

INTERNATIONAL STANDARD

Information technology – Implementation and operation of customer premises cabling –

Part 4: Measurement of end-to-end (E2E) links, modular plug terminated links (MPTLs) and direct attach cabling

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

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

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INFORMATION TECHNOLOGY – IMPLEMENTATION AND OPERATION OF CUSTOMER PREMISES CABLING –

Part 4: Measurement of end-to-end (E2E) links, modular plug terminated links (MPTLs) and direct attach cabling

FOREWORD

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International Standard ISO/IEC 14763-4 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This second edition cancels and replaces the first edition published in 2018. This edition constitutes a technical revision.

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

- measurement of the transmission performance of modular plug terminated link (MPTL) and direct attach cabling were added.
- Additional requirements of test head designs of E2E link were introduced.

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

FDIS	Report on voting
JTC1-SC25/2997/FDIS	JTC1-SC25/3010/RVD

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 the ISO/IEC 14763 series, published under the general title *Information technology – Implementation and operation of customer premises cabling*, can be found on the IEC and ISO websites.

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INTRODUCTION

The testing of balanced cabling channels in accordance with ISO/IEC 11801-1 does not verify the performance of the free connector at each end of the channel.

This document describes the measurement of three cabling structures which verifies the performance of their terminating connectors. These are:

- a) end-to-end (E2E) link of ISO/IEC 11801-3,
- b) modular plug terminated link (MPTL) of ISO/IEC TR 11801-9910,
- c) direct attach cabling of ISO/IEC TR 11801-9907.

This measurement includes the transmission performance of the connector components which terminate the cabling under test.

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INFORMATION TECHNOLOGY – IMPLEMENTATION AND OPERATION OF CUSTOMER PREMISES CABLING –

Part 4: Measurement of end-to-end (E2E) links, modular plug terminated links (MPTLs) and direct attach cabling

1 Scope

This part of ISO/IEC 14763 specifies the measurement of two- and four-pair balanced cabling of

- a) end-to-end (E2E) link Class D, E and E_A;
- b) modular plug terminated links (MPTLs) of Class D, E, E_A, F, F_A and of Class I and II;
- c) direct attach cabling of Class D, E, E_A, F, F_A and of Class I and II.

The free connectors which terminate two and four pairs in field and laboratory conditions are included.

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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 60512-27-100, *Connectors for electronic equipment – Tests and measurements – Part 27-100: Signal integrity tests up to 500 MHz on 60603-7 series connectors – Tests 27a to 27g*

IEC 61935-1:2019, *Specification for the testing of balanced and coaxial information technology cabling – Part 1: Installed balanced cabling as specified in ISO/IEC 11801 and related standards*

IEC 61935-2, *Specification for the testing of balanced and coaxial information technology cabling – Part 2: Cords as specified in ISO/IEC 11801 and related standards*

ISO/IEC 11801-1, *Information technology – Generic cabling for customer premises – Part 1: General requirements*

ISO/IEC 11801-3, *Information technology – Generic cabling for customer premises – Part 3: Industrial premises*

ISO/IEC TR 11801-9907, *Information technology – Generic cabling systems – Part 9907: Specifications for direct attach cabling*

ISO/IEC TR 11801-9910, *Information technology – Generic cabling systems – Part 9910: Specifications for modular plug terminated link cabling*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 11801-1, ISO/IEC 11801-3, ISO/IEC TR 11801-9907 and ISO/IEC TR 11801-9910 apply.

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

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

3.2 Abbreviated terms

For the purposes of this document, the abbreviated terms given in ISO/IEC 11801-1 and the following apply:

E2E	end-to-end
<i>L</i>	length of E2E link, MPTL and direct attach cabling
MPTL	modular plug terminated link(s)
TEST EQP	test equipment

4 Conformance

For a measurement of E2E link, MPTL or direct attach cabling to conform to this document, the following applies:

- The requirements of the applicable cabling design standards shall be applied.
- The performance of E2E link, MPTL and direct attach cabling shall conform to Clause 5.
- The testing shall be undertaken in accordance with Clause 8.
- The test head shall meet the requirements of Clause 9.

5 Transmission performance of E2E links, MPTLs and direct attach cabling

Table 1 indicates the references to performance limits applicable to the measurements.

Table 1 – Transmission performance limits

Cabling configuration	Reference for performance limits
E2E link	ISO/IEC 11801-3 ^{a,b}
MPTL	ISO/IEC TR 11801-9910
direct attach cabling	ISO/IEC TR 11801-9907
^a For more details, see ISO/IEC 11801-3.	
^b The relevant requirements were added by ISO/IEC 11801-3:2017/AMD1	

6 Transmission limits of E2E link, MPTLs and direct attach cabling

The cabling under test shall comply with the transmission limits for the designated category in Table 1 when tested with the corresponding test head as described in Clause 9 and the transmission limits of all lower categories.

E2E link testing should be used to provide assurance of installed cabling terminated at both ends in accordance with the IEC 60603-7 series, IEC 61076-3-106, IEC 61076-3-117, IEC 61076-2-101, IEC 61076-2, IEC 61076-3-104, IEC 61076-3-109 or IEC 61076-3-110.

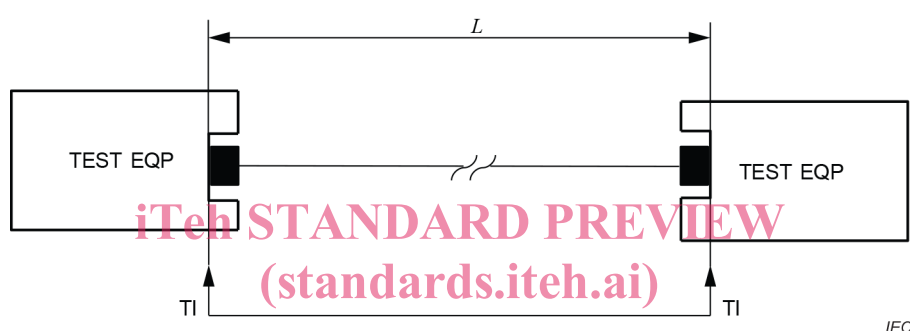
MPTL testing should be used to provide assurance of installed cabling terminated at both ends in accordance with ISO/IEC TR 11801-9910.

Direct attach cabling testing should be used to provide assurance of installed cabling terminated at both ends in accordance with the IEC 60603-7 series, IEC 61076-2-101, IEC 61076-3-104, IEC 61076-2-109 and IEC 61076-3-110.

7 Reference planes of E2E link, MPTL and direct attach cabling

7.1 Reference planes of E2E link

The reference planes for the measurement of E2E links are shown in Figure 1.



Key

L Length of E2E cabling

TI Test interface

EQP Equipment

 Plug & jack

Figure 1 – Reference planes of E2E links

7.2 Reference planes of MPTL

The reference planes for the measurement of MPTL configurations are shown in Figure 2 and Figure 3.