BS EN 50551-1:2011

BSI Standards Publication

Simplex and duplex cables to be used for cords

Part 1: Blank Detail Specification and minimum requirements

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The UK participation in its preparation was entrusted to Technical Committee GEL/86/1, Optical fibres and cables.

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

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Date	Text affected

EUROPEAN STANDARD

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EN 50551-1

February 2011

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English version

Simplex and duplex cables to be used for cords - Part 1: Blank Detail Specification and minimum requirements

Câbles simplex et duplex destinés à être utilisés en tant que cordons - Partie 1: Spécification particulière cadre et exigences minimales

Simplex und Duplex-Kabel, die in konfektionierten Leitungen benutzt werden - Teil 1: Vordruck für Bauartspezifikation und Mindestanforderungen

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Foreword

This European Standard was jointly prepared by the Technical Committee CENELEC TC 86A, Optical fibres and optical fibre cables, and the Technical Committee CENELEC TC 86BXA, Fibre optic interconnect, passive and connectorised components.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50551-1 on 2011-01-15.

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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	(dop)	2012-01-15
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-15

Contents

1 Scope

This blank detail specification describes parameters that can be considered for terminating these simplex and duplex cables with connectors in different communication applications.

Product specifications may be prepared based on this blank detail specification following in particular requirements of Clauses 3 to 6.

2 Normative references

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.

EN 60793-1-20	Optical fibres – Part 1-20: Measurement methods and test procedures – Fibre geometry (IEC 60793-1-20)
EN 60793-1-21	Optical fibres – Part 1-21: Measurement methods and test procedures – Coating geometry (IEC 60793-1-21)
EN 60793-1-40	Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation (IEC 60793-1-40)
EN 60793-1-41	Optical fibres – Part 1-41: Measurement methods and test procedures – Bandwidth (IEC 60793-1-41)
EN 60793-1-43	Optical fibres – Part 1-43: Measurement methods and test procedures – Numerical aperture (IEC 60793-1-43)
EN 60793-1-44	Optical fibres – Part 1-44: Measurement methods and test procedures – Cut-off wavelength (IEC 60793-1-44)
EN 60793-1-45	Optical fibres – Part 1-45: Measurement methods and test procedures – Mode field diameter (IEC 60793-1-45)
EN 60793-1-47	Optical fibres – Part 1-47: Measurement methods and test procedures – Macrobending loss (IEC 60793-1-47)
EN 60793-2-10	Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres (IEC 60793-2-10)
EN 60793-2-50	Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres (IEC 60793-2-50)
EN 60794-1-1	Optical fibre cables – Part 1-1: Generic specification – General (IEC 60794-1-1)
EN 60794-1-2:2003	Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedures (IEC 60794-1-2:2003)
EN 60794-2:2003	Optical fibre cables – Part 2: Indoor cables – Sectional specification (IEC 60794-2:2002)
EN 60794-2-50:2008	Optical fibre cables – Part 2-50: Indoor cables – Family specification for simplex and duplex cables for use in terminated cable assemblies (IEC 60794-2-50:2008)
EN 60811-1-1	Insulating and sheathing materials of electric and optical cables – Common test methods – Part 1-1: General application – Measurement of thickness and overall dimensions – Tests for determining the mechanical properties (IEC 60811-1-1)
IEC 60794-2-51 [1)]	Optical fibre cables – Part 2-51: Indoor optical fibre cables – Product specification for simplex and duplex cables for use in patchcords for controlled environment

[1)] At draft stage.

3 Cable description

(1) Prepared by:		(2) Document No : Issue : Date :
(3) Available from:	(4) Generic Specification : EN 60794-1-1 & EN 60794-1-2 Sectional Specification : EN 60794-2 Family Specification : EN 60794-2-50 Product Specification : IEC 60794-2-51	
(5) Additional references:		
(6) Cable description:		
(7) Cable construction:		
Optical fibres		
Fibre count		
Construction - Tight or semi-tight secondary coating - Strength elements – non metallic - Strength elements – metallic Lay-up Buffer - Material - Nominal outer diameter Sheath - Material - Maximum diameter - Nominal thickness - Thickness tolerances - Colour Additional armouring (if required) - Non-metallic armouring - Metallic armouring Marking identification - Customer requirement		
(8) Application information:		
Application (work area cord, equipment cord, patchcord, etc.)		
Maximum tensile load		N
Number of repeated bending		cycles
Minimum bending radius for operation		mm
Minimum bending radius for installation		mm
Temperature range:		
- Transport and storage		°C
- Installation		°C
- Operation		°C
Delivery cable length		m
- Length tolerance		in %
Fire performance		

4 Optical fibres

4.1 Category A1a through A1b multimode optical fibres

(9a) Characteristics	Family specification	Requirements	Test method	Remarks
Uncabled optical fibre	EN 60793-2-10, A1a.1, A1a.2, A1b			
Attenuation coefficient (cabled fibres) - at 850 nm - at 1 300 nm			EN 60793-1-40	
Minimal modal bandwidth (uncabled fibres) - at 850 nm - at 1 300 nm			EN 60793-1-41	
Numerical aperture			EN 60793-1-43	
Macro bending loss			EN 60793-1-47	
Core/cladding concentricity			EN 60793-1-20	
Core non-circularity			EN 60793-1-20	
Cladding non-circularity			EN 60793-1-20	
Core diameter			EN 60793-1-20	
Core diameter tolerance			EN 60793-1-20	
Cladding diameter			EN 60793-1-20	
Cladding diameter tolerance			EN 60793-1-20	

4.2 Single mode optical fibre

(9b) Characteristics	Family specification	Requirements	Test methods	Remarks
Uncabled optical fibre	EN 60793-2-50, B1.1, B1.3, B6a, B6b			
Attenuation coefficient (cabled fibres) - at 1 310 nm - at 1 383 nm (B1.3, B6a) - at 1 550 nm and - at 1 625 nm, etc. Attenuation discontinuities at 1 310 nm and 1 550 nm			EN 60793-1-40 EN 60793-1-40	
Cabled fibre cut-off wavelength, λ_{cc}			EN 60793-1-44	
Mode field diameter - Nominal and tolerance - 1 310 nm			EN 60793-1-45	
Core/cladding concentricity			EN 60793-1-20	
Cladding non-circularity			EN 60793-1-20	
Cladding diameter			EN 60793-1-20	
Cladding diameter tolerance			EN 60793-1-20	
Primary coating nominal diameter			EN 60793-1-21	
Primary coating nominal diameter tolerance			EN 60793-1-21	

5 Buffer

(10) Characteristics	EN 60794-2, Clause	Family requirements	Test methods	Remarks
Construction: - tight - semi-tight				
Filler				
Strippability: - tight - semi-tight			EN 60794-2-50:2008, Method E21	
Shrinkage: - tight - semi-tight			EN 60794-2-50:2008, Method F11	

6 Cable construction

6.1 General

(11) Characteristics	EN 60794-2:2003, Clause	Family requirements	Test methods	Remarks
Lay-up	6.2		Visual inspection	
Cable core	6.3			
Strength member - central - peripheral	6.4		Visual inspection	
Outer cable sheath Material Minimum sheath thickness Outer diameter Optional protection	6.6 6.6.3		 EN 60811-1-1 EN 60811-1-1	
Sheath marking Configuration, dimensions	6.7		 Visual inspection	
Abrasion resistance			EN 60794-1-2:2003, Method E2A or EN 60794-1-2:2003, Method E2B	Steel needle diameter d = 1,0 mm load: 4 N
Sheath shrinkage			EN 60794-2-50:2008, Method F11	
Buffered fibre movement in compression			EN 60794-2-50:2008, Method E22	
Sheath pull-off force			EN 60794-2-50:2008, Method E21	
Sheath abrasion	8.10		EN 60794-1-2:2003, Method E2A	

6.2 Mechanical and environmental tests

(12) Characteristics	EN 60794-2:2003, Clause	Family requirements	Test methods	Remarks
Tensile performance			EN 60794-1-2:2003, Method E1A and Method E1B	
Installation capability (selection from the following)				
- bending under tension			EN 60794-1-2:2003, Method E18	
- repeated bending			EN 60794-1-2:2003, Method E6	
- impact			EN 60794-1-2:2003, Method E4	
- kink			EN 60794-1-2:2003, Method E10	
- torsion			EN 60794-1-2:2003, Method E7	
Cable bend			EN 60794-1-2:2003, Method E11	
Crush			EN 60794-1-2:2003, Method E3	
Temperature cycling			EN 60794-1-2:2003, Method F1	

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