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Irish Standard  
I.S. EN 62148-16:2009

# Fibre optic active components and devices - Package and interface standards -- Part 16: Transmitter and receiver components for use with LC connector interface (IEC 62148-16:2009 (EQV))

## I.S. EN 62148-16:2009

*Incorporating amendments/corrigenda issued since publication:*

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 62148-16**

December 2009

ICS 33.180.20

English version

**Fibre optic active components and devices -  
Package and interface standards -  
Part 16: Transmitter and receiver components  
for use with LC connector interface  
(IEC 62148-16:2009)**

Composants et dispositifs actifs  
à fibres optiques -  
Normes de boîtier et d'interface -  
Partie 16: Composants d'émetteurs  
et de récepteurs destinés à être utilisés  
avec l'interface des connecteurs LC  
(CEI 62148-16:2009)

Aktive Lichtwellenleiterbauelemente  
und -geräte -  
Gehäuse- und Schnittstellennormen -  
Teil 16: Sende- und Empfangsmodule  
für Schnittstellen mit LC-Steckverbinder  
(IEC 62148-16:2009)

This European Standard was approved by CENELEC on 2009-10-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

**Central Secretariat: Avenue Marnix 17, B - 1000 Brussels**

**I.S. EN 62148-16:2009**

EN 62148-16:2009

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## **Foreword**

The text of document 86C/884/FDIS, future edition 1 of IEC 62148-16, 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 was approved by CENELEC as EN 62148-16 on 2009-10-01.

This standard is to be used in conjunction with EN 62148-1.

The following dates were fixed:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2010-07-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2012-10-01

Annex ZA has been added by CENELEC.

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## **Endorsement notice**

The text of the International Standard IEC 62148-16:2009 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 60191	NOTE	Harmonized in EN 60191 series (not modified).
IEC 61281-1	NOTE	Harmonized as EN 61281-1:2009 (not modified).
ISO 1101	NOTE	Harmonized as EN ISO 1101:2005 (not modified).

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

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 61754-20	2002	Fibre optic connector interfaces - Part 20: Type LC connector family	EN 61754-20	2002
IEC 62148-1	- <sup>1)</sup>	Fibre optic active components and devices - Package and interface standards - Part 1: General and guidance	EN 62148-1	2002 <sup>2)</sup>
IEC Guide 107	1998 <sup>3)</sup>	Electromagnetic compatibility - Guide to the drafting of electromagnetic compatibility publications	-	-

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<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

<sup>3)</sup> IEC Guide 107:1998 is superseded by IEC Guide 107:2009.

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBER OPTIC ACTIVE COMPONENTS AND DEVICES –  
PACKAGE AND INTERFACE STANDARDS –****Part 16: Transmitter and receiver components  
for use with the LC connector interface**

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International standard IEC 62148-16 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

This standard is to be read in conjunction with IEC 62148-1.

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

FDIS	Report on voting
86C/884/FDIS	86C/904/RVD

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.

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A list of all parts of the IEC 62148 series, published under the general title *Fibre optic active components and devices – Package and interface standards*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

## INTRODUCTION

Compact optical sub-assembly (OSA) modules for 10 Gbit/s are used to convert electrical signals into optical signals and vice-versa. This standard covers the physical interface for 10-Gbit/s compact OSA modules. These modules are designed for use with the LC fibre optic connector specified in IEC 61754-20, and are intended to be applied to XFP modules.

## **FIBER OPTIC ACTIVE COMPONENTS AND DEVICES – PACKAGE AND INTERFACE STANDARDS –**

### **Part 16: Transmitter and receiver components for use with the LC connector interface**

#### **1 Scope**

This part of IEC 62148 covers physical interface specification of transmitter and receiver components for use with LC connector interface.

The intent of this part of IEC 62148 is to adequately specify the physical requirements of an optical transmitter and receiver that will enable mechanical interchangeability of transmitters and receivers complying with this standard both at the PCB and for any panel-mounting requirement.

#### **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 61754-20:2002, *Fibre optic connector interfaces – Part 20: Type LC connector family*

IEC 62148-1: *Fiber optic active components and devices – Package and interface standards – Part 1: General and guidance*

IEC Guide 107: 1998, *Electromagnetic compatibility – Guide to the drafting of electromagnetic compatibility publications*

#### **3 Terms, definitions and abbreviations**

For the purposes of this document, the following terms, definitions and abbreviations apply.

##### **3.1 Terms and definitions**

###### **3.1.1**

###### **TOSA module**

an optical module that converts electrical signals into optical signals and that is connected to an optical fibre

###### **3.1.2**

###### **ROSA module**

an optical module that converts optical signals into electrical signals and that is connected to an optical fibre

##### **3.2 Abbreviations**

FPC	flexible printed circuit
LD	laser diode
OSA	optical sub-assembly
PCB	printed circuit board

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