BS EN 50599:2014

BSI Standards Publication

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

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of EN 50599:2014.

The UK participation in its preparation was entrusted to Technical Committee EPL/46, Cables, wires and waveguides, radio frequency connectors and accessories for communication and signalling.

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.

ISBN 978 0 580 82319 0

ICS 33.120.10

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

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2014.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50599

May 2014

ICS 33.120.10

English Version

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

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

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 50599:2014 E

Contents

Page

Foreword

This document (EN 50599:2014) has been prepared by CLC/TC 46X "Communication cables".

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)	2014-11-30
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2016-09-16

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

1 Scope

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

This detail specification describes cords of which the transmission characteristics are up to 100 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 50288-2-2, *Multi-element metallic cables used in analogue and digital communication and control — Part 2-2: Sectional specification for screened cables characterised up to 100 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 60603-7-3, *Connectors for electronic equipment — Part 7-3: Detail specification for 8-way, shielded, free and fixed connectors, for data transmission with frequencies up to 100 MHz (IEC 60603-7-3)*

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 screened cords for Class D channels

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

[5] Additional references : EN 50288-1 ; EN 50288-2-2 ; EN 50173-4 ; EN 60603-7-3

[6] Cord description::Straight cord.

Screened twisted pair cable, 4 pair with stranded copper conductors, used for work area connection, with nominal impedance of 100 Ω or 120 Ω for use in Class D Channels .

[7] Cable assembly construction:

EN 61935-2:2010, 4.1	EN 50288-1	EN 50288-2-2		
	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
			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 50288-2-2*** **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	
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 1 / 0,14 / 0,24 / 0,4 16 / 0,56 / 0,92 / 1,53 100 / 1,44 / 2,4 / 4,0	Values are in dBs
Near-end crosstalk (Pair to pair)	6.3.4	EN 61935-2:2010, 5.7	MHz / 2 m / 5 m / 10 m 1 / 65,0 / 65,0 / 65,0 16 / 50,3 / 49,5 / 48,7 100 / 35,0 / 34,7 / 34,5	Values are in dBs
Return loss		EN 61935-2:2010, 5.6	$4 \leq f < 25$ $19,8+3\times\log f$ $25 \leq f \leq 100$ $38-10\times\log f$	Values are in dBs
Screening attenuation	EN 50289-1-13	EN 50289-1-13	40dB	
Transfer impedance	6.2.7	6.2.7	na	
Coupling attenuation		EN 61935-2:2010, 7.8	type II 30 – 100 MHz : >= 55dB 100 – 1000 MHz : >= 55 – 20 log(f/100).	
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 : $4 \leq f < 25$ $19,8+3\times\log f$ $25 \leq f \leq 100$ $38-10\times\log f$	Values are in dBs
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	
Vibrations	EN 62012-1:2002, 3.4.2	EN 62012-1	10 – 500 Hz Amplitude= 0,35mm Acc=50m/s² 10 sweeping /axe,	10µs
Water immersion	EN 60794-1-2, method F10		na	
Damp heat steady state	EN 62012-1:2002, 3.5.2	EN 62012-1	na	

[9] **Characteristics**	*[10]* ***EN 50288-1*** **subclause**	*[11]* ***EN 50288-2-2*** **subclause**	*[12]* **Recommended severities/Requirements**	*[13]* **Comments**
Solar radiation	EN 50289-4-17		UC	
Solvents and contaminating fluids	EN 62012-1:2002, 3.6.2	EN 62012-1	na	
Salt mist and sulphur dioxide tests	EN 62012-1:2002, 3.6.2	EN 62012-1	na	
Climatic sequence		EN 61935-2:2010, 6.9	-10 °C to +60 °C	
Environmental characteristics	**5.3**	**5.3**		
Cold bend test of cable Heat shock test Flame propagation of a single cable	5.3.1 5.4	5.3 5.4	 na	
NOTE It is assumed that a thickness of 0,5 mm is sufficient for spark testing up to 3 kV, thickness larger than 0,8 mm are assumed to be sufficient for spark testing up to 5 kV.				

This page deliberately left blank

This page deliberately left blank

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

Useful Contacts:

Customer Services
Tel: +44 845 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 845 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

bsi.

...making excellence a habit.™