Fibre optic communication subsystem test procedures - Digital systems - Part 2-8: Determination of low BER using Q-factor measurements

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EESTI STANDARDI EESSÕNA	NATIONAL FOREWORD
Käesolev Eesti standard EVS-EN 61280-2-8:2003 sisaldab Euroopa standardi EN 61280-2-8:2003 ingliskeelset teksti.	This Estonian standard EVS-EN 61280-2-8:2003 consists of the English text of the European standard EN 61280-2-8:2003.
Standard on kinnitatud Eesti Standardikeskuse 17.07.2003 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 17.07.2003 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 04.04.2003.	Date of Availability of the European standard text 04.04.2003.
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EUROPEAN STANDARD **EN 61280-2-8**

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English version

Fibre optic communication subsystem test procedures - Digital systems Part 2-8: Determination of low BER using Q-factor measurements

(IEC 61280-2-8:2003)

Procédures d'essai des sous-systèmes
de télécommunications à fibres optiques -
Systèmes numériques
Partie 2-8: Détermination du faible
Taux d'Erreur Binaire (TEB)
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Prüfverfahren für Lichtwellenleiter-
Kommunikationsuntersysteme -
Digitale Systeme
Teil 2-8: Bestimmung von geringen
Bitfehlerverhältnissen (BERs)
mit Hilfe von Q-Faktormessungen
(IEC 61280-2-8:2003)

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 86C/485/FDIS, future edition 1 of IEC 61280-2-8, 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 61280-2-8 on 2003-03-01.

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) 2003-12-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-03-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex A is normative and annex B is informative.

Endorsement notice

The text of the International Standard IEC 61280-2-8:2003 was approved by CENELEC as a European Standard without any modification.

INTERNATIONAL STANDARD

IEC 61280-2-8

First edition
2003-02

Fibre optic communication subsystem test procedures – Digital systems

Part 2-8:
Determination of low BER using Q-factor measurements

Reference number
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Publication numbering

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FIBRE OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES – DIGITAL SYSTEMS –

Part 2-8: Determination of low BER using Q-factor measurements

FOREWORD

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International Standard IEC 61280-2-8 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86C/485/FDIS	86C/505/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.

The committee has decided that the contents of this publication will remain unchanged until 2010. At this date, the publication will be

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

FIBRE OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES – DIGITAL SYSTEMS –

Part 2-8: Determination of low BER using Q-factor measurements

1 Scope

This part of IEC 61280 specifies two main methods for the determination of low BER values by making accelerated measurements. These include the variable decision threshold method (Clause 4) and the variable optical threshold method (Clause 5). In addition, a third method, the sinusoidal interference method, is described in Annex B.

2 Definitions and abbreviated terms

2.1 Definitions

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

2.1.1
amplified spontaneous emission
ASE
impairment generated in optical amplifiers

2.1.2
bit error ratio
BER
the number bits in error as a ratio of the total number of bits

2.1.3
intersymbol interference
ISI
mutual interference between symbols in a data stream, usually caused by non-linear effects and bandwidth limitations of the transmission path

2.1.4
Q-factor
Q
ratio of the difference between the mean voltage of the 1 and 0 rails, and the sum of their standard deviation values

2.2 Abbreviations

cw	Continuous wave (normally referring to a sinusoidal wave form)
DC	Direct current
DSO	Digital sampling oscilloscope
DUT	Device under test
PRBS	Pseudo-random binary sequence