

Fibre-optic communication subsystem test procedures
- Part 4-2: Installed cabling plant - Single-mode
attenuation and optical return loss measurements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN IEC 61280-4-2:2024 sisaldab Euroopa standardi EN IEC 61280-4-2:2024 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 14.06.2024.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN IEC 61280-4-2:2024 consists of the English text of the European standard EN IEC 61280-4-2:2024.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 14.06.2024.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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English Version

Fibre-optic communication subsystem test procedures - Part 4-2:
Installed cabling plant - Single-mode attenuation and optical
return loss measurements
(IEC 61280-4-2:2024)

Procédures d'essai des sous-systèmes de
télécommunication fibroniques - Partie 4-2: Installations
câblées - Mesures de l'affaiblissement de réflexion optique
et de l'affaiblissement des fibres unimodales
(IEC 61280-4-2:2024)

Prüfverfahren für Lichtwellenleiter-
Kommunikationsunterssysteme - Teil 4-2: Installierte
Kabelanlagen - Einmoden-Dämpfungs- und optische
Rückflussdämpfungsmessung
(IEC 61280-4-2:2024)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Fibre- optic communication subsystem test procedures –
Part 4-2: Installed cabling plant – Single-mode attenuation and optical return
loss measurements**

**Procédures d'essai des sous-systèmes de télécommunication fibroniques –
Partie 4-2: Installations câblées – Mesures de l'affaiblissement de réflexion
optique et de l'affaiblissement des fibres unimodales**



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IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
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NORME INTERNATIONALE



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Single-mode attenuation and optical return loss measurements**

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This third edition cancels and replaces the second edition published in 2014. This edition constitutes a technical revision.

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

- a) addition of the equipment cord method;
- b) addition of test limit adjustment related to test cord grades;
- c) refinements on measurement uncertainties.

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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.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

IMPORTANT – The "colour inside" logo on the cover page of this document 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

This document is part of a series of IEC standards for measurements of installed fibre optic cabling plants. This document is applicable for the measurement of installed single-mode fibres.

Cabling design standards such as ISO/IEC 11801-1 provide general requirements for this type of cabling. These standards support cabling lengths of up to 2 km for commercial premises and data centres and up to 10 km for industrial premises. ISO/IEC 14763-3, which supports ISO/IEC 11801-1, normatively references IEC 61280-4-2.

Various recommendations from ITU-T have requirements for longer distance applications, including short haul (40 km), long haul (80 km), and ultra-long haul (160 km). The testing of cabling plant for these applications is covered in ITU-T Recommendation G.650.3, which refers to the test methods of this document.

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FIBRE-OPTIC COMMUNICATION SUBSYSTEM TEST PROCEDURES –

Part 4-2: Installed cabling plant – Single-mode attenuation and optical return loss measurements

1 Scope

This part of IEC 61280 is applicable to the measurements of attenuation and optical return loss of an installed optical fibre cabling plant using single-mode fibre. This cabling plant can include single-mode 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.

This document is applicable to all single-mode fibre types including those designated by IEC 60793-2-50 as Class B fibres.

The principles of this document can be applied to cabling plants containing branching devices (splitters) and at specific wavelength ranges in situations where passive wavelength selective components are deployed, such as WDM, CWDM and DWDM devices.

This document is not intended to apply to cabling plants that include active devices such as fibre amplifiers or dynamic channel equalizers.

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 (OFCSs)*

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 61746-1:2009, *Calibration of optical time-domain reflectometers (OTDR) – Part 1: OTDR for single-mode fibres*

IEC TR 62627-01, *Fibre optic interconnecting devices and passive components – Part 01: Fibre optic connector cleaning methods*