



NSAI
Standards

Irish Standard
I.S. EN 62496-2-1:2011

Optical circuit boards -- Part 2-1: Measurements - Optical attenuation and isolation (IEC 62496-2-1:2011 (EQV))

I.S. EN 62496-2-1:2011

Incorporating amendments/corrigenda issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

<i>This document replaces:</i>	<i>This document is based on:</i> EN 62496-2-1:2011	<i>Published:</i> 23 September, 2011
This document was published under the authority of the NSAI and comes into effect on: 28 September, 2011		ICS number: 33.180.01
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Údarás um Chaighdeáin Náisiúnta na hÉireann		

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 62496-2-1

September 2011

ICS 33.180.01

English version

**Optical circuit boards -
Part 2-1: Measurements -
Optical attenuation and isolation
(IEC 62496-2-1:2011)**

Cartes à circuits optiques -
Partie 2-1: Mesures -
Affaiblissement et isolation optiques
(CEI 62496-2-1:2011)

Optische Leiterplatten -
Teil 2-1: Messungen -
Optische Dämpfung und Isolation
(IEC 62496-2-1:2011)

This European Standard was approved by CENELEC on 2011-09-01. 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.

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

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

I.S. EN 62496-2-1:2011

EN 62496-2-1:2011

- 2 -

Foreword

The text of document (86/396/FDIS), future edition 1 of IEC 62496-2-1, prepared by IEC TC 86, "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62496-2-1:2011.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2012-06-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2014-09-01

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 62496-2-1:2011 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 60793-1-1	NOTE	Harmonized as EN 60793-1-1.
IEC 60794-1-1	NOTE	Harmonized as EN 60794-1-1.
IEC 61280-4-1	NOTE	Harmonized as EN 61280-4-1.
IEC 61300-3-35	NOTE	Harmonized as EN 61300-3-35.

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 60793-2-10	-	Optical fibres - Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres	EN 60793-2-10	-
IEC 60793-2-50	-	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN 60793-2-50	-
IEC 60825-1	-	Safety of laser products - Part 1: Equipment classification and requirements	EN 60825-1	-
IEC 61300-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 1: General and guidance	EN 61300-1	-
IEC 61300-3-1	2005	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-1: Examinations and measurements - Visual examination	EN 61300-3-1	2005
IEC 61300-3-4	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-4: Examinations and measurements - Attenuation	EN 61300-3-4	-
IEC 62496-1	2008	Optical circuit boards - Part 1: General	EN 62496-1	2009
IEC 62614	-	Fibre optics - Launch condition requirements for measuring multimode attenuation	EN 62614	-
ISO 3599	-	Vernier callipers reading to 0,1 and 0,05 mm	-	-
ISO 6906	-	Vernier callipers reading to 0,02 mm	-	-

This page is intentionally left BLANK.

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Precautions	6
4 Apparatus.....	7
4.1 Launch conditions and source (S)	7
4.2 Power-meter (D).....	7
4.3 Optical fibre (OF)	8
4.4 Mode filter (MF).....	8
4.5 Optical direction changing device (OD).....	9
4.6 Temporary joint (TJ).....	9
5 Procedure	10
5.1 Pre-conditioning	10
5.2 Visual inspection	11
5.3 Connectivity inspection.....	11
5.4 OCB configurations and measurement methods	11
5.5 Attenuation measurement with a power-meter	13
5.5.1 General	13
5.5.2 Cut-back method	13
5.5.3 Insertion method (A).....	15
5.5.4 Insertion method (B).....	23
5.6 Isolation measurement with a power-meter.....	25
5.6.1 Insertion method (C).....	26
5.6.2 Insertion method (D).....	31
5.7 Mirror loss measurement.....	32
6 Details to be specified	33
Bibliography.....	34
Figure 1 – Launch apparatus for butt-joint connection, (a) without OD, (b) with OD.....	10
Figure 2 – Cut-back method – Configuration A.....	14
Figure 3 – Cut-back method – Configuration B.....	15
Figure 4 – Insertion method (A) – Configuration A	16
Figure 5 – Insertion method (A), multi port sequential measurements – Configuration A	17
Figure 6 – Insertion method (A) – Configuration B	18
Figure 7 – Insertion method (A) – Configuration C-1	19
Figure 8 – Insertion method (A) – Configuration C-2	20
Figure 9 – Insertion method (A) – Configuration D	21
Figure 10 – Insertion method (A) – Configuration E.....	22
Figure 11 – Insertion method (A) – Configuration E.....	23
Figure 12 – Insertion method (B) – Configuration A.....	24
Figure 13 – Insertion method (B) – Configuration C-1	25
Figure 14 – Insertion method (C) – Configuration A	26
Figure 15 – Insertion method (C) – Configuration B	27
Figure 16 – Insertion method (C) – Configuration C-1	28

Figure 17 – Insertion method (C) – Configuration D	29
Figure 18 – Insertion method (C) – Configuration E	30
Figure 19 – Insertion method (C) – Configuration E	31
Figure 20 – Insertion method (D) – Configuration A	32
Figure 21 – Mirror loss measurement.....	33
Table 1 – Preferred source and launch conditions.....	7
Table 2 – Preferred launching and receiving fibres	8
Table 3 – Measurement methods of attenuations	11
Table 4 – Measurement methods of isolations	12

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL CIRCUIT BOARDS –**Part 2-1: Measurements –
Optical attenuation and isolation**

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62496-2-1 has been prepared by IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86/396/FDIS	86/401/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.

A list of all parts of the IEC 62496 series, published under the general title *Optical circuit boards* can be found on the IEC website.

I.S. EN 62496-2-1:2011

62496-2-1 © IEC:2011

– 5 –

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-