

BSI Standards Publication

Information technology - Generic cabling for customer premises

Part 9902: End-to-end link configurations



National foreword

This Published Document is the UK implementation of ISO/IEC TR 11801-9902:2017.

The UK participation in its preparation was entrusted to Technical Committee ICT/-/1, Information systems co-ordination.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2017 Published by BSI Standards Limited 2017

ISBN 978 0 580 94387 4

ICS 35.200

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 November 2017.

Amendments/corrigenda issued since publication

Date Text affected



ISO/IEC TR 11801-9902

Edition 1.0 2017-06

TECHNICAL REPORT

Information technology – Generic cabling for customer premises – Part 9902: End-to-end link configurations

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 35.200 ISBN 978-2-8322-4486-9

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

Г	JREWC		
IN	TRODU	JCTION	6
1	Scop	e	7
2	Norm	native references	7
3	Terms, definitions, abbreviated terms and symbols		
	3.1	Terms and definitions	7
	3.2	Abbreviated terms	
	3.3	Symbols	8
4	Spec	ifications	9
5	Exan	nples of end-to-end link configurations	10
6		ormance specifications when using end-to-end link limits	
	6.1	General	
	6.2	Worst case limits	
	6.3	Insertion loss limits	
	6.4	Return loss	
	6.5	NEXT limits	
	6.6	PSNEXT limits	
	6.7	ACR-F Limits	18
	6.8	PSACR-F	19
	6.9	TCL specifications	19
	6.10	ELTCTL specifications	20
	6.11	Coupling attenuation specifications	20
	6.12	DC loop resistance	20
	6.13	Propagation delay	21
	6.14	Delay skew	21
	6.15	DC resistance unbalance within a pair	
7	E2E	link performance	21
	7.1	General	21
	7.2	Reference performance testing	22
	7.3	Installation performance testing	
	7.4	Installation performance testing of E2E links	
8	Testi	ng of end-to-end links	23
Ar	nnex A	(informative) CP cords	24
	A.1	Specifications for Class D and Class E CP cords	24
	A.2	Specifications for Class E _A CP cords	24
	A.2.1	General	24
	A.2.2	2 Insertion loss	24
	A.2.3	Return loss	24
	A.2.4	NEXT	25
	A.2.5		
	A.2.6		
	A.2.7		
	A.2.8		
	A.2.9	ELTCTL	26

© IEC 2017	11801-9902:2017 – 3 –	
A.2.10	Propagation delay	26
A.2.11	Delay skew	26
A.2.12	DC resistance unbalance within a pair	
Bibliography.		27
Figure 1 – Sy	mbols for bulkhead connections	9
Figure 2 – Or	ne-segment, two-connections, E2E link	10
Figure 3 – Tv	vo-segments, three-connections, E2E link	10
Figure 4 – Th	ree-segments, one-connection bulkheads, four-connections, E2E link	10
Figure 5 – Th	ree-segments, six-connections, E2E link	10
Figure 6 – Th	ree-segments, four-connections, E2E link	11
Figure 7 – Th	ree-segments, four-connections, E2E link	11
Figure 8 – Fo	our-segments, five-connections, E2E link	11
Figure 9 – Fiv	ve-segments, six-connections, E2E link	11
Figure A.1 –	One-segment, two-connection, CP cord	24
Table 1 – Wo	orst case Class D E2E link performance at key frequencies	12
	orst case Class E E2E link performance at key frequencies	
	iss D E2E link insertion loss limits	
	ss E E2E link insertion loss limits	
	iss D E2E link return loss limits	
	iss E E2E link return loss limits	
	iss D E2E link NEXT limits	
Table 8 – Cla	iss E E2E link NEXT limits	16
Table 9 – Cla	iss D E2E link PSNEXT limits	17
Table 10 – C	lass E E2E link PSNEXT limits	17
Table 11 – C	lass D E2E Link ACR-F limits	18
Table 12 –Cla	ass E E2E Link ACR-F limits	18
Table 13 – C	lass D E2E link PSACR-F limits	19
Table 14 – C	lass E E2E link PSACR-F limits	19
Table 15 – E	2E link TCL	19
Table 16 – E	2E link segment ELTCTL	20
Table 17 – M	inimum E2E link coupling attenuation	20
Table 18 – E	2E link segment DC loop resistance	20
Table 19 – E	2E link delay	21
Table 20 – E	2E link delay skew	21
Table 21 – E	2E link DC resistance unbalance	21
	est regime for reference performance and installation performance – bling of Classes D to E	23
	Class E _A insertion loss specifications	
	Class FA return loss specifications	25

-4-	ISO/IEC TR 11801-9902:2017 © IEC 2017
Table A.3 – Class E _A NEXT specifications	25
Table A.4 – Class E _A PSNEXT specifications	25
Table A.5 – Class E _A ACR-F specifications	25
Table A.6 – Class E _A PSACR-F specifications	26
Table A.7 – Class E_A propagation delay specifications	26
Table A.8 – Class E _A delay skew specifications	26
Table A.9 – E2E link DC resistance unbalance	26

INFORMATION TECHNOLOGY – GENERIC CABLING FOR CUSTOMER PREMISES –

Part 9902: End-to-end link configurations

FOREWORD

- 1) ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.
- 2) The formal decisions or agreements of IEC and ISO on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees and ISO member bodies.
- 3) IEC, ISO and ISO/IEC publications have the form of recommendations for international use and are accepted by IEC National Committees and ISO member bodies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC, ISO and ISO/IEC publications is accurate, IEC or ISO cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees and ISO member bodies undertake to apply IEC, ISO and ISO/IEC publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any ISO, IEC or ISO/IEC publication and the corresponding national or regional publication should be clearly indicated in the latter.
- 5) ISO and IEC do not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. ISO or IEC are not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or ISO or its directors, employees, servants or agents including individual experts and members of their technical committees and IEC National Committees or ISO member bodies for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication of, use of, or reliance upon, this ISO/IEC publication or any other IEC, ISO or ISO/IEC publications.
- 8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this ISO/IEC publication may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

The main task of the joint technical committee is to prepare International Standards. However, the joint technical committee may propose the publication of a Technical Report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

ISO/IEC TR 11801-9902, which is a Technical Report, was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This Technical Report has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The list of all currently available parts of the ISO/IEC 11801 series, under the general title *Information technology* — *Generic cabling for customer premises*, can be found on the IEC website.

-6 -

ISO/IEC TR 11801-9902:2017 © IEC 2017

INTRODUCTION

One major difference between a standard generic cabling installation and an industrial cabling as also other application areas of cabling is how it is installed. In these areas it is common practice to deploy cabling channels constructed from one or more cords as described in Annex B and Annex C of ISO/IEC 11801-3:—1. In addition, the cords are field terminated rather than pre-terminated into plugs elsewhere. As a result, these cords might have problems associated with the termination process which are not identified during channel verification testing in accordance with ISO/IEC 11801-1 since such testing excludes the free connectors at the end of the channel.

This Technical Report provides definitions for, and examples of, such cabling implementations, described as end-to-end (E2E) links. It also provides performance specifications to support Class D and Class E balanced cabling channels of ISO/IEC 11801-1 which include the impact of the terminating connectors that may be used for performance verification using the test method of ISO/IEC 14763-4.

¹ Under preparation. Stage at the time of publication: ISO/IEC FDIS 11801-3:2017.

INFORMATION TECHNOLOGY – GENERIC CABLING FOR CUSTOMER PREMISES –

Part 9902: End-to-end link configurations

1 Scope

This part of ISO/IEC 11801, which is a Technical Report, provides definitions for, and examples of, cabling implementations described as end-to-end (E2E) links.

In addition, this document provides performance specifications to support Class D and Class E balanced cabling channels of ISO/IEC 11801-1. These specifications amend those channel specifications of ISO/IEC 11801-1 by including the impact of the free connectors in accordance with the interfaces specified in ISO/IEC 11801-3 used to terminate the E2E link.

Test methods are provided in ISO/IEC 14763-4.

End-to-end link configurations can include any type of connection.

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.

ISO/IEC 11801-1², Information technology – Generic cabling for customer premises – Part 1: General requirements

ISO/IEC 11801-3³, Information technology – Generic cabling for customer premises – Part 3: Industrial premises

ISO/IEC 14763-4⁴, Information technology – Implementation and operation of customer premises cabling – Part 4: Measurement of end-to-end (E2E)-links

3 Terms, definitions, abbreviated terms and symbols

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 and the following apply.

² Under preparation. Stage at the time of publication: ISO/IEC FDIS 11801-1:2017.

³ Under preparation. Stage at the time of publication: ISO/IEC FDIS 11801-3:2017.

⁴ Under preparation. Stage at the time of publication: ISO/IEC CDV 14763-4:2017.