

BS EN 62149-3:2014



BSI Standards Publication

Fibre optic active components and devices - Performance standards

Part 3: Modulator-integrated laser diode transmitters for 2,5-Gbit/s to 40-Gbit/s fibre optic transmission systems

bsi.

...making excellence a habit.
AVA Documents™
Document Sharing Hub

National foreword

This British Standard is the UK implementation of EN 62149-3:2014. It is identical to IEC 62149-3:2014. It supersedes BS EN 62149-3:2004 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee GEL/86, Fibre optics, to Subcommittee GEL/86/3, Fibre optic systems and active devices.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2014.
Published by BSI Standards Limited 2014

ISBN 978 0 580 82163 9
ICS 33.180.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2014.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 62149-3

July 2014

ICS 33.180.20

Supersedes EN 62149-3:2004

English Version

**Fibre optic active components and devices - Performance
standards - Part 3: Modulator-integrated laser diode transmitters
for 2,5-Gbit/s to 40-Gbit/s fibre optic transmission systems
(IEC 62149-3:2014)**

Composants et dispositifs actifs à fibres optiques - Normes
de performances - Partie 3: Émetteurs à diodes laser à
modulateur intégré pour des systèmes de transmission à
fibres optiques de 2,5 Gbit/s à 40 Gbit/s
(CEI 62149-3:2014)

Aktive Lichtwellenleiterbauelemente und -geräte -
Betriebsverhalten - Teil 3: Laserdiodensender mit
integriertem Modulator für 2,5-Gbit/s- bis 40-Gbit/s-
Lichtwellenleiter-Übertragungssysteme
(IEC 62149-3:2014)

This European Standard was approved by CENELEC on 2014-06-30. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 86C/1157/CDV, future edition 2 of IEC 62149-3, 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 62149-3:2014.

The following dates are fixed:

- latest date by which the document has to be (dop) 2015-03-30
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2017-06-30
standards conflicting with the
document have to be withdrawn

This document supersedes EN 62149-3:2004.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62149-3:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068 Series	NOTE	Harmonized as EN 60068 Series.
IEC 60793 Series	NOTE	Harmonized as EN 60793 Series.
IEC 60825 Series	NOTE	Harmonized as EN 60825 Series.
IEC 60874 Series	NOTE	Harmonized as EN 60874 Series.
IEC 62572-2	NOTE	Harmonized as EN 62572-2.
IEC 62572-3	NOTE	Harmonized as EN 62572-3.
IEC 61280 Series	NOTE	Harmonized as EN 61280 Series.
IEC 62007-2	NOTE	Harmonized as EN 62007-2.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-1	-	Environmental testing -- Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing -- Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-6	-	Environmental testing -- Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-14	-	Environmental testing -- Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	-
IEC 60068-2-27	-	Environmental testing -- Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-78	-	Environmental testing -- Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60749-7	-	Semiconductor devices - Mechanical and climatic test methods -- Part 7: Internal moisture content measurement and the analysis of other residual gases	EN 60749-7	-
IEC 60749-26	-	Semiconductor devices - Mechanical and climatic test methods -- Part 26: Electrostatic discharge (ESD) sensitivity testing - Human body model (HBM)	EN 60749-26	-
IEC 60825-1	-	Safety of laser products -- Part 1: Equipment classification and requirements	EN 60825-1	-
IEC 60950-1	-	Information technology equipment - Safety -- Part 1: General requirements	EN 60950-1	-
IEC 62007-1	-	Semiconductor optoelectronic devices for fibre optic system applications - Part 1: Specification template for essential ratings and characteristics	EN 62007-1	-
ITU-T G.694-1	-	Spectral grids for WDM applications: DWDM frequency grid	-	-
MIL-STD-883	-	Test methods and procedures for microelectronics	-	-

CONTENTS

INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms, definitions and symbols	7
3.1 Terms and definitions.....	7
3.2 Symbols.....	7
4 Product parameters	7
4.1 Absolute limiting ratings.....	7
4.2 Operating environment.....	8
4.3 Functional specification	8
4.4 Diagrams	10
5 Testing	10
5.1 General.....	10
5.2 Characterization testing	10
5.3 Performance testing.....	11
6 Environmental specifications	13
6.1 General safety	13
6.2 Laser safety	13
Bibliography.....	14
Figure 1 – Schematic diagram	10
Table 1 – Absolute limiting ratings	8
Table 2 – Operating environment	8
Table 3 – Operating conditions for functional specification	8
Table 4 – Functional specification	9
Table 5 – Characterization tests	11
Table 6 – Performance test plan	12
Table 7 – Recommended performance test failure criteria.....	13