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INTERNATIONAL STANDARD

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Multicore and symmetrical pair/quad cables for digital communications – Part 1-4: Assessment of conductor heating in bundled cables due to the deployment of remote powering

IEC 61156-1-4:2018-10(en)

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IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

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

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CONTENTS

FOREWORD 3
INTRODUCTION 5
1 Scope 6
2 Normative references 6
3 Terms, definitions and symbols 6
3.1 Terms and definitions 6
3.2 Symbols 7
4 Testing procedure 8
4.1 General 8
4.2 Bundling of cables 8
4.3 Testing current and measurement accuracy 10
4.4 Test conditions 10
4.5 Environmental conditions 10
4.6 Assessment of the concatenated loop resistance of all pairs 13
4.7 Data submission 13
4.8 Expression of results 14
Annex A (informative) Modelling of cable bundle heating [3] 15
A.1 Cable heating model 15
A.2 Evaluation of recorded data 18
Bibliography 19

Figure 1 – Bundle of cables under test 9
Figure 2 – Thermocouple placement 9
Figure 3 – Free air 11
Figure 4 – Open conduit (Tray) 11
Figure 5 – Conduit 12
Figure 6 – Sealed conduit 13

Table 1 – Supporting information 14
Table 2 – Test data format 14

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Full document details: IEC 61156-1-4 2018

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MULTICORE AND SYMMETRICAL PAIR/QUAD CABLES FOR DIGITAL COMMUNICATIONS –

Part 1-4: Assessment of conductor heating in bundled cables due to the deployment of remote powering

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International Standard IEC 61156-1-4 has been prepared by subcommittee 46C: Wires and symmetric cables, of IEC technical committee 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories.

This first edition cancels and replaces IEC PAS 61156-1-4, published in 2010. This edition constitutes a technical revision.

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

a) Several test arrangements are considered;
b) The mathematical approach was revised

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

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CDV	Report on voting
46C/1089/CDV	46C/1098A/RVC

Full information on the voting for the approval of this International Standard 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 61156 series, published under the general title: *Multicore and symmetrical pair/quad cables for digital communications*, 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

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- withdrawn,
- replaced by a revised edition, or
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INTRODUCTION

The use of remote powering causes a temperature rise in cables installed in bundles.

This document specifies a method to assess the temperature increase in cable bundles by measuring the temperature change using thermocouples placed on the sheath of the cable at the centre of the bundle.

Several test arrangements are considered as well as current values.

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MULTICORE AND SYMMETRICAL PAIR/QUAD CABLES FOR DIGITAL COMMUNICATIONS –

Part 1-4: Assessment of conductor heating in bundled cables due to the deployment of remote powering

1 Scope

This document specifies a method to assess the thermal behaviour of cables arranged in bundles, for digital communications. A method is described to determine the temperature increase in cable bundles for certain remote powering currents as a basis to analyse the expected performance under several test arrangements described in standards dealing with the installation of cabling systems (e.g. [1][1], [2]).

It is only intended to provide guidance to assess the thermal behaviour of cables for digital communications in reference environmental conditions and arrangements. It is therefore not intended to become a type of test method.

The following test arrangements are considered:

c) free air;

d) cable tray;

e) conduits;

f) conduit with sealed ends.

Even though this document covers four-pair data grade cables, the same principles can be applied to other cable types.

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 61156-1, *Multicore and symmetrical pair/quad cables for digital communications – Part 1: Generic specification*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61156-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

[1] Numbers in square brackets refer to the Bibliography.

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