

SLOVENSKI STANDARD SIST EN 61935-2:2010

01-november-2010

Nadomešča:

SIST EN 61935-2:2006

Specifikacija za preskušanje simetričnega in koaksialnega okablenja v informacijski tehnologiji - 2. del: Vrvice po specifikaciji iz ISO/IEC 11801 in sorodnih standardov (IEC 1935-2:2010)

Specification for the testing of balanced and coaxial information technology cabling - Part 2: Cords as specified in ISO/IEC 11801 and related standards (IEC 1935-2:2010)

iTeh STANDARD PREVIEW

Spezifikation für die Prüfung der symmetrischen und koaxialen informationstechnischen Verkabelung – Teil 2: Schnüre nach ISO/IEC 11801 und entsprechenden Normen (IEC 1935-2:2010)

SIST EN 61935-2:2010

https://standards.iteh.ai/catalog/standards/sist/93b98f54-f453-4036-801d-

Spécification relative aux essais des câblages symétriques et coaxiaux des technologies de l'information - Partie 2: Cordons tels que spécifiés dans l'ISO/CEI 11801 et normes associées (CEI 1935-2:2010)

Ta slovenski standard je istoveten z: EN 61935-2:2010

ICS:

33.120.10 Koaksialni kabli. Valovodi Coaxial cables. Waveguides

SIST EN 61935-2:2010 en,fr

SIST EN 61935-2:2010

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 61935-2:2010

https://standards.iteh.ai/catalog/standards/sist/93b98f54-f453-4036-801d-721ef0a62a91/sist-en-61935-2-2010

EUROPEAN STANDARD

EN 61935-2

NORME EUROPÉENNE EUROPÄISCHE NORM

September 2010

ICS 33.040.20; 33.120.20

Supersedes EN 61935-2:2005

English version

Specification for the testing of balanced and coaxial information technology cabling -

Part 2: Cords as specified in ISO/IEC 11801 and related standards (IEC 61935-2:2010)

Spécification relative aux essais des câblages symétriques et coaxiaux des technologies de l'information -Partie 2: Cordons tels que spécifiés dans l'ISO/CEI 11801 et normes associées Spezifikation für die Prüfung der symmetrischen und koaxialen informationstechnischen Verkabelung – Teil 2: Schnüre nach ISO/IEC 11801 und entsprechenden Normen (IEC 61935-2:2010)

(CEI 61935-2:2010) iTeh STANDARD PREVIEW (standards.iteh.ai)

This European Standard was approved by CENELEC on 2010-09-01, CENELEC members are bound to comply with the CEN/CENELEC internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 46/351/FDIS, future edition 3 of IEC 61935-2, prepared by IEC TC 46, Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61935-2 on 2010-09-01.

This European Standard supersedes EN 61935-2:2005.

This EN 61935-2:2010 differs from EN 61935-2:2005 in that it covers category 6_A to category 7_A cords as defined in ISO/IEC 11801.

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

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 2013-09-01

2011-06-01

(dop)

Annex ZA has been added by CENELEC.NDARD PREVIEW

(standards.iteh.ai)

Endorsement notice

SIST EN 61935-2:2010

The text of the International Standard JEC 61935-2:2010 was approved by CENELEC as a European Standard without any modification. 721ef0a62a91/sist-en-61935-2-2010

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-68 NOTE Harmonized as EN 60068-2-68.

IEC 60512-27-100¹⁾ NOTE Harmonized as EN 60512-27-100¹⁾.

¹⁾ At draft stage.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	Year	<u>Title</u>	EN/HD	<u>Year</u>
IEC 60068-2-61	-	Environmental testing - Part 2: Test methods - Test Z/ABDM: Climatic sequence	EN 60068-2-61	-
IEC 60603-7	Series	Connectors for electronic equipment - Part 7: Detail specifications	EN 60603-7	Series
IEC 60603-7	2008 iT	Connectors for electronic equipment - Part 7: Detail specification for 8-way, unshielded, free and fixed connectors	EN 60603-7	2009
IEC 60603-7-51	- https://sta	Connectors for electronic equipment - Part 7-51: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 500 MHz	EN 60603-7-51	-
IEC 61076-3-104	- -	Connectors for electronic equipment- Product requirements - Part 3-104: Detail specification for 8-way, shielded free and fixed connectors for data transmissions with frequencies up to 1 000 MHz	EN 61076-3-104	-
IEC 61076-3-110	-	Connectors for electronic equipment - Product requirements - Part 3-110: Rectangular connectors - Detail specification for shielded, free and fixed connectors for data transmission with frequencies up to 1 000 MHz	EN 61076-3-110	-
IEC 61156	Series	Multicore and symmetrical pair/quad cables for digital communications	-	-
IEC 61156-1	-	Multicore and symmetrical pair/quad cables for digital communications - Part 1: Generic specification	-	-
IEC 61156-6	-	Multicore and symmetrical pair/quad cables for digital communications - Part 6: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz Work area wiring - Sectional specification	-	-
IEC 61935-1 (mod)	2009	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	EN 61935-1	2009

- 4 -

EN 61935-2:2010

 Publication
 Year
 Title
 EN/HD
 Year

 IEC 62153-4-11
 Metallic communication cable test methods - Part 4-11: Electromagnetic compatibility (EMC) - Coupling attenuation or screening attenuation of patch cords, coaxial cable assemblies, pre-connectorized cables - Absorbing clamp method

 ISO/IEC 11801
 Information technology - Generic cabling for customer premises

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 61935-2:2010

https://standards.iteh.ai/catalog/standards/sist/93b98f54-f453-4036-801d-721ef0a62a91/sist-en-61935-2-2010



IEC 61935-2

Edition 3.0 2010-07

INTERNATIONAL **STANDARD**

NORME INTERNATIONALE



Specification for the testing of balanced and coaxial information technology

Part 2: Cords as specified in ISO/IEC 11801 and related standards

Spécification relative aux essais des câblages symétriques et coaxiaux des technologies de l'information 4062a91/sist-en-61935-2-2010 Partie 2: Cordons tels que spécifiés dans l'ISO/CEI 11801 et normes associées

INTERNATIONAL **ELECTROTECHNICAL COMMISSION**

COMMISSION **ELECTROTECHNIQUE INTERNATIONALE**

PRICE CODE CODE PRIX



ICS 33.040.20; 33.120.20

ISBN 978-2-88912-001-7

CONTENTS

FOI	REWO)RD	4			
INT	RODU	JCTION	6			
1	Scop	e	7			
2	Norm	ative references	7			
3	Term	Terms and definitions				
4	Gene	eral requirements and test configuration	8			
	4.1	Cable and connector design				
	4.2	Balanced cord, cable and connector tests				
	4.3	Test configuration and equipment	8			
	4.4	Balanced cord tests requirements	9			
5	Acce	ptance tests	10			
	5.1	Visual inspection	10			
	5.2	Wire map	11			
	5.3	Propagation delay	12			
	5.4	Delay skew	12			
	5.5	Insertion IosiTeh STANDARD PREVIEW				
	5.6	Return loss	12			
	5.7					
	5.8	Assumptions used in the development of cord requirements				
6		nced cord test procedure – Network analyser test configuration				
7	Perio	dic tests	17			
	7.1	General	17			
	7.2	Tensile strength				
	7.3	Flexure				
	7.4	Bending				
	7.5	Twisting				
	7.6	Crushing				
	7.7	Dust test				
	7.8	Coupling attenuation				
_	7.9	Climatic sequence				
8		head requirements				
	8.1	General				
	8.2	Minimum requirements for all test head designs				
	8.3	Additional FEXT requirements for balanced connector compatible test heads	25			
	8.4	Additional return loss requirements for balanced connector compatible test heads	25			
	8.5	NEXT loss centering requirements for balanced connector compatible test	25			
	5.5	heads	25			
Bib	liogra	ohy	27			

Figure 1 – Lest configuration for balanced cord for NEXT and return loss measurements	9
Figure 2 – Correct pairing	11
Figure 3 – Incorrect pairing	11
Figure 4 – Initial marking of the cable sheath	17
Figure 5 – Final visual inspection	17
Figure 6 – Fixture for balanced cord flexure test	18
Figure 7 – Bending test: assembly in U shape	19
Figure 8 – Twisting test: assembly in U shape	20
Figure 9 – Fixture for cable crushing test	21
Figure 10 – Measuring device	23
Figure 11 – Centering of NEXT properties of the balanced connector test head	26
Table 1 – Return loss requirements	13
Table 2 – Balanced cord return loss requirements at key frequencies	13
Table 3 – Category 5 balanced cord NEXT requirements at key frequencies	15
Table 4 – Category 6 balanced cord NEXT requirements at key frequencies	15
Table 5 – Category 6A balanced cord NEXT requirements at key frequencies	15
Table 6 - Category 7 balanced cord NEXT requirements at key frequencies	15
Table 7 – Category 7 _A balanced cord NEXT requirements at key frequencies	15
Table 8 – Assumptions for cabling components used in the development of NEXT and	d
return loss requirements	16
Table 9 – Coupling attenuation limits (0a62a91/sist-en-61935-2-2010	23

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATION FOR THE TESTING OF BALANCED AND COAXIAL INFORMATION TECHNOLOGY CABLING –

Part 2: Cords as specified in ISO/IEC 11801 and related standards

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC 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.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC 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 undertake to apply IEC Publications transparently to the maximum extent possible in the international and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter
- https://standards.itch.ai/catalog/standards/sist/93b98f54-f453-4036-801d
 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is 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 its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees 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, use of, or reliance upon, this IEC Publication or any other 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 IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61935-2 has been prepared by IEC technical committee 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories.

This third edition cancels and replaces the second edition published in 2005.

This third edition of IEC 61935-2 differs from the second edition in that it covers category 6_A to category 7_A cords as defined in ISO/IEC 11801.

- 5 -

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

FDIS	Report on voting	
46/351/FDIS	46/364/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.

The French version of this standard has not been voted upon.

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

A list of all parts of the IEC 61935 series, under the general title: Specification for the testing of balanced and coaxial information technology cabling, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or ANDARD PREVIEW
- amended.

A bilingual version of this publication may be issued at a later date.

SIST EN 61935-2:2010

https://standards.iteh.ai/catalog/standards/sist/93b98f54-f453-4036-801d-

IMPORTANT - The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

61935-2 © IEC:2010

-6-

INTRODUCTION

Balanced cords are constructed for connecting equipment using free connectors according to IEC 60603-7 series, IEC 61076-3-104 and IEC 61076-3-110. It is known that connecting hardware performance is subject to influence by the properties of the free connector termination and therefore balanced cords should be tested to determine the quality of the assembly. Moreover, the performance of balanced cords may differ due to the performances of the involved separate components depending upon the efficiency of the manufacturing procedure. Manufacturing procedures also impact upon the reliability of these balanced cords. Therefore, the primary object of this standard is to provide test methods to ensure compatibility of balanced cords to be used in cabling according to ISO/IEC 11801. Another object is to provide test methods and associated requirements to demonstrate the performance and reliability of these balanced cords during their operational lifetime.

The test methods described in this standard may also be used for any balanced cords that include twisted pairs terminated at each end.

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 61935-2:2010 https://standards.iteh.ai/catalog/standards/sist/93b98f54-f453-4036-801d-721ef0a62a91/sist-en-61935-2-2010