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Edition 1.0 2023-11

TECHNICAL SPECIFICATION

colour inside

Multicore and symmetrical pair/quad cables for digital communications – Part 1-2: Electrical transmission characteristics and test methods of symmetrical pair/quad cables



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Multicore and symmetrical pair/quad cables for digital communications – Part 1-2: Electrical transmission characteristics and test methods of symmetrical pair/quad cables

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CONTENTS

FOREWORD 5
1 Scope 7
2 Normative references 7
3 Terms, definitions, symbols, units and abbreviated terms 7
3.1 Terms and definitions 7
3.2 Symbols, units and abbreviated terms 8
4 Basic transmission line formulae 8
4.1 Overview 10
4.2 Complex characteristic impedance and propagation coefficient formulae 11
4.2.1 General 11
4.2.2 Propagation coefficient 11
4.2.3 Complex characteristic impedance 12
4.2.4 Phase and group velocity 14
4.3 High frequency representation of secondary parameters 15
4.4 Frequency dependence of the primary and secondary parameters 17
4.4.1 Resistance 17
4.4.2 Inductance 17
4.4.3 Complex characteristic impedance 17
4.4.4 Attenuation coefficient 18
4.4.5 Phase delay and group delay 18
5 Measurement of the complex characteristic impedance 19
5.1 General 19
5.2 Open/short circuit single-ended impedance measurement made with a balun (reference method) 20
5.2.1 Principle 20
5.2.2 Test equipment 21
5.2.3 Procedure 21
5.2.4 Expression of results 22
5.3 Function fitting the impedance magnitude and angle 22
5.3.1 General 22
5.3.2 Impedance magnitude 22
5.3.3 Function fitting the angle of the complex characteristic impedance 24
5.4 Complex characteristic impedance determined from measured phase coefficient and capacitance 25
5.4.1 General 25
5.4.2 Formulae for all frequencies case and for high frequencies 25
5.4.3 Procedure for the measurement of the phase coefficient 26
5.4.4 Phase delay 27
5.4.5 Phase velocity 28
5.4.6 Procedure for the measurement of the capacitance 28
5.5 Determination of the complex characteristic impedance using the terminated measurement method 28
5.6 Extended open/short circuit method using a balun but excluding the balun performance 29
5.6.1 Test equipment and cable-end preparation 29
5.6.2 Basic formulae 29
5.6.3 Measurement principle 29

5.7 Extended open/short circuit method without using a balun 32
5.7.1 Basic formulae and circuit diagrams 32
5.7.2 Measurement principle 34
5.8 Open/short impedance measurements at low frequencies with a balun 35
5.9 Complex characteristic impedance and propagation coefficient obtained from modal decomposition technique 37
5.9.1 General 37
5.9.2 Procedure 37
5.9.3 Measurement principle 38
5.9.4 Scattering matrix to impedance matrix 40
5.9.5 Expression of results 42
6 Measurement of return loss and structural return loss 42
6.1 General 42
6.2 Principle 42
7 Propagation coefficient effects due to periodic structural variation related to the effects appearing in the structural return loss 43
7.1 General 43
7.2 Formula for the forward echoes caused by periodic structural inhomogeneities 43
8 Unbalance attenuation 45
8.1 General 45
8.2 Unbalance attenuation near end and far end 46
8.3 Theoretical background 48
9 Balunless test method 51
9.1 Overall test arrangement 51
9.1.1 Test instrumentation 51
9.1.2 Measurement precautions 52
9.1.3 Mixed mode S-parameter nomenclature 52
9.1.4 Coaxial cables and interconnect for network analysers 54
9.1.5 Reference loads for calibration 54
9.1.6 Calibration 55
9.1.7 Termination loads for termination of conductor pairs 56
9.1.8 Termination of screens 57
9.1.9 Calibration 57
9.1.10 Establishment of noise floor 57
9.2 Cabling and cable measurements 57
9.2.1 Insertion loss and $EL\ TCTL$ 57
9.2.2 *NEXT* 59
9.2.3 *ACR-F* 61
9.2.4 Return loss and TCL 63
9.2.5 PS alien near-end crosstalk ($PS\ ANEXT$-Exogenous crosstalk) 64
9.2.6 PS attenuation to alien crosstalk ratio, far-end crosstalk ($PS\ AACR\text{-}F$-Exogenous crosstalk 67
Annex A (informative) Example derivation of mixed mode parameters using the modal decomposition technique 70
Bibliography 74

Figure 1 – Secondary parameters extending from 1 kHz to 1 GHz 19
Figure 2 – Diagram of cable pair measurement circuit 21

Figure 3 – Determining the multiplier of 2π radians to add to the phase measurement 27
Figure 4 – Measurement configurations 30
Figure 5 – Measurement principle with four terminal network theory 30
Figure 6 – Admittance measurement configurations 34
Figure 7 – Admittance measurement principle 34
Figure 8 – Transmission line system 38
Figure 9 – Differential-mode transmission in a symmetric pair 46
Figure 10 – Common-mode transmission in a symmetric pair 46
Figure 11 – Circuit of an infinitesimal element of a symmetric pair 48
Figure 12 – Calculated coupling transfer function for a capacitive coupling of 0,4 pF/m and random ±0,4 pF/m (ℓ =100 m; εr1 = εr2 = 2,3) 51
Figure 13 – Measured coupling transfer function of 100 m Twinax 105 Ω 51
Figure 14 – Diagram of a single-ended 4-port device 53
Figure 15 – Diagram of a balanced 2-port device 53
Figure 16 – Solution for calibration of reference loads 55
Figure 17 – Resistor termination networks 56
Figure 18 – Insertion loss and $EL\ TCTL$ 59
Figure 19 – $NEXT$ 60
Figure 20 – $FEXT$ 62
Figure 21 – Return loss and TCL 64
Figure 22 – Alien $NEXT$ 66
Figure 23 – Alien $FEXT$ 68
Figure A.1 – Voltage and current on balanced DUT 70
Figure A.2 – Voltage and current on unbalanced DUT 72

Table 1 – Unbalance attenuation at near end 47
Table 2 – Unbalance attenuation at far end 47
Table 3 – Measurement set-up 47
Table 4 – Mixed mode S-parameter nomenclature 54
Table 5 – Requirements for terminations at calibration plane 57

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MULTICORE AND SYMMETRICAL PAIR/QUAD CABLES FOR DIGITAL COMMUNICATIONS –

Part 1-2: Electrical transmission characteristics and test methods of symmetrical pair/quad cables

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IEC TS 61156-1-2 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. It is a Technical Specification.

This first edition cancels and replaces the first edition of IEC TR 61156-1-2 published in 2009 and Amendment 1:2014. This edition constitutes a technical revision.

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

a) typos and editorial corrections;

b) the scope was updated;

c) Figure 14: ports swapped between port 2 and port 3;

d) new figures for balunless testing.

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

Draft	Report on voting
46C/1247DTS	46C/1259e/RVDTS

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 Technical Specification 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/publications.

A list of all parts of the IEC 61156 series, 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 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.

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MULTICORE AND SYMMETRICAL PAIR/QUAD CABLES FOR DIGITAL COMMUNICATIONS –

Part 1-2: Electrical transmission characteristics and test methods of symmetrical pair/quad cables

1 Scope

This part of IEC 61156 specifies symmetrical pair/quad electrical transmission characteristics and test methods present in IEC 61156-1:2002 (Edition 2) and not carried into IEC 61156-1:2007 (Edition 3). It details characteristic impedance test methods and function fitting procedures, the open/short-circuit method and the background of unbalance attenuation measurement.

It is extended by a description of the balunless measurements technique, which is an amendment to the former technical report and is improved and incorporated into this new edition. The complete document is transferred into a technical specification.

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 60050-726, *International Electrotechnical Vocabulary (IEV) – Part 726: Transmission lines and waveguides*

IEC 61156-1:2007, *Multicore and symmetrical pair/quad cables for digital communications – Part 1: Generic specification*

IEC TR 62152, *Transmission properties of cascaded two-ports or quadripols – Background of terms and definitions*

3 Terms, definitions, symbols, units and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-726, IEC 61156-1, IEC TR 62152 and the following apply.

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

- ISO Online browsing platform: available at https://www.iso.org/obp
- IEC Electropedia: available at http://www.electropedia.org/

3.1.1
single-ended
measurement with respect to a fixed potential, usually ground