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TECHNICAL REPORT

Fibre optic communication system design guides – Part 15: Cable plant and link – Testing multi-fibre optic cable plant terminated with MPO connectors

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CONTENTS

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Part 15: Cable plant and link – Testing multi-fibre optic cable plant terminated with MPO connectors

FOREWORD

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IEC TR 61282-15, which is a Technical Report, has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

The text of this Technical Report is based on the following documents:

Enquiry draft	Report on voting
86C/1427/DTR	86C/1443/RVDTR

Full information on the voting for the approval of this Technical Report 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 61282 series, published under the general title *Fibre optic communication system design guides*, 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- withdrawn,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.

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

INTRODUCTION

Cabling testing standards such as IEC 61280-4-1 for multimode attenuation measurements and IEC 61280-4-2 for single-mode attenuation and optical return loss measurement describe testing simplex or duplex fibre cabling terminated with single-fibre ferrule connectors (e.g. LC). This document has been written to describe measurement methods for attenuation and polarity and can be used in the absence of any multi-fibre testing standard.

This document addresses the testing of installed multimode and single-mode cabling terminated with multi-fibre connectors of IEC 61754-7 (all parts) related to multi-fibre push on (MPO) and describes the challenges when testing array connectivity, which parameters are important to measure, and why the test methods of IEC 61280-4-2 and IEC 61280-4-1 cannot be used.

Installed optical fibre cabling terminated with MPO interfaces can be tested in different ways, for example, with equipment having an MPO connector test port. Testing using other types of equipment is possible, for example using an optical time domain reflectometer (OTDR).

This document focuses on MPO connectors containing 12 fibres in a single row; however, many of the principles can also be applied to testing of cabling terminated with different types of MPO connectors with appropriate changes to test cords and/or test equipment interfaces.

FIBRE OPTIC COMMUNICATION SYSTEM DESIGN GUIDES –

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1 Scope

This part of IEC 61282 provides guidance for the testing of multi-fibre cable, multimode or single-mode, terminated with plugs described in IEC 61754-7 (all parts) (multiple-fibre push on – MPO). Guidance is provided on the measurement of attenuation, polarity, length and optical return loss. The cabling can be installed in a variety of environments, including residential, commercial, industrial, and data centre premises, and possibly in outside plant environments.

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

IEC 61280-4-2, *Fibre-optic communication subsystem test procedures – Part 4-2: Installed cable plant – Single-mode attenuation and optical return loss measurement*