SLOVENSKI STANDARD
SIST EN 50602:2014

01-maj-2014

Simetrično komunikacijsko okabljenje z zaslonjenimi ravnimi povezovalnimi vrvicami in ravnimi vrvicami za delovna območja v skladu z EN 50173-4 za uporabo v razredu E - Podrobna specifikacija

Balanced communication cabling in accordance with EN 50173-4 unscreened straight patch cords and straight work area cords for class E applications - detail specification

Ta slovenski standard je istoveten z: EN 50602:2014

ICS:

33.120.10 Koaksialni kabli. Valovodi Coaxial cables. Waveguides

SIST EN 50602:2014 **en**

EUROPEAN STANDARD

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EN 50602

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ICS 33.120.10

English version

Generic cabling systems - Specification for the testing of balanced communication cabling in accordance with EN 50173-4 - Unscreened straight patch cords and straight work area cords for class E applications - Detail specification

Systèmes de câblage générique - Spécification relative aux essais de câblage de télécommunications symétriques selon l'EN 50173-4 – Cordons droits de brassage et cordons droits de zone de travail non écrantés pour les applications de classe E - Spécification particulière

Anwendungsneutrale Kommunikationsverkabelung - Spezifikation zur Prüfung der symmetrischen Kommunikationsverkabelung nach EN 50173-4 - Ungeschirmte gerade Schnüre und Geräteanschlusskabel für Anwendungen der Klasse E - Bauartspezifikation

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CENELEC

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

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Foreword

This document (EN 50602:2014) has been prepared by CLC/TC 46X "Communication cables".

The following dates are fixed:

- latest date by which this document has to b e implemented at national level by publication of an identical national standard or by endorsement (dop) 2014-09-23
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2016-09-23

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1 Scope

This detail specification describes straight unscreened patch cords and patch cords and application-specific cords enabling the construction of Class E channels as defined in the EN 50173 series of standards.

This detail specification describes cords of which the transmission characteristics are up to 250 MHz for digital communication. The test configuration is detailed in EN 61935-2.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50173-4, *Information technology — Generic cabling systems — Part 4: Homes*

EN 50288-1, *Multi-element metallic cables used in analogue and digital communication and control — Part 1: Generic specification*

EN 50288-6-2, *Multi-element metallic cables used in analogue and digital communication and control — Part 6-2: Sectional specification for unscreened cables characterised up to 250 MHz — Work area and patch cord cables*

EN 50289-1-13, *Communication cables — Specifications for test methods — Part 1-13: Electrical test methods — Coupling attenuation or screening attenuation of patch cords / coaxial cable assemblies / pre-connectorised cables*

EN 50289-4-17, *Communication cables — Specifications for test methods — Part 4-17: Test methods for UV resistance evaluation of the sheath of electrical and optical fibre cable*

EN 60603-7-4, *Connectors for electronic equipment — Part 7-4: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz (IEC 60603-7-4)*

EN 60794-1-2, *Optical fibre cables — Part 1-2: Generic specification — Basic optical cable test procedures (IEC 60794-1-2)*

EN 61935-2-2010, *Testing of balanced communication cabling in accordance with standards series EN 50173 — Part 2: Patch cords and work area cords (IEC 61935-2:2010)*

EN 61935-2-20, *Testing of balanced communication cabling in accordance with series EN 50173 — Part 2-20: Patch cords and work area cords — Blank detail specification for class D applications (IEC 61935-2-20)*

EN 62012-1:2002, *Multicore and symmetrical pair/quad cables for digital communications to be used in harsh environments — Part 1: Generic specification (IEC 62012-1:2002)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
straight cord
cord of which the respective pins of the connectors are mated together (1 to 1, 2 to 2,…)

3.2
cross over cord
cord that is not a straight cord and of which the respective pins of connectors are mated following a specific combination, (e.g. : 1 to 3, 2 to 6, 3 to 1, 4 to 4, 5 to 5, 6 to 2, 7 to 7, 8 to 8)

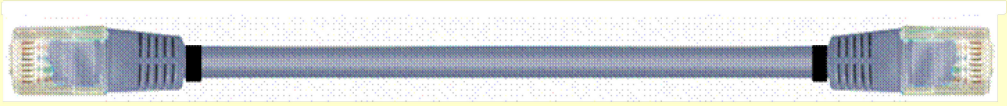
4 Detail specification for unscreened cords for Class E channels

[1] Issued by :	***[2] Document:*** ***Edition :*** ***Date:***
[3]] Available from:	[4] Sectional specification for the cords : EN 61935-2 Blank Detail specification : EN 61935-2-20

[5] Additional references : EN 50288-1 ; EN 50288-6-2 ; EN 50173-4 ; EN 60603-7-4

[6] Cord description: Straight cord.
Twisted pair cable, 4 unscreened pairs with stranded copper conductors, used for work area connection, with nominal impedance of 100 Ω for use in class E channels.

[7] Cable assembly construction:



EN 61935-2:2010, 4.1	EN 50288-1	EN 50288-6-2		
	4.12	4.12	Conductor Material Sheath Material Nominal thickness Colour Overall length Diameter Marking	Stranded annealed copper PVC, ZH ns 10 m max 6 mm max Acc customer
	2.2.13	2.2.13	Packaging :	
Visual examination	EN 61935-2:2010, 5.1			

[8]

Minimum bending radius for static bending:	24 mm
Minimum bending radius for dynamic bending:	48 mm
Temperature range for installation	0 – 50 °C

Operating temperature range under static conditions: from -10 °C to +60 °C

[9] **Characteristics**	*[10]* ***EN 50288-1*** **subclause**	*[11]* ***EN 50288-6-2*** **subclause**	*[12]* **Recommended severities/Requirements**				*[13]* **Comments**
Electrical Characteristics	**5.1**	**5.1**					
DC loop resistance	5.1.1.1	5.1.1	Assumed to be met by design				
CS Resistance unbalance	5.1.1.2	5.1.1	Assumed to be met by design				
Wire Map	EN 61935-2:2010, 5.2						
Transmission characteristics	**6.3**	**6.3**					
Propagation Delay		EN 61935-2:2010, 5.3	Assumed to be met by design				
Differential phase delay (skew)		EN 61935-2:2010, 5.4	Assumed to be met by design				
Insertion loss		EN 61935-2:2010, 5.5	MHz	2 m	5 m	10 m	Values are in dB
			1	0,10	0,20	0,35	
			16	0,39	0,73	1,30	
			100	1,00	1,89	3,38	
			250	1.62	3,10	5.56	
Near-end crosstalk (Pair to pair)	6.3.4	EN 61935-2:2010, 5.7	MHz	2 m	5 m	10 m	Values are in dB
			1	65,0	65	65,0	
			16	62,6	61,0	59,5	
			100	46,2	45,1	44,2	
			250	38,7	38	37,6	
Return loss		EN 61935-2:2010, 5.6	$4 \le f < 25$ $19,8+3 \times \log f$ $25 \le f \le 250$ $38-10 \times \log f$				Values are in dB
Screening attenuation	EN 50289-1-13	EN 50289-1-13	na				
Transfer impedance	6.2.7	6.2.7	na				
Coupling attenuation	6.2.8	EN 61935-2:2010, 7.8	type III 30 MHz -100 MHz 40 dB 100 MHz -1000 MHz 40 – 20 · log10 (*f* /100)				Values are in dB
Mechanical and dimensional characteristics	**5.2**	**5.2**					
Tensile performance of the cord		EN 61935-2:2010, 7.2	≥ 50 N				
Flexure		EN 61935-2:2010, 7.3	500 flex				
Bending		EN 61935-2:2010, 7.4	24 mm RL : $4 \le f < 25$ $19,8+3 \times \log f$ $25 \le f \le 250$ $38-10 \times \log f$				Values are in dB
Twisting		EN 61935-2:2010, 7.5	Applicable				
Crushing		EN 61935-2:2010, 7.6	800 N				
Dust test		EN 61935-2:2010, 7.7	2 cycles				
Impact test of the cable	6.4.9	6.4.9	1 J				
Shock	EN 62012-1:2002, 3.4.4	EN 62012-1	15 g / 11 ms				
Bump	EN 62012-1:2002, 3.4.3	EN 62012-1	na				