SVENSK STANDARD SS-EN IEC 61280-4-1

Fastställd	Utgåva	Sida	Ansvarig kommitté
2019-11-13	3	1 (1+79)	SEK TK 86

Delsystem för fiberoptisk kommunikation – Grundläggande provningsmetoder – Del 4-1: Installationer med optokablar – Mätning av dämpning i installationer med optokabel med multimodfiber

Fibre-optic communication subsystem test procedures – Part 4-1: Installed cable plant – Multimode attenuation measurement

Som svensk standard gäller europastandarden EN IEC 61280-4-1:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61280-4-1:2019.

Nationellt förord

Europastandarden EN IEC 61280-4-1:2019

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61280-4-1, Third edition, 2019 - Fibre-optic communication subsystem test procedures - Part 4-1: Installed cable plant - Multimode attenuation measurement**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61280-4-1, utgåva 2, 2010, gäller ej fr o m 2022-06-26.

ICS 33.180.01

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61280-4-1

August 2019

ICS 33.180.01

Supersedes EN 61280-4-1:2009 and all of its amendments and corrigenda (if any)

English Version

Fibre-optic communication subsystem test procedures - Part 4-1: Installed cabling plant - Multimode attenuation measurement (IEC 61280-4-1:2019)

Procédures d'essai des sous-systèmes de télécommunication fibroniques - Partie 4-1: Installation câblée - Mesure de l'affaiblissement en multimodal (IEC 61280-4-1:2019)

Prüfverfahren für Lichtwellenleiter-Kommunikationsuntersysteme - Teil 4-1: Lichtwellenleiter-Kabelanlagen - Mehrmoden-Dämpfungsmessungen (IEC 61280-4-1:2019)

This European Standard was approved by CENELEC on 2019-06-26. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 61280-4-1:2019 E

SEK Svensk Elstandard SS-EN IEC 61280-4-1, utg 3:2019

European foreword

The text of document 86C/1575/FDIS, future edition 3 of IEC 61280-4-1, 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 approved by CENELEC as EN IEC 61280-4-1:2019.

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) 2020-03-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-06-26

This document supersedes EN 61280-4-1:2009 and all of its amendments and corrigenda (if any)

This edition constitutes a technical revision including the following significant technical changes with respect to the previous edition:

a) changes to Annex F on encircled flux to harmonise with IEC TR 62614-2, but keeping the encircled flux limits defined in Tables F.2 to F.5 unchanged;

b) addition of an equipment cord method in Annex D;

c) inclusion of testing bend insensitive multimode optical fibre;

d) updates to measurement uncertainty;

e) definition of additional cabling configurations;

f) changes to Table 5 on spectral requirements.

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 61280-4-1:2019 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 60793-1-40	NOTE	Harmonized as EN IEC 60793-1-40
IEC 60793-2	NOTE	Harmonized as EN 60793-2
IEC 60793-2-10	NOTE	Harmonized as EN 60793-2-10
IEC 60793-2-50	NOTE	Harmonized as EN IEC 60793-2-50
IEC 60794-2-21	NOTE	Harmonized as EN IEC 60794-2-21
IEC 61300-3-6	NOTE	Harmonized as EN 61300-3-6
IEC 61300-3-45	NOTE	Harmonized as EN 61300-3-45
IEC 61745	NOTE	Harmonized as EN 61745
IEC 61755-6-2	NOTE	Harmonized as EN IEC 61755-6-2
IEC 62664-1-1	NOTE	Harmonized as EN 62664-1-1
IEC 62614:2010	NOTE	Harmonized as EN 62614:2010 (not modified)

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where 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 60825-2	-	Safety of laser products - Part 2: Safety of optical fibre communication systems (OFCS)	EN 60825-2	-
IEC 61280-1-3	-	Fibre optic communication subsystem test procedures - Part 1-3: General communication subsystems - Central wavelength and spectral width measurement	EN 61280-1-3	-
IEC 61280-1-4	-	Fibre optic communication subsystem test procedures - Part 1-4: General communication subsystems - Light source encircled flux measurement method	EN 61280-1-4	-
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 61315	-	Calibration of fibre-optic power meters	EN IEC 61315	-
IEC 61746-2	-	Calibration of optical time-domain reflectometers (OTDR) - Part 2: OTDR for multimode fibres	EN 61746-2	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FIBRE-OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES –

Part 4-1: Installed cabling plant – Multimode attenuation measurement

FOREWORD

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International Standard IEC 61280-4-1 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

This third edition cancels and replaces the second edition, published in 2009. This edition constitutes a technical revision.

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

a) changes to Annex F on encircled flux to harmonise with IEC TR 62614-2, but keeping the encircled flux limits defined in Tables F.2 to F.5 unchanged;
b) addition of an equipment cord method in Annex D;
c) inclusion of testing bend insensitive multimode optical fibre;
d) updates to measurement uncertainty;
e) definition of additional cabling configurations;
f) changes to Table 5 on spectral requirements.

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

FDIS	Report on voting
86C/1575/FDIS	86C/1592/RVD

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.

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.

FIBRE-OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES –

Part 4-1: Installed cabling plant – Multimode attenuation measurement

1 Scope

This part of IEC 61280 is applicable to the measurement of attenuation of installed optical fibre cabling plant using multimode optical fibre. This cabling plant can include multimode optical fibres, connectors, adapters, splices, and other passive devices. The cabling can be installed in a variety of environments including residential, commercial, industrial, and data centre premises, as well as outside plant environments. The test equipment used in this document has one single fibre connector interface or two single fibre connector interfaces.

In this document, the optical fibres that are addressed include sub-categories A1-OMx, where x = 2, 3, 4 and 5 (50/125 µm) and A1-OM1 (62,5/125 µm) multimode optical fibres, as specified in IEC 60793-2-10. The attenuation measurements of the other multimode categories can be made using the approaches of this document, but the source conditions for the other categories have not been defined.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60825-2, *Safety of laser products – Part 2: Safety of optical fibre communication systems (OFCS)*

IEC 61280-1-3, *Fibre optic communication subsystem test procedures – Part 1-3: General communication subsystems – Central wavelength and spectral width measurement*

IEC 61280-1-4, *Fibre optic communication subsystem test procedures – Part 1-4: General communication subsystems – Light source encircled flux measurement method*

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*

IEC 61315, *Calibration of fibre-optic power meters*

IEC 61746-2, *Calibration of optical time-domain reflectometers (OTDR) – Part 2: OTDR for multimode fibres*