



NSAI
Standards

Irish Standard
I.S. EN 62496-2-4:2013

Optical circuit boards - Basic test and measurement procedures -- Part 2-4: Optical transmission test for optical circuit boards without input/output fibres (IEC 62496-2-4:2013 (EQV))

I.S. EN 62496-2-4:2013

Incorporating amendments/corrigenda issued since publication:

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<i>This document replaces:</i>	<i>This document is based on:</i> EN 62496-2-4:2013	<i>Published:</i> 30 August, 2013
This document was published under the authority of the NSAI and comes into effect on: 5 September, 2013		ICS number: 33.180.01
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EUROPEAN STANDARD

EN 62496-2-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2013

ICS 33.180.01

English version

**Optical circuit boards -
Basic test and measurement procedures -
Part 2-4: Optical transmission test for optical circuit boards
without input/output fibres
(IEC 62496-2-4:2013)**

Cartes à circuits optiques -
Procédures fondamentales d'essais et de
mesures -
Partie 2-4: Essai de transmission optique
des cartes à circuits optiques sans fibres
d'entrée/sortie
(CEI 62496-2-4:2013)

Optische Leiterplatten -
Grundlegende Prüf- und Messverfahren -
Teil 2-4: Optische Übertragungsprüfung
für optische Leiterplatten ohne Eingangs-
/Ausgangsfasern
(IEC 62496-2-4:2013)

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CENELEC

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 86/449/FDIS, future edition 1 of IEC 62496-2-4, prepared by IEC TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62496-2-4:2013.

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) 2014-04-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-07-23

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Endorsement notice

The text of the International Standard IEC 62496-2-4:2013 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 62496-2-1	NOTE	Harmonised as EN 62496-2-1.
IEC 60793-2	NOTE	Harmonised as EN 60793-2.
IEC 62496	NOTE	Harmonised in EN 62496 series (not modified).

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 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 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-

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CONTENTS

FOREWORD	4
1 Scope	6
2 Normative references	6
3 Terms, definitions and abbreviations	6
3.1 Terms and definitions	6
3.2 Abbreviations	7
4 Measurement conditions	7
5 Inspection methods	8
5.1 Equipment	8
5.1.1 Light source system	9
5.1.2 Observation system	10
5.1.3 Data processing unit	11
5.1.4 Unit for holding the sample	12
5.2 Measurement procedures of relative optical loss	12
5.2.1 Preparation of light source	12
5.2.2 Preparation of the optical observation system measuring equipment	13
5.2.3 Measuring coordinates of I/O ports	13
5.2.4 Capturing of optical images for control sample and samples to be measured	13
5.2.5 Image data processing (detection of I/O port range)	14
5.2.6 Calculation of relative loss	14
5.3 Evaluation of pass or fail	15
Annex A (informative) Example of an optical transmission test for an OCB without I/O fibres	16
Annex B (informative) Measurement of input and output ports in offset positions	19
Bibliography	21
Figure 1 – Optical transmission test system without I/O fibres for surface I/O type OCB	8
Figure 2 – Optical transmission test system without I/O fibres for end-face I/O type OCB	9
Figure 3 – Schematic diagram of measurement of uniformity of illumination area	10
Figure 4 – Example of obtained uniformity of illumination area	10
Figure 5 – Example of obtained sensitivity of an image sensor (input uniformity within 1 %)	11
Figure 6 – Position alignment of light source	13
Figure 7 – Example of captured image and extracted I/O port range by image binarization	14
Figure 8 – Calculation of the total detected intensity of extracted I/O port range from detected intensity for each pixel	15
Figure A.1 – Example of relative optical loss measurement	17
Figure A.2 – Example of reproducibility of relative optical loss measurement	18
Figure B.1 – Ray traces for OCBs with mirror having designated mirror angle (left) and not designated one (right)	19
Figure B.2 – Difference of focus positions between without offset and with offset	20
Figure B.3 – Optical images at surface of OCB plane (without offset) and offset position (with offset)	20

Table A.1 – Observation system	16
Table A.2 – Light source	16
Table A.3 – Samples to be measured.....	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**OPTICAL CIRCUIT BOARDS –
BASIC TEST AND MEASUREMENT PROCEDURES –**
**Part 2-4: Optical transmission test for optical circuit boards
without input/output fibres**

FOREWORD

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International Standard IEC 62496-2-4 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
86/449/FDIS	86/456/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 – Basic test and measurement procedures*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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.

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OPTICAL CIRCUIT BOARDS – BASIC TEST AND MEASUREMENT PROCEDURES –

Part 2-4: Optical transmission test for optical circuit boards without input/output fibres

1 Scope

This part of IEC 62496 specifies the test method to decide whether to pass or fail an optical circuit board using direct illumination by a light. The input ports are directly illuminated and the optical intensity from the output ports of the optical circuit board is monitored using an area image sensor. Excess optical losses are calculated from total detected intensities of light from a sample to be measured and from a control sample. This method is used to illuminate uniformly the input port of the optical circuit board (OCB) with a larger area than the core area, obtain the radiance of an area image from the corresponding output port of the OCB using an area image sensor, and evaluate whether to pass or fail using the radiance obtained compared to that of a control sample.

The advantage of this test method is that the alignment procedure between a launch fibre and the OCB is not necessary.

2 Normative references

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.

IEC 60068-1, *Environmental testing – Part 1: General and guidance*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

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

3.1.1 shading

non-uniformity of detected intensity of an image caused by non-uniformity of the sensitivity of elements of an area image sensor and vignetting depending on the optical system

Note 1 to entry: Correction of the non-uniformity of the detection sensitivity of elements of a uniform one is called "shading correction".

3.1.2 gamma value

factor " γ " for a camera expressed by the following equation:

$$(\text{input optical intensity signal}) = A \times (\text{output image signal})^\gamma$$

where A is a proportionality constant

Note 1 to entry: The input optical intensity is linearly proportional to the output image signal when $\gamma = 1$.

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