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Twinax cables for digital communications – Part 1-1: Time domain test methods for twinax cables for digital communications – General requirements

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FOREWORD

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The text of this International Standard is based on the following documents:

Draft	Report on voting
46C/1191/CDV	46C/1218/RVC

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 International Standard 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/standardsdev/publications.

A list of all parts in the IEC 62783 series, published under the general title *Twinax 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- withdrawn,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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INTRODUCTION

This document specifies the general requirements of time domain test methods for twinax cables used in information technology systems. The high data rates of these systems need both frequency domain test methods and time domain test methods to ensure signal integrity.

Time domain here refers to time domain analysis or display(s), as defined by an X-Y graph where the X-axis is either time or electrical length of device under test (DUT), and the Y-axis is magnitude (voltage, impedance or reflection coefficient). Time domain display provides a direct view of the DUT's characteristics. In addition, time domain method gives information concerning the reflection and transmission of the DUT and it can show the effect of each discontinuity as a function of time or distance.

TWINAX CABLES FOR DIGITAL COMMUNICATIONS –

Part 1-1: Time domain test methods for twinax cables for digital communications – General requirements

1 Scope

This part of IEC 62783-1 specifies time domain test methods, parameters and requirements for fixtures for twinax cables (known also as twin-axial cables or twin-coaxial cables) used in digital communication systems. The methods and fixtures facilitate measurements of differential and common mode transmission parameters as well as single-ended mode parameters.

This document is applicable to twinax cables and also to symmetric cables with pitch.

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* (available at www.electropedia.org)

IEC 62783-1, *Twinax cables for digital communications – Part 1: Generic specification*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-726, IEC 62783-1 and the following apply.

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

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

3.1.1
time domain reflectometer
TDR
instrument intended to measure reflections and transmissions of step pulse waves along the device under test (DUT), the individual reflections being measured and displayed as a function of time or distance

3.1.2
rise time
time interval between the instants at which the magnitude of the pulse first reaches a specified lower value and then a specified upper value

Note 1 to entry: In general, ignoring overshoot and undershoot, the lower level and upper level of pulse magnitude are specified at 10 % to 90 %, unless otherwise specified.