SLOVENSKI STANDARD
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Konektorski sestavi in povezovalne komponente za optiļ ne komunikacijske sisteme ï Specifikacije izdelka ï 6-2. del: Simpleks vrste SC-RJ, zaključļ en na enorodnem vlaknu IEC 60793-2-50 kategorij B1.1 in B1.3, kategorija U

Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications -- Part 6-2: SC-RJ single mode terminated on IEC 60793-2-50 category B1.1 and B1.3 singlemode fibre, category U

Steckverbindersätze und Verbindungsbauelemente für Lichtwellenleiter-Datenübertragungssysteme - Produktnormen -- Teil 6-2: Bauart SC-RJ zum Anschluss an Einmodenfasern der Typen B1.1 und B1.3 nach IEC 60793-2-50 für die Kategorie U

Jeux de connecteurs et composants d'interconnexion a utiliser dans les systemes de communication par fibres optiques - Spécifications de produit -- Partie 6-2: Type SC-RJ câblé sur une fibre unimodale des catégories B1.1 et B1.3 de la CEI 60793-2-50, catégorie U

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 86BXA, Fibre optic interconnect, passive and connectorised components.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50377-6-2 on 2007-03-01.

This European Standard supersedes EN 50377-6-2:2004.

This document is updated to include the performance of the adaptor, and patchcord next to the pigtailed connector as defined in the previous version. It also includes latest attenuation and return loss grades as specified in EN 61755 series.

CENELEC draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning SC-RJ connectors.
CENELEC takes no position concerning the evidence, validity and scope of this patent right.
The holder of this patent right has assured CENELEC Technical Committee TC 86BXA that he/she is willing to negotiate licenses under reasonable and non-discriminatory terms and conditions with applicants throughout Europe. In this respect, the statement of the holder of this patent right is registered with the IEC. Information may be obtained from:

Reichle & De-Massari AG
Intellectual Property Department
Binzstrasse 31
8622 Wetzikon
Switzerland

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)	2008-03-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-03-01

Connector sets and interconnect components to be used in optical fibre communication systems - Product specifications

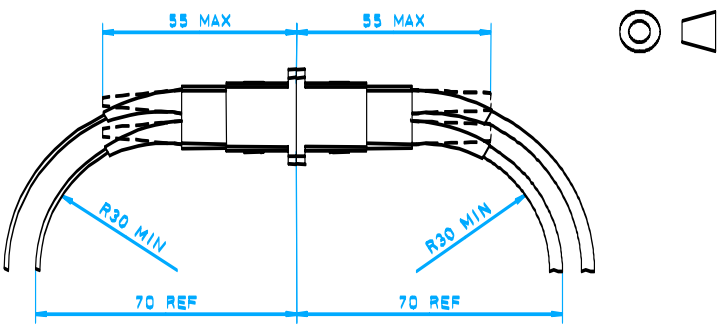
Part 6-2: SC-RJ single mode terminated on IEC 60793-2-50 category B1.1 and B1.3 singlemode fibre, category U

Description		Performance	
Coupling mechanism:	Push-pull	Application:	For the use in EN category U (uncontrolled environment)
Configuration:	Plug/adaptor/plug	Attenuation grades (random mate):	B: ≤ 0,12 dB mean ≤ 0,25 dB for ≥ 97 % of measurements
Fibre category:	EN 60793-2-50 Types B1.1 and B1.3		C: ≤ 0,25 dB mean ≤ 0,50 dB for ≥ 97 % of measurements
		Return loss grades:	2: ≥ 45 dB (mated)
Cable type:	See Table 3		

Related documents:

EN 60794-2	Optical fibre cables - Part 2: Indoor cables - Sectional specification (IEC 60794-2)
EN 61300 series	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures (IEC 61300 series)
EN 61753-1	Fibre optic interconnecting devices and passive components performance standard - Part 1: General and guidance for performance standards (IEC 61753-1)
EN 61755-1	Fibre optic connector optical interfaces - Part 1: Optical interfaces for single mode non-dispersion shifted fibres - General and guidance (IEC 61755-1)
EN 61755-3-1	Fibre optic connector optical interfaces - Part 3-1: Optical interface, 2,5 mm and 1,25 mm diameter cylindrical full zirconia PC ferrule, single mode fibre (IEC 61755-3-1, mod.)
ETSI TS 100 671	Transmission and Multiplexing (TM); Passive optical components; Optical fibre connectors for single-mode optical fibre communication systems; Common requirements and conformance testing
IEC 61754-24 [1)]	Fibre optic connector interfaces - Part 24: Type SC-RJ connector family

Outline and maximum dimensions:



[1)] At draft stage.

Contents

1 Scope

1.1 Product definition

This European Standard contains the initial, start of life dimensional, optical, mechanical and environmental performance requirements which a connector terminated with cylindrical zirconia PC ferrules and assembled single-mode resilient alignment sleeve SC-RJ connector set (plug/adaptor/plug), adaptor and patchcord must meet in order for it to be categorised as an EN standard product.

Since different variants and grades of performance are permitted, product marking details are given in 3.5.

1.2 Intermateability

Although all products conforming to the requirements of this specification will intermate, the resulting level of random attenuation performance will only be ensured in accordance with Table 1. The intention is that this will be true irrespective of the manufacturing source(s) of the product.

When intermating plug variants having different attenuation grades, the resulting level of attenuation can not be assured to be any better than the worst attenuation grade.

Table 1 - Ensured level of random attenuation

Plug variant / Attenuation grade	B	C
B	B	C
C	C	C

SC simplex plugs according to EN 61754-4 can be connected in the SC-RJ adaptor without degrading its level of performance.

1.3 Operating environment

The tests selected combined with the severities and durations are representative of an uncontrolled environment defined by EN 61753-1, category U.

1.4 Reliability

Whilst the anticipated service life expectancy of the product in this environment is 20 years, compliance with this specification does not guarantee the reliability of the product. This should be predicted using a recognised reliability assessment programme.

1.5 Quality assurance

Compliance with this specification does not guarantee the manufacturing consistency of the product. This should be maintained using a recognised quality assurance programme.

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 60793-2-50	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres (IEC 60793-2-50)
EN 61300-2-1	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-1: Tests - Vibration (sinusoidal) (IEC 61300-2-1)
EN 61300-2-2	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-2: Tests - Mating durability (IEC 61300-2-2)
EN 61300-2-4	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-4: Tests - Fibre/cable retention (IEC 61300-2-4)
EN 61300-2-5	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-5: Tests - Torsion/twist (IEC 61300-2-5)
EN 61300-2-6	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-6: Tests - Tensile strength of coupling mechanism (IEC 61300-2-6)
EN 61300-2-12	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-12: Tests - Impact (IEC 61300-2-12)
EN 61300-2-17	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-17: Tests - Cold (IEC 61300-2-17)
EN 61300-2-18	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-18: Tests - Dry heat - High temperature endurance (IEC 61300-2-18)
EN 61300-2-22	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-22: Tests - Change of temperature (IEC 61300-2-22)
EN 61300-2-26	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-26: Tests - Salt mist (IEC 61300-2-26)
EN 61300-2-27	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-27: Tests – Dust - Laminar flow (IEC 61300-2-27)
EN 61300-2-42	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-42: Tests - Static side load for connectors (IEC 61300-2-42)
EN 61300-2-44	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-44: Tests - Flexing of the strain relief of fibre optic devices (IEC 61300-2-44)
EN 61300-2-46	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-46: Tests - Damp heat cyclic (IEC 61300-2-46)
EN 61300-3-4	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-4: Examinations and measurements - Attenuation (IEC 61300-3-4)
EN 61300-3-6	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-6: Examinations and measurements - Return loss (IEC 61300-3-6)
EN 61300-3-10	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-10: Examinations and measurements - Gauge retention force (IEC 61300-3-10)
EN 61300-3-15	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-15: Examinations and measurements - Eccentricity of a convex polished ferrule endface (IEC 61300-3-15)

EN 61300-3-16	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-16: Examinations and measurements - Endface radius of spherically polished ferrules (IEC 61300-3-16)
EN 61300-3-23	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-23: Examinations and measurements - Fibre position relative to ferrule endface (IEC 61300-3-23)
EN 61300-3-28	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-28: Examinations and measurements - Transient loss (IEC 61300-3-28)
EN 61300-3-34	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-34: Examinations and measurements - Attenuation of random mated connectors (IEC 61300-3-34)
EN 61300-3-42 [1)]	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-42: Examinations and measurements - Attenuation of single mode alignment sleeves and or adaptors with resilient alignment sleeves (IEC 61300-3-42) [1)]
EN 61753-1	Fibre optic interconnecting devices and passive components performance standard - Part 1: General and guidance for performance standards (IEC 61753-1)
EN 61754-4	Fibre optic connector interfaces - Part 4: Type SC connector family (IEC 61754-4)
EN 186000-1	Generic Specification: Connector sets for optical fibres and cables - Part 1: Requirements, test methods and qualification approval procedures
IEC 61754-24 [1)]	Fibre optic connector interfaces - Part 24: Type SC-RJ connector family

3 Description

3.1 General

The SC-RJ connector is a duplex plug connector set of plug/adaptor/plug configuration characterised by two cylindrical, spring loaded butting ferrules of 2,5 mm nominal diameter and a push-pull coupling mechanism. The optical alignment mechanism of the connectors is of a resilient sleeve style.

3.2 Plug

The plug features two cylindrical full zirconia ferrules and a push-pull coupling mechanisms. Alternative materials may be used for the ferrule that have directly compatible material properties as zirconia, but the endface and performance requirements must be met under all conditions.
The plug housing has three male keys. Two of them are used to limit the relative rotation between mated SC simplex plugs and one gives the orientation to the duplex connector.
A cover (dust cap) to protect the ferrule endface when the plug is in the unmated condition shall be provided.

3.3 Adaptor

The adaptor consists of two zirconia ceramic resilient alignment sleeves and two push-pull coupling mechanisms, one for each sleeve. Alternative materials may be used for the sleeve that have directly compatible material properties as zirconia but the performance requirements must be met under all conditions.
The mounting style is a rectangular flange with 2 hole or snap-in fixing.
The adaptor can either connect to an SC-RJ plug or to two SC simplex plugs. The adaptor housing has three female keys. Two of them are used to limit the relative rotation between mated SC simplex plugs and one gives the orientation to the duplex connector.
Covers (dust caps) shall be provided to protect each duplex port of the adaptor.

[1)] At draft stage.

3.4 Materials

Materials which are not specified or which are not specifically described are left to the discretion of the manufacturer.

3.5 Dimensions

Outline dimensions and other dimensions necessary to ensure intermateability or which affect performance are specified. All other dimensions are left to the discretion of the manufacturer. Where the mating face limit dimensions are not in agreement with an EN Interface Standard this is clearly stated.

3.6 Colour and marking

Marking of the product shall be in accordance with 2.6.2 of EN 186000-1 in the following order of precedence:

a) identification of manufacturer;
b) manufacturing date code: year / week;
c) manufacturers part number;
d) variant identification number.

The preferred colour scheme is given in Table 2.

Table 2 - Preferred colour scheme

Delatch housing SC-RJ Plug	Adaptor
Blue	Blue
NOTE The preferred blue is RAL 5015. Other not listed parts could also be of the preferred colour to show the colour scheme.	

4 Variants

4.1 Terminated plug

The following fibre/cable variants are permitted:

Table 3 - Plug variants

Variant number	Fibre/cable ∅ mm	Structure	Note
B1	0,7 - 1,4	Buffered fibre	1 fibre
B2	1,7 ± 0,1	Reinforced cable	1 fibre
B3	2,0 ± 0,1	Reinforced cable	1 fibre
B4	2,5 ± 0,1	Reinforced cable	1 fibre
B5	2,8 ± 0,1	Reinforced cable	1 fibre
B6	3,0 ± 0,1	Reinforced cable	1 fibre
B7	3,2 ± 0,1	Reinforced cable	1 fibre
B8	2,7 * 5,4	Reinforced twin zip cable	2 fibres
C1	0,7 - 1,4	Buffered fibre	1 fibre
C2	1,7 ± 0,1	Reinforced cable	1 fibre
C3	2,0 ± 0,1	Reinforced cable	1 fibre
C4	2,5 ± 0,1	Reinforced cable	1 fibre
C5	2,8 ± 0,1	Reinforced cable	1 fibre
C6	3,0 ± 0,1	Reinforced cable	1 fibre
C7	3,2 ± 0,1	Reinforced cable	1 fibre
C8	2,7 * 5,4	Reinforced twin zip cable	2 fibres

4.2 Adaptor

The following variants are permitted:

Table 4 - Adaptor variants

Variant number	Format
1	Rectangular flange – Duplex
NOTE The adaptor can either be fixed by using two nuts/bolts (2 holes next to rectangular flange) or snapping on a board.	

4.3 Identification of variants

The identification numbers for the fibre/cable variants and adaptor variants are given in Tables 5, 6 and 7.

Table 5 – Grade B plug variants

Variant number	Performance class (Return loss)	Identification number
B1	2	EN 50377-6-2-B1-2
B2	2	EN 50377-6-2-B2-2
B3	2	EN 50377-6-2-B3-2
B4	2	EN 50377-6-2-B4-2
B5	2	EN 50377-6-2-B5-2
B6	2	EN 50377-6-2-B6-2
B7	2	EN 50377-6-2-B7-2
B8	2	EN 50377-6-2-B8-2

Table 6 – Grade C plug variants

Variant number	Performance class (Return loss)	Identification number
C1	2	EN 50377-6-2-C1-2
C2	2	EN 50377-6-2-C2-2
C3	2	EN 50377-6-2-C3-2
C4	2	EN 50377-6-2-C4-2
C5	2	EN 50377-6-2-C5-2
C6	2	EN 50377-6-2-C6-2
C7	2	EN 50377-6-2-C7-2
C8	2	EN 50377-6-2-C8-2

Table 7 - Adaptor variants

Variant number	Identification number
1	EN 50377-6-2-1