SLOVENSKI STANDARD
SIST EN 61280-4-4:2017

01-oktober-2017

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SIST EN 61280-4-4:2006

Postopki preskušanja optičnega komunikacijskega podsistema - 4-4. del: Kabelske oblike in povezave - Meritve polarizacijske razpršitve v vgrajenih povezavah (IEC 61280-4-4:2017)

Fibre optic communication subsystem test procedures - Part 4-4: Cable plants and links - Polarization mode dispersion measurement for installed links (IEC 61280-4-4:2017)

Prüfverfahren für Lichtwellenleiter-Kommunikationsuntersysteme - Teil 4-4: Kabelnetze und Übertragungsstrecken - Messung der Polarisationsmodendispersion von installierten Übertragungsstrecken (IEC 61280-4-4:2017)

Procédures d'essai des sous-systèmes de télécommunication à fibres optiques - Partie 4 -4: Installation de câbles et liens - Mesure de la dispersion de mode polarisation pour les liaisons installées (IEC 61280-4-4:2017)

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European foreword

The text of document 86C/1378/CDV, future edition 2 of IEC 61280-4-4, 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 61280-4-4:2017.

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)	2018-02-18
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-08-18

This document supersedes EN 61280-4-4:2006.

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

EN 61280-4-4:2017 includes the following significant technical changes with respect to EN 61280-4-4:2006:

a) theory is removed and replaced with a reference to IEC/TR 61282-9;

b) a new method, wavelength scanning OTDR and SOP analysis (WSOSA), is added as Annex G;

c) a brief description of each method is added to Clause 5;

d) Methods E and F are converted to informative Annexes E and F;

e) a new Clause (6) on measurement configurations is added;

f) a new Clause (7) on measurement considerations is added;

g) Clause 10 on procedure is expanded;

h) several of the apparatus diagrams are improved;

i) several clarifications about what is measured and what is calculated have been made in Annex H.

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

Endorsement notice

The text of the International Standard IEC 61280-4-4:2017 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 60793-1-48:2003	NOTE	Harmonized as EN 60793-1-48:2003 [1)] (not modified).
IEC 60793-1-48:2007	NOTE	Harmonized as EN 60793-1-48:2007 (not modified).
IEC 60793-2-50	NOTE	Harmonized as EN 60793-2-50.
IEC 61280-4-4:2006	NOTE	Harmonized as EN 61280-4-4:2006 (not modified).
IEC 61290-11-1	NOTE	Harmonized as EN 61290-11-1.
IEC 61290-11-2	NOTE	Harmonized as EN 61290-11-2.
IEC 61300-3-32	NOTE	Harmonized as EN 61300-3-32.

[1)] Superseded by EN 60793-1-48:2007 (IEC 60793-1-48:2007).

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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60793-1-44	-	Optical fibres - Part 1-44: Measurement methods and test procedures - Cut-off wavelength	EN 60793-1-44	-
IEC 61300-3-35	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-35: Examinations and measurements - Visual inspection of fibre optic connectors and fibre-stub transceivers	EN 61300-3-35	-
IEC/TR 61282-9	-	Fibre optic communication system design guides - Part 9: Guidance on polarization mode dispersion measurements and theory	-	-
IEC/TR 62627-01	-	Fibre optic interconnecting devices and passive components - Part 01: Fibre optic connector cleaning methods	-	-

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colour inside

Fibre optic communication subsystem test procedures – Part 4-4: Cable plants and links – Polarization mode dispersion measurement for installed links

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FIBRE OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES –

Part 4-4: Cable plants and links – Polarization mode dispersion measurement for installed links

FOREWORD

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International Standard IEC 61280-4-4 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 2006. This second edition constitutes a technical revision.

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

a) theory is removed and replaced with a reference to IEC TR 61282-9;

b) a new method, wavelength scanning OTDR and SOP analysis (WSOSA), is added as Annex G;

c) a brief description of each method is added to Clause 5;

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i) several clarifications about what is measured and what is calculated have been made in Annex H.

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

CDV	Report on voting
86C/1378/CDV	86C/1419/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in 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 document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Polarization mode dispersion (PMD) is a statistical parameter. The reproducibility of measurements depends on the particular method, but is limited also by the PMD level of the link and the accessible wavelength range. Gisin [1][1] derived a theoretical limit to this reproducibility independent of the measurement method by assuming ideal measurement conditions.

Originally, the principles of IEC 61280-4-4:2006 were closely aligned with those of IEC 60793-1-48:2003 on optical fibre and optical fibre cable test method, which focuses on aspects related to the measurement of factory lengths. However, IEC 60793-1-48:2007 removed some of the test methods that are no longer of interest to fibre and cable manufacturers. These have been retained as informative Annexes D, E, and F in this document, and a new test method G has been added.

This document also updates test methods A, B and C and adds more information applicable to testing of installed cabling.

NOTE 1 Test methods for factory lengths of optical fibres and optical fibre cables are given in IEC 60793-1-48.

NOTE 2 Test methods for optical amplifiers (OAs) are given in IEC 61290-11-1 and IEC 61290-11-2.

NOTE 3 Test methods for passive optical components are given in IEC 61300-3-32.

NOTE 4 Guidelines for the calculation of PMD for links that include components such as dispersion compensators or optical amplifiers are given in IEC TR 61282-3.

NOTE 5 Further general guidance on PMD measurements and background theory is contained in IEC TR 61282-9.

[1] Figures in square brackets refer to the Bibliography.