IEC 61746-2

Edition 1.0 2010-06

INTERNATIONAL STANDARD

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

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRICE CODE X

ICS 33.180.01

ISBN 978-2-88912-026-0

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CALIBRATION OF OPTICAL TIME-DOMAIN REFLECTOMETERS (OTDR) –

Part 2: OTDR for multimode fibres

FOREWORD

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International Standard IEC 61746-2 has been prepared by IEC technical committee 86: Fibre optics.

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

CDV	Report on voting
86/336/CDV	86/359/RVC

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.

A list of all parts of IEC 61746 series, under the general title *Calibration of optical time-domain reflectometers (OTDR)*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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- withdrawn,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 publication 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) the ability to measure type A1a or A1b IEC 60793-2-10 fibres;

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

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

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

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

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

Calibration methods described in this standard may look similar to those provided in Part 1 of this series. However, there are differences: mix of different fibre types, use of mode conditioner or different arrangement of the fibres. This leads to different calibration processes as well as different uncertainties analysis.

CALIBRATION OF OPTICAL TIME-DOMAIN REFLECTOMETERS (OTDR) –

Part 2: OTDR for multimode fibres

1 Scope

This part of IEC 61746 provides procedures for calibrating multimode optical time domain reflectometers (OTDR). It covers OTDR measurement errors and uncertainties. The test of the laser(s) source modal condition is included as an optional measurement.

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 60793-2-10, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

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

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

IEC 61280-4-1, *Fibre optic communication subsystem test procedures – Part 4-1: Installed cable plant – Multimode attenuation measurement*

IEC 61745, *End-face image analysis procedure for the calibration of optical fibre geometry test sets*

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