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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Part 1: OTDR for single mode fibres

FOREWORD

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International Standard IEC 61746-1 has been prepared by IEC technical committee 86: Fibre optics.

This first edition of IEC 61746-1 cancels and replaces the second edition of IEC 61746, published in 2005. It constitutes a technical revision.

The main technical changes are the adaptation of Clause 4, the suppression of Clause 10, the improvement and the addition of some definitions, the change of some calculations and the change of graphical symbology to IEC/TR 61930.

The text of this standard is based on the following documents:

FDIS	Report on voting
86/347/FDIS	86/362/RVD

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

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

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,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

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

INTRODUCTION

In order for an Optical time-domain reflectometer (OTDR) to qualify as a candidate for complete calibration using this standard, it must be equipped with the following minimum feature set:

a) a programmable index of refraction, or equivalent parameter;

b) the ability to present a display of a trace representation, with a logarithmic power scale and a linear distance scale;

c) two markers/cursors, which display the loss and distance between any two points on a trace display;

d) the ability to measure absolute distance (location) from the OTDR's zero-distance reference;

e) the ability to measure the displayed power level relative to a reference level (for example, the clipping level);

f) the ability to evaluate the reflectance of a reflective event.

CALIBRATION OF OPTICAL TIME-DOMAIN REFLECTOMETERS (OTDR) –

Part 1: OTDR for single mode fibres

1 Scope

This part of IEC 61746 provides procedures for calibrating single-mode optical time domain reflectometers (OTDR). It only covers OTDR measurement errors and uncertainties.

This standard does not cover correction of the OTDR response.

2 Normative references

The following referenced documents are indispensable for the application 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 60793-1-40, *Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation*

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

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ITU-T Recommendation G.650.1:2002, *Definitions and test methods for linear, deterministic attributes of single-mode fibre and cable*

ITU-T Recommendation G.650.2:2002, *Definitions and test methods for statistical and non-linear attributes of single-mode fibre and cable*