
Simpleksni in dupleksni kabli za vrvce - 2. del: Podrobna specifikacija in minimalne zahteve za simpleksne robustne enorodne optične kable za povezovalne vrvce/vrvce kategorije U

Simplex and duplex cables to be used for cords - Part 2: Detailed Specification and minimum requirements for simplex ruggedized single mode cables to be used for patchcord/cords Category U

Simplex- und Duplexkabel für die Anwendung in konfektionierten Leitungen - Teil 2: Bauartspezifikation und Mindestanforderungen für Simplex-Einmodenfaserkabel mit zusätzlichem Schutz für die Kategorie U

Câbles simplex et duplex destinés à être utilisés en tant que cordons -- Partie 2: Spécifications particulières et exigences minimales relatives aux câbles unimodaux simplex renforcés pour usage en cordons / cordons de brassage, en Catégorie U

Ta slovenski standard je istoveten z: EN 50551-2:2013

ICS:

33.180.10 (Optična) vlakna in kabli Fibres and cables

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en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50551-2

October 2013

ICS 33.180.10

English version

**Simplex and duplex cables to be used for cords -
Part 2: Detailed specification and minimum requirements for a 3,0 mm
simplex ruggedised single mode fibre cable to be used for
patchcords/cords category U**

Câbles simplex et duplex destinés à être
utilisés en tant que cordons -
Partie 2: Spécifications particulières et
exigences minimales relatives aux câbles
à fibres optiques unimodales renforcés
simplex de 3,0 mm pour usage en
cordons / cordons de brassage, en
Catégorie U

Simplex- und Duplex-Kabel, die in
konfektionierten Leitungen benutzt werden
-
Teil 2: Bauartspezifikation und
Mindestanforderungen für ein 3,0 mm-
Simplex-Einmodenfaserkabel mit
zusätzlichem Schutz für konfektionierte
Kabel/Leitungen der Kategorie U

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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 50551-2:2013) has been prepared by CLC/TC 86A "Optical fibres and optical fibre cables".

The following dates are fixed:

- latest date by which this document has (dop) 2014-08-19
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2016-08-19
standards conflicting with this
document have to be withdrawn

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EN 50551 is composed with the following parts:

- EN 50551-1, *Simplex and duplex cables to be used for cords — Part 1: Blank Detail Specification and minimum requirements*;
- EN 50551-2, *Simplex and duplex cables to be used for cords — Part 2: Detailed specification and minimum requirements for a 3,0 mm simplex ruggedised single mode fibre cable to be used for patchcords/cords category U*.

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

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1 Scope

This European Standard describes the minimum set of requirements that a simplex ruggedised single mode fibre cable shall meet in order to allow termination with a connector for use in category U (Uncontrolled Environment).

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 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 60793-1-44, *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 60793-2-50, *Optical fibres — Part 2-50: Product specifications — Sectional specification for class B single-mode fibres* (IEC 60793-2-50)

EN 60794-1 (all parts), *Optical fibre cables* (IEC 60794-1, all parts)

EN 60794-2 (all parts), *Optical fibre cables — Part 2-50: Indoor cables* (IEC 60794-2, all parts)

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 60811-201, *Electric and optical fibre cables — Test methods for non-metallic materials — Part 201: General tests — Measurement of insulation thickness* (IEC 60811-201)

EN 60811-203, *Electric and optical fibre cables — Test methods for non-metallic materials — Part 203: General tests — Measurement of overall dimensions* (IEC 60811-203)

EN 61034-1, *Measurement of smoke density of cables burning under defined conditions — Part 1: Test apparatus* (IEC 61034-1)

EN 61034-2, *Measurement of smoke density of cables burning under defined conditions — Part 2: Test procedure and requirements* (IEC 61034-2)

EN 61753-1, *Fibre optic interconnecting devices and passive components performance standard — Part 1: General and guidance for performance standards* (IEC 61753-1)

IEC 60332-3-25, *Tests on electric and optical fibre cables under fire conditions — Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables — Category D*

IEC 60754-1, *Test on gases evolved during combustion of materials from cables — Part 1: Determination of the halogen acid gas content*

IEC 60754-2, *Test on gases evolved during combustion of materials from cables — Part 2: Determination of acidity (by pH measurement) and conductivity*

3 Cable description

(1) Prepared by	CLC/TC 86A	(2) Document No : Issue : Date :
(3) Available from :	(4) Generic Specification : EN 60794-1 Sectional Specification : EN 60794-2 (all parts) Family Specification : EN 60794-2-50 Product Specification : -	
(5) Additional references :		
(6) Cable description : Simplex ruggedised single mode cables to be used for patchcords/cords according to EN 61753-1 Category U		
(7) Cable construction :		
Optical fibres	B1.1, B1.3, B6a, B6b	
Fibre count	1	
Construction	tight buffer coated	
- Tight or semi-tight secondary coating	Strength Elements – aramid yarns	
- Strength Elements – non metallic		
- Strength Elements - metallic		
Lay-up:		
Buffer		
- Material		
- Nominal outer diameter	900 µm	
Sheath		
- Material	LSZH (see fire requirements)	
- Maximum diameter	3,0 mm ± 0,2 mm	
- Nominal thickness		
- Thickness tolerances		
- Colour	Yellow recommended	
Additional armouring (if required)	None	
- Non-metallic armouring		
- Metallic armouring		
Marking identification		
- Customer requirement		

(8) Application information	
Application (work area cord, equipment cord, patchcord, etc.)	Work area cord, equipment cord, patchcord
Maximum tensile load (short term load for installation)	$\geq 150 \text{ N}$ Max fibre strain 0,45 % at max tensile load
Number of repeated bending	500 cycles
Minimum bending radius for operation	30 mm
Minimum bending radius for installation	60 mm
	because of bending and tension at the same time (dynamic)
Temperature range :	
- Transport and storage	-45 °C to +70 °C
- Installation	-5 °C to +45 °C
- Operation	-25 °C to +70 °C
Fire performance	IEC 60332-3-25
	EN 61034-1/-2 and IEC 60754-1/-2 or according to local regulations

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4 Optical fibres — Single mode optical fibre

(9) Characteristics	Family specification (10)	Requirements (11)	Test methods (12)	Remarks (13)
Uncabled optical fibre	EN 60793-2-50, B1.1, B1.3, B6a, B6b	EN 60793-2-50, B1.3		
Attenuation coefficient (cabled fibres) at 1 310 nm at 1 383 nm at 1 550 nm and at 1 625 nm, etc. Attenuation Discontinuities at 1 310 nm and 1 550 nm		0,4 dB/km 0,4 dB/km 0,3 dB/km 0,4 dB/km None	EN 60793-1-40 EN 60793-1-40	
Cabled fibre cut-off wavelength, λ_{cc}		$\leq 1\,260\text{ nm}$	EN 60793-1-44	
Nominal mode field diameter Mode field diameter tolerance - at 1 310 nm		9,2 μm $\pm 0,3\text{ }\mu\text{m}$	EN 60793-1-45	
Core/cladding concentricity		$< 0,6\text{ }\mu\text{m}$	EN 60793-1-20	
Cladding non-circularity		$< 1\%$	EN 60793-1-20	
Cladding diameter		125 μm	EN 60793-1-20	
Cladding diameter tolerance		$\pm 0,7\text{ }\mu\text{m}$	EN 60793-1-20	
Primary coating nominal diameter		245 μm	EN 60793-1-21	
Primary coating nominal diameter tolerance		$\pm 10\text{ }\mu\text{m}$	EN 60793-1-21	

5 Buffer

(10) Characteristics	Family specification	Requirements	Test methods	Remarks
	EN 60794-2-50 :2008, Clause			
Construction: - tight - semi-tight	4.3	-Tight		
Filler	-	None		
Strippability: - tight - semi-tight	4.3	Tight tube 50 mm – one pass with a force of up to 15 N	EN 60794-2-50, E21	
Shrinkage: - tight - semi-tight	-	N/A		