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Irish Standard  
I.S. EN 61280-2-1:2010

# Fibre optic communication subsystem test procedures -- Part 2-1: Digital systems - Receiver sensitivity and overload measurement (IEC 61280-2 -1:2010 (EQV))

## I.S. EN 61280-2-1:2010

*Incorporating amendments/corrigenda issued since publication:*

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**EN 61280-2-1**

May 2010

ICS 33.180.01

Supersedes EN 61280-2-1:1999

English version

**Fibre optic communication subsystem test procedures -  
Part 2-1: Digital systems -  
Receiver sensitivity and overload measurement  
(IEC 61280-2-1:2010)**

Procédures d'essai des sous-systèmes  
de télécommunications à fibres optiques -  
Partie 2-1: Systèmes numériques -  
Mesure de la sensibilité et de la surcharge  
d'un récepteur  
(CEI 61280-2-1:2010)

Prüfverfahren für Lichtwellenleiter-  
Kommunikationsundersysteme -  
Teil 2-1: Prüfverfahren für digitale  
Systeme -  
Messung der Empfindlichkeitsschwelle  
und der maximalen Eingangsleistung  
von Empfängern  
(IEC 61280-2-1:2010)

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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## **Foreword**

The text of document 86C/881/CDV, future edition 2 of IEC 61280-2-1, 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 61280-2-1 on 2010-04-01.

This European Standard supersedes EN 61280-2-1:1999.

The main changes with respect to EN 61280-2-1:1999 are listed below:

- revised to include the requirements associated with data communication equipment, regenerators and amplifiers;
- the term “jumper lead” has been replaced by “test cord”;
- a section for definitions has been added;
- a section on measurement uncertainties has been added.

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

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) | 2011-01-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2013-04-01 |

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## **Endorsement notice**

The text of the International Standard IEC 61280-2-1:2010 was approved by CENELEC as a European Standard without any modification.

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## CONTENTS

FOREWORD.....	3
1 Scope and object.....	5
2 Terms and definitions .....	5
3 Apparatus.....	6
3.1 General.....	6
3.2 BER test set .....	6
3.2.1 Data generator .....	7
3.2.2 Error counter .....	7
3.3 Optical power meter .....	7
3.4 Variable optical attenuator.....	7
3.5 Optical splitter .....	7
3.6 Test cords .....	7
3.7 Optical transmit interface.....	7
4 Equipment under test (EUT) .....	8
5 Test procedure .....	8
5.1 Operating conditions and test environment.....	8
5.2 Connector end-face cleaning.....	8
5.3 Measurement of input sensitivity .....	8
5.3.1 Optical input power calibration.....	10
5.3.2 <i>BER</i> or <i>EBR</i> determination.....	10
5.4 Measurement of overload level.....	11
5.4.1 Power level calibration.....	11
5.4.2 Overload level determination .....	12
5.4.3 Calculation of overload level.....	12
6 Measurement uncertainties.....	13
7 Test results .....	13
7.1 Required information .....	13
7.2 Available information .....	13
Bibliography.....	14
Figure 1 – Optical fibre system .....	5
Figure 2 – Setup for the measurement of input sensitivity of a receive terminal.....	9
Figure 3 – Setup for the measurement of input sensitivity of an amplifier or regenerator .....	9
Figure 4 – Setup for the measurement of overload level for a receive terminal.....	11
Figure 5 – Setup for the measurement of overload level for an amplifier or regenerator .....	12
Table 1 – Minimum monitoring time.....	10

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### **FIBRE OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES –**

#### **Part 2-1: Digital systems – Receiver sensitivity and overload measurement**

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International Standard IEC 61280-2-1 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition, published in 1998, and constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- revised to include the requirements associated with data communication equipment, regenerators and amplifiers;
- the term “jumper lead” has been replaced by “test cord”;
- a section for definitions has been added;
- a section on measurement uncertainties has been added.

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

CDV	Report on voting
86C/881/CDV	86C/945/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 of the IEC 61280 series, published under the general title *Fibre optic communication subsystem test procedures*, can be found on the IEC website.

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.

A bilingual version of this publication may be issued at a later date.

## FIBRE OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES –

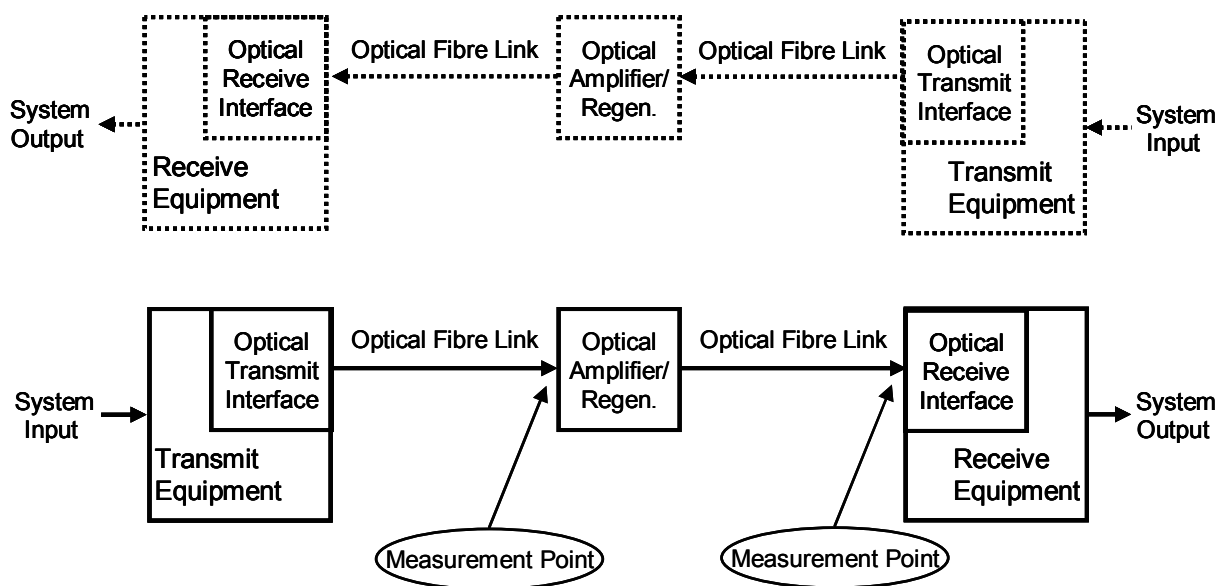
### Part 2-1: Digital systems – Receiver sensitivity and overload measurement

#### 1 Scope and object

This part of IEC 61280 describes the test procedures applicable to digital fibre optic communication and data systems.

The object of this test procedure is to measure the minimum and maximum optical powers required and allowed at the optical input port of a fibre optic system to ensure its operation within specified limits. Another objective is to verify that the guaranteed error performance is obtained at the minimum and the maximum optical input powers specified by the terminal equipment manufacturer.

Figure 1 shows the typical elements associated with optical fibre systems. Optical amplifiers or regenerators may be used in long haul telecom systems, but are not usually associated with data transport systems such as Ethernet, etc. In bi-directional systems the transmitter and corresponding receiver are usually co-located, as indicated by the dotted lines. This specification is concerned with the characteristics of the optical input interface of the receiver, amplifier or regenerator shown.



IEC 469/10

**Figure 1 – Optical fibre system**

It should be noted that the performance of fibre optic receivers may differ for different signal formats. It is therefore necessary to use the signal format that represents actual operating conditions.

#### 2 Terms and definitions

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



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