

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

ESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Fibre optic communication subsystem test procedures - Part 2-8:
Digital systems - Determination of low BER using Q-factor
measurements
(IEC 61280-2-8:2021)

Procédures d'essai des sous-systèmes de
télécommunications fibroniques - Partie 2-8: Systèmes
numériques - Détermination de faibles valeurs de BER en
utilisant des mesures du facteur Q
(IEC 61280-2-8:2021)

Prüfverfahren für Lichtwellenleiter-
Kommunikationsuntersysteme - Teil 2-8: Digitale Systeme -
Bestimmung von geringen Bitfehlerraten (BER) mit Hilfe
von Q-Faktor Messungen
(IEC 61280-2-8:2021)

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European foreword

The text of document 86C/1708/FDIS, future edition 2 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 approved by CENELEC as EN IEC 61280-2-8:2021.

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) 2022-01-06
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IEC 61281-1 NOTE Harmonized as EN IEC 61281-1

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NORME INTERNATIONALE



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

**Procédures d'essai des sous-systèmes de télécommunications fibroniques –
Partie 2-8: Systèmes numériques – Détermination de faibles valeurs de BER en
utilisant des mesures du facteur Q**





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INTERNATIONAL STANDARD

NORME INTERNATIONALE



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Part 2-8: Digital systems – Determination of low BER using Q-factor
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**Procédures d'essai des sous-systèmes de télécommunications fibroniques –
Partie 2-8: Systèmes numériques – Détermination de faibles valeurs de BER en
utilisant des mesures du facteur Q**

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FIBRE OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES –**Part 2-8: Digital systems –
Determination of low BER using Q-factor measurements****FOREWORD**

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This second edition cancels and replaces the first edition published in 2003. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) correction of errors in Formula (8) in 5.5.2 and in a related formula in 5.5.3;
- b) correction of errors in the references to clauses, subclauses, figures, procedures, and in the Bibliography;
- c) alignment of the terms and definitions in 3.1 with those in IEC 61281-1.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
86C/1708/FDIS	86C/1711/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

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FIBRE OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES –

Part 2-8: Digital systems – 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 5) and the variable optical threshold method (Clause 6). In addition, a third method, the sinusoidal interference method, is described in Annex B.

2 Normative references

There are no normative references in this document.

3 Terms, definitions, and abbreviated terms

3.1 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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3.1.1

amplified spontaneous emission

ASE

optical power associated to spontaneously emitted photon amplified by an active medium in an optical amplifier

3.1.2

bit error ratio

BER

P_e

number of errored bits divided by the total number of bits, over some stipulated period of time

3.1.3

intersymbol interference

ISI

overlap of adjacent pulses as caused by the limited bandwidth characteristics of the optical devices in a fibre optic link

3.1.4

Q-factor

Q

ratio of the difference between the mean voltage of the 1 and 0 rails, to the sum of their standard deviation values