques -
Méthodes d'essais -
Partie 3-3: Paramètres du facteur
de bruit -
Rapport puissance du signal sur
puissance totale d'ESA
(CEI 61290-3-3:2013)

Lichtwellenleiter-Verstärker –
Prüfverfahren -
Teil 3-3: Rauschzahlparameter -
Verhältnis der Signalleistung zur Gesamt-
ASE-Leistung
(IEC 61290-3-3:2013)

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Foreword

The text of document 86C/1121/CDV, future edition 1 of IEC 61290-3-3, prepared by SC 86C, "Fibre optic systems and active devices", of IEC/TC 86, "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61290-3-3:2014.

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- | | | |
|---------------|------|-----------------------------|
| IEC 61290-3-1 | NOTE | Harmonized as EN 61290-3-1. |
| IEC 61290-3-2 | NOTE | Harmonized as EN 61290-3-2. |

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61290-3	-	Optical amplifiers - Test methods - Part 3: Noise figure parameters	EN 61290-3	-
IEC 61291-1	2012	Optical amplifiers - Part 1: Generic specification	EN 61291-1	2012



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Optical amplifiers – Test methods –
Part 3-3: Noise figure parameters – Signal power to total ASE power ratio**

**Amplificateurs optiques – Méthodes d'essais –
Partie 3-3: Paramètres du facteur de bruit – Rapport puissance du signal sur
puissance totale d'ESA**



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INTERNATIONAL STANDARD

NORME INTERNATIONALE



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Part 3-3: Noise figure parameters – Signal power to total ASE power ratio**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**OPTICAL AMPLIFIERS –
TEST METHODS –****Part 3-3: Noise figure parameters –
Signal power to total ASE power ratio**

FOREWORD

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International Standard IEC 61290-3-3 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

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

CDV	Report on voting
86C/1121/CDV	86C/1184/RVC

Full information on the voting for the approval of this standard 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.

A list of all parts in the IEC 61290 series, published under the general title *Optical amplifiers – Test methods*, can be found on the IEC website.

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OPTICAL AMPLIFIERS – TEST METHODS –

Part 3-3: Noise figure parameters – Signal power to total ASE power ratio

1 Scope and object

This part of IEC 61290-3 applies to all commercially available single channel optical amplifiers (OAs), including OAs using optically pumped fibres (OFAs) based on either rare-earth doped fibres or on the Raman effect, semiconductor optical amplifier modules (SOA modules) and planar optical waveguide amplifiers (POWAs). More specifically, it applies to single channel OAs placed before optical receivers, where there are no optical bandpass filtering elements placed between the OA and the receiver.

The object of this part of IEC 61290-3 is to establish uniform requirements for accurate and reliable measurement of the ratio of the signal output power to the total ASE power generated by the OA in the optical bandwidth of the receiver. This quantity is a measure of the spontaneous-spontaneous beat noise at the receiver, and is correlated to the spontaneous-spontaneous noise factor of the OA, $F_{\text{sp-sp}}$, as defined in IEC 61290-3 and IEC 61291-1.

IEC 61290-3-1 describes a measurement method, using an optical spectrum analyzer, OSA, for the signal-spontaneous noise factor $F_{\text{sig-sp}}$ but does not describe a method for measuring $F_{\text{sp-sp}}$. IEC 61290-3-2 describes a measurement method, using an electrical spectrum analyzer (ESA), for the total noise factor $F_{\text{sp-sp}} + F_{\text{sig-sp}}$. However, this method does not allow $F_{\text{sp-sp}}$ to be measured separately, and therefore does not provide a means of directly quantifying the effect of spontaneous-spontaneous beat noise at the receiver. This part of IEC 61290-3 complements IEC 61290-3-1 and IEC 61290-3-2 in that it provides such a means.

Two measurement methods are provided for the ratio of the signal output power to the total ASE power. The first method uses an OSA, while the second method uses a bandpass filter and an optical power meter.

2 Normative references

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IEC 61290-3, *Optical amplifiers – Test methods – Part 3: Noise figure parameters*

IEC 61291-1:2012, *Optical fibre amplifiers – Part 1: Generic specification*

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