



SLOVENSKI STANDARD

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SIST EN 50697:2019

Informacijska tehnologija - Merjenje povezav od konca do konca (E2E), modularne zaključene povezave in neposredno povezani kabli

Information technology - Measurement of end-to-end links, modular plug terminated links and direct attach cabling

Informationstechnik - Messung der Verbindungsstrecke von Ende-zu-Ende, Anschluss mit freiem Steckverbinder und Direktanschluss

Technologies de l'information - Mesurage des liaisons de bout en bout, des liaisons à connecteurs modulaires et des câblages à connexion directe

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35.110 Omreževanje Networking

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Information technology - Measurement of end-to-end links, modular plug terminated links and direct attach cabling

Technologies de l'information - Mesurage des liaisons de bout en bout, des liaisons à connecteurs modulaires et des câblages à connexion directe

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (EN 50697:2022) has been prepared by CLC/TC 215 “Electrotechnical aspects of telecommunication equipment”.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-10-17
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2025-10-17

This document supersedes EN 50697:2019 and all of its amendments and corrigenda (if any).

This document includes the following significant technical changes with respect to EN 50697:2019:

- a) Technically revised to cover the measurement of end-to-end links, MPTL and direct attach cabling;
- b) Annex A updated to contain examples of end-to-end link Category 5 and Category 6 test head performance;
- c) Annex B on test regime for reference performance and installation performance of end-to-end link, MPTL and direct attach cabling added.

This document is based upon ISO/IEC 14763-4:2021, “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”.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website.

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Introduction

Balanced cabling is constructed for connecting equipment using free connectors. It is known that field termination in all parts of the channel has an influence on the channel performance.

Poor termination can cause problems in the channel performance and can affect reliable data transmission.

This document describes the measurement of the three cabling structures specified in EN 50173-20 which verifies the performance of their terminating connectors.

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

This document is one of a number of documents prepared in support of European Standards and Technical Reports on information and communication technology cabling produced by CLC/TC 215.

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1 Scope

This document specifies the measurement of two- and four-pair balanced cabling of the following cabling configurations specified in EN 50173-20:

- 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.

This document specifies laboratory and field measurement procedures. The requirements for accuracy to measure cabling parameters identified in EN 50173-20 are provided in IEC 61935-1 and EN 61935-2.

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.

EN 50173-1, *Information technology — Generic cabling systems — Part 1: General requirements*

EN 50173-20, *Information technology — Generic cabling systems — Part 20: Alternative cabling configurations*

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

EN 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 (IEC 61935-2)*

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*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50173-20 apply.

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

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

EN 50697:2022 (E)**3.2 Abbreviations**

For the purposes of this document, the abbreviations of EN 50173-1 and the following apply.

E2E	end-to-end
L	length of E2E link/MPTL/direct attach cabling
MPTL	modular plug terminated link(s)
TEST EQP	test equipment
TI	test interface

4 Conformance

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

- The configuration, structure and transmission performance limits shall conform to the requirements of EN 50173-20;
- The testing shall be undertaken in accordance with Clause 7;
- The test head shall meet the requirements of Clause 8.

5 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 EN 50173-20 when tested with the corresponding test head as described in Clause 8 and the transmission limits of all lower categories.

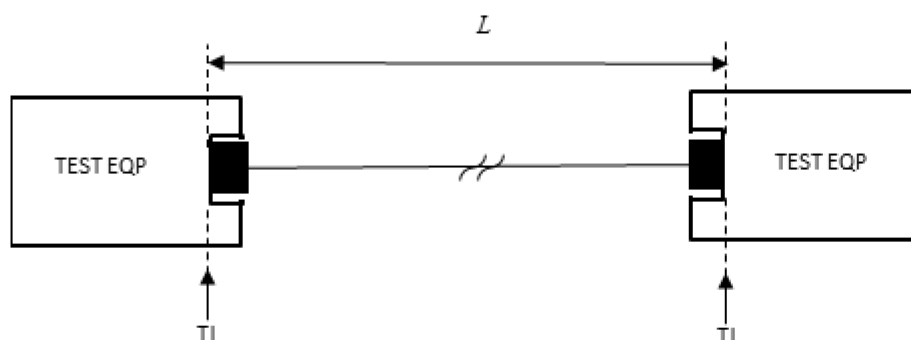
E2E link testing should be used to provide assurance of installed cabling terminated at both ends in accordance with the EN 60603-7 series, EN 61076-3-106, EN 61076-3-117, EN 61076-2-101, EN 61076-2, EN 61076-3-104, EN 61076-2-109 or EN 61076-3-110.

MPTL testing should be used to provide assurance of installed cabling terminated at both ends conforming to EN 50173-20.

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

6 Reference planes of E2E link, MPTL and direct attach cabling**6.1 Reference planes of E2E link**

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

**Key**


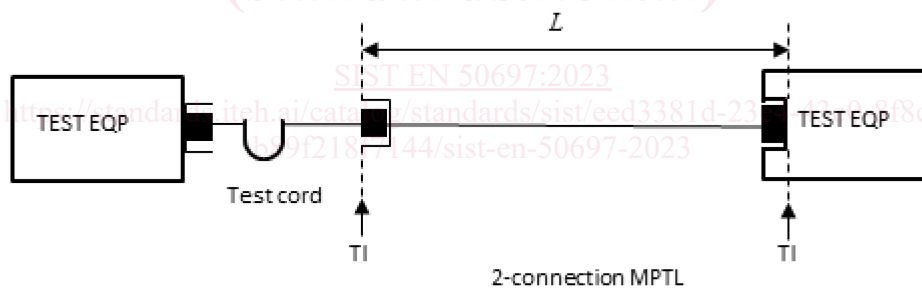
L	length of E2E cabling
TI	test interface
TEST EQP	test equipment
	plug and jack

Figure 1 — Reference planes of E2E links**6.2 Reference planes of MPTL**

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

**Key**


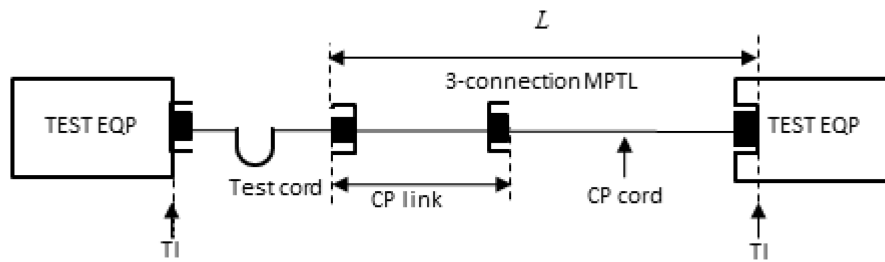
L	length of MPTL cabling
TI	test interface
TEST EQP	test equipment
	plug and jack

Figure 2 — Reference planes of 2-connection MPTL

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Key


L	length of MPTL cabling
TI	test interface
TEST EQP	test equipment
	plug and jack

Figure 3 — Reference planes of 3-connection MPTL

6.3 Reference planes of direct attach cabling

The reference planes for the measurement of direct attach cabling are shown in Figure 4.



Key


L	length of direct attach cabling
TI	test interface
TEST EQP	test equipment
	plug and jack

Figure 4 — Reference planes of direct attach cabling

7 Testing

7.1 General

Performance testing can be undertaken either in a laboratory or in the field after installation.

The test regime of reference performance and installation performance of E2E link, MPTL and direct attach cabling shall be in accordance with Annex B.