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Fibre optic interconnecting devices and passive components - Basic test and measurement procedures -
Part 3-7: Examinations and measurements - Wavelength dependence of attenuation and return loss of single mode components

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Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-7: Examinations and measurements - Wavelength dependence of attenuation and return loss of single mode components

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 61300-3-7 edition 3.1 contains the third edition (2021-07) [documents 86B/4337/CDV and 86B/4425A/RVC] and its amendment 1 (2025-12) [documents 86B/4939/CDV and 86B/4978/RVC].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

IEC 61300-3-7 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics. It is an International Standard.

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) reduction of the number of alternative methods proposed to bring in-line with industry practice;
b) re-statement of the equations for insertion loss and return loss using logarithmic forms more common in the industry;
c) additional recommendations with respect to the creation of fibre terminations;
d) additional discussion on the characterization of the optical sources used in this document;
e) simplification of bi-directional testing;
f) removal of separate return loss only measurement procedures.

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

Draft	Report on voting
86B/4337/CDV	86B/4425A/RVC

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/standardsdev/publications.

A list of all parts in the IEC 61300 series, published under the general title *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*, can be found on the IEC website.

The committee has decided that the contents of this document and its amendment 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.

1 Scope

This part of IEC 61300-3 describes methods available to measure the wavelength dependence of attenuation and return loss of two-port, single mode passive optical components. It is not, however, applicable to dense wavelength division multiplexing (DWDM) devices. Measurement methods of wavelength dependence of attenuation of DWDM devices are described in IEC 61300-3-29.

There are two measurement cases described in this document:

a) measurement of attenuation only;

b) measurement of attenuation and return loss at the same time.

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 60050-731, *International Electrotechnical Vocabulary (IEV) – Part 731: Optical fibre communication* (available at www.electropedia.org)

IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

IEC 61755-2-4, *Fibre optic interconnecting devices and passive components – Connector optical interfaces – Part 2-4: Connection parameters of non-dispersion shifted single-mode physically contacting fibres – Non-angled for reference connection applications*

IEC 61755-2-5, *Fibre optic interconnecting devices and passive components – Connector optical interfaces – Part 2-5: Connection parameters of non-dispersion shifted single-mode physically contacting fibres – Angled for reference connection applications*

IEC TR 61931, *Fibre optic – Terminology*

IEC 62074-1, *Fibre optic interconnecting devices and passive components – Fibre optic WDM devices – Part 1: Generic specification*

Bibliography

IEC 61300-3-4, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-4: Examinations and measurements – Attenuation*

IEC 61300-3-6, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-6: Examinations and measurements – Return loss*

IEC 61300-3-29, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-29: Examinations and measurements – Spectral transfer characteristics of DWDM devices*

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