



Product Specifications

	Part Name	Customer P/N	Version	Issue Date
	Indoor Optical Cable Assembly (Patch Cord) G657A2, 2 Core, LC(UPC) Duplex - LC(UPC) Duplex, Yellow LSZH	/	V1.0	2024-08-02




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## Contents

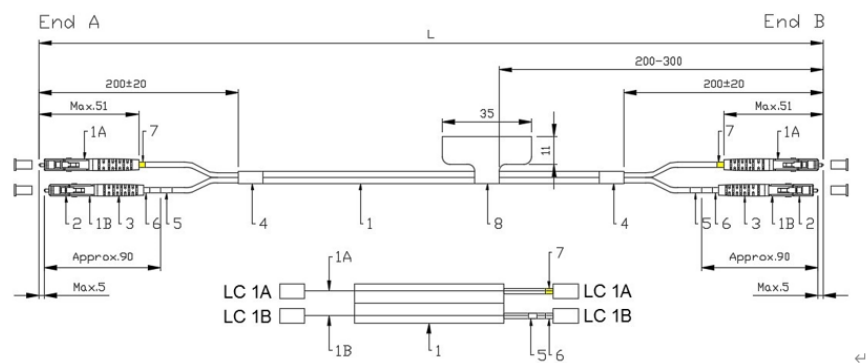
<b>1、 Product Structure .....</b>	<b>3</b>
<b>2、 ProductList .....</b>	<b>3</b>
<b>3、 Fiber Structure .....</b>	<b>4</b>
<b>4、 Fiber Requirements.....</b>	<b>4</b>
<b>5、 Cable Structure .....</b>	<b>4</b>
<b>6、 Connector and Patch Cord Requirements.....</b>	<b>4</b>
<b>7、 Mechanical Specifications .....</b>	<b>5</b>
<b>8、 Environmental performance requirements .....</b>	<b>8</b>
<b>9、 Environment Specifications .....</b>	<b>9</b>
<b>10、 Tolerance .....</b>	<b>10</b>
<b>11、 Packages .....</b>	<b>10</b>
<b>12、 Banned and Restricted Substances .....</b>	<b>10</b>
<b>13、 Document Revision Information.....</b>	<b>10</b>

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Indoor Optical Cable Assembly (Patch Cord)

G657A2, 2 Core, LC(UPC) Duplex - LC(UPC) Duplex, Yellow LSZH




1、Product Structure

Designation	E/N.	Material
1.Cable	--	Indoor Optical Cable, G657A2, Single-mode, 2 Core with 0.9 mm Fiber, OD 4.1x2.0 mm, Yellow LSZH
2.Connector	--	LC Duplex for Single-mode Fiber, Blue
3.Hood	--	Tube for LC Connector, White
4.Transition	--	Heat Shrinkable Tube, Black, 5mm
5.Identifier	--	Heat Shrinkable Tube, White, 5mm
6.Protective	--	Heat Shrinkable Tube, White
7. Protective	--	Heat Shrinkable Tube, Yellow
8. Label	--	Plastic Label, Waterproof
1A	--	Fiber 1A, 9/125/245 μm, Red, Tight Tube, OD 0.9 mm
1B	--	Fiber 1B, 9/125/245 μm, Blue, Tight Tube, OD 0.9 mm

2、ProductList

P/N	E/N	Designation
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 2m
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 3m
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 5m
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 10m
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 20m
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 30m
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 40m
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 50m
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 60m

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\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 70m
\	---	Patch Cord, SM, Yellow LSZH, 2LC(UPC) - 2LC(UPC), 80m

3、Fiber Structure

Standards	ITU G.657 A2 / IEC60793-2-50 B6_a2
Cladding Diameter	125 ± 0.7 μm
Coating Diameter (Uncolored)	245 ± 7 μm
Concentricity Error Core / Cladding	≤ 0.5 μm
Concentricity Error Cladding / Coating	≤ 12.0 μm
Cladding Non-Circularity	≤ 1.0 %
Coating Non-Circularity	≤ 6.0 %

4、Fiber Requirements

Cable Cut-Off Wavelength λ <sub>cc</sub>	(nm)	≤ 1260
Polarization Mode Dispersion	(ps/√ km)	≤ 0.2
Zero Dispersion Wavelength λ <sub>o</sub>	(nm)	1300 - 1324
Zero Dispersion Slope S <sub>0</sub> at λ <sub>o</sub>	(ps/nm <sup>2</sup> •km)	≤ 0.092

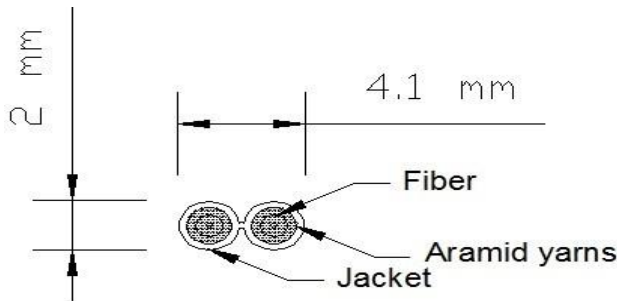
5、Cable Structure

Outer Sheath, Yellow LSZH, OD 4.1x2.0 mm

Fiber, 9/125/245 μm, Tight tube, OD 0.9 mm

Strength member, Aramid yarns


Cable Marking: According to the customer's requests



6、Connector and Patch Cord Requirements

Size	2LC - 2LC	
Color	Body / Cap / Hood	Blue / White/White
Polishing	UPC	
Length limited	LC Duplex (2/3)	Max.51 mm (Connector End Face to Hood end)
Insertion Loss	Random mate	≤ 0.50 dB, IEC 61300-3-34
		≤ 0.25 dB(Mean), IEC 61300-3-34
Source type. LED/LD		
Wavelength: 1310,1550 and 1625 nm		
Attenuation measurement against reference (IEC 61200-3-4) is intended for checking quality conformance. Random attenuation (IEC 61300-3-34) is to be used during qualification only to ensure the requirement of the performance is met.		
Return Loss	≥ 50 dB, IEC 61300-3-6 Method 1 or Equivalent, IEC61753-2-1	
End Face Geometry	Radius	7 - 25 mm, IEC 61300-3-16

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	Vertex Offset	< 50 µm, IEC 61300-3-15
	Fiber Protrusion	≤ 100 nm, IEC 61300-3-23
	Fiber Withdrawal	≤ 50 nm, IEC 61300-3-23
Visual examination	Cable and Connectors	No visible defects of cable or connectors, Product shall be visually checked without magnification. IEC 61300-3-1
End face visual inspection	Scratches, defects, debris. IEC 61300-3-35, IEC 61755-2-1/2	

7、Mechanical Specifications


Item	Requirement	Method	Details
Fibre/cable retention	Change in attenuation at (1 550 ± 30) nm: ≤ 0,20 dB	Magnitude and rate of application of the tensile force:	IEC 61300-2-4 Buffered fibre: 5,0 N ± 0,5 N at 0,5 N/s
	Initial and final attenuation must be ≤ 0.5 dB	Point of application of the load:	Reinforced cable: 70 N ± 5 N at 5 N/s. 0.3 metre from plug.
	Return loss: APC > 60 dB PC: > 50 dB	Duration of maximum load:	The connector shall be rigidly mounted such that the load is applied to the fibre/cable retention mechanism and not to the coupling mechanism. 2 minutes at 70 N 1 minutes at 5 N
	Visual examination	Specimen optically functioning:	Yes
		Measurements required:	Before, during (continuous) and after the test. (5 min recovery period).
		Sampling Rate:	Measurements shall be made after the load has been maintained at its maximum level for at least 30 seconds.
		Pre-conditioning procedure:	Clean plug and adaptor according the manufacturers instructions.

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Static Side Load	<p>Change in attenuation at (1 550 ± 30) nm: ≤ 0,20 dB</p> <p>Initial and final attenuation must be ≤ 0,5 dB</p> <p>Return loss: APC &gt; 60 dB PC: &gt; 50 dB</p> <p>Visual examination</p>	<p>Magnitude of the load (90° to plug axis) Point of application of the load:</p> <p>Method of mounting:</p> <p>Duration of load:</p> <p>Specimen optically functioning:</p> <p>Measurements required:</p> <p>Sampling rate: Pre-conditioning procedure:</p>	<p>IEC 61300-2-42 Buffered fibre: 0,2 N Reinforced cable: 1 N. 0, 5 metre from rear of plug.</p> <p>An adaptor shall be mounted rigidly to the mounting fixture. Buffered fibre: 5 minutes Reinforced cable : 1 hour Yes</p> <p>Before, during (continuous) and after the test 3 minutes max. interval Clean plug and adaptor according the manufacturers instructions.</p>
Flexing strain relief of fibre optic devices	<p>Change in attenuation at (1 550 ± 30) nm: ≤ 0,20 dB</p> <p>Initial and final attenuation must be ≤ 0,5 dB</p> <p>Return loss: APC &gt; 60 dB</p>	<p>Magnitude of the load</p> <p>Point of application of the load:</p> <p>Method of mounting:</p> <p>Number of cycles:</p> <p>Specimen optically</p>	<p>EN 61300-2-44</p> <p>Reinforced cable: 2 N (90° to plug axis) 0,2 m from rear of plug.</p> <p>An adaptor shall be mounted rigidly to the mounting fixture. 100 (+/- 90 °) Yes</p>

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	PC: > 50 dB Visual examination	functioning: Measurements required:  Sampling rate:  Pre-conditioning procedure:	Before, during (continuous) and after the test.  Maximum sampling interval shall be 1 ms. According to IEC 61300-3-28. Clean plug and adaptor according the manufacturers instructions.
Cable bend (coiling)	Change in attenuation at $(1\ 550 \pm 30)$ nm: $\leq 0,75$ dB/turn  Initial and final attenuation must be $\leq 0,5$ dB  Return loss: APC > 60 dB PC: > 50 dB  Visual examination	Temperature:  Coiling diameter  Number of coils  Number of cycles:  Cycle time  Specimen optically functioning: Measurements required:  Pre-conditioning procedure:	23 °C $\pm$ 3°C  18 mm for 2mm cable with G657A fiber.  1 (2 turns)  3  Leave sample for 5 minutes in coiled and uncoiled position Yes  Before, during (continuous) and after the test.  2 h at normal ambient conditions. The plug and adaptor shall be cleaned with dry lint free material

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Ferrule compression force	Compression force for buffered fibres for 2.5 mm ferrules: 7.8 N to 12.8 N	Temperature:	EN 61300-3-22  23 °C ± 3°C
	1.25 mm ferrules: 5 N to 7N	Specimen optically functioning:	No
	For reinforced cables allow a 1 N higher compression force	Pre-conditioning procedure:	2 h at normal ambient conditions.
	Visual examination	Procedure	Position of the ferrule end face relative to mechanical reference plane of the connector while ferrule compression force shall be measured.

8、 Environmental performance requirements

Test	Requirement	Details	
Change of Temperature	Monitoring change of attenuation and return	Peak wavelengths:	IEC 61300-2-22 1 310 nm ± 30 nm



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	<p>loss:</p> <p><math>\leq 0,5 \text{ dB}</math> during and <math>\leq 0,4 \text{ dB}</math> after the test for a 3 to 5 metre patch cords with both connectors and the cable in the climatic chamber.</p> <p>Cable coiled loosely inside the chamber with diameter not smaller than 30 cm.</p> <p>Return loss: APC &gt; 60 dB PC: &gt; 50 dB Visual examination End face geometry inspection</p>	<p>Low temperature:</p> <p>High temperature:</p> <p>Duration at temperature extremes: Rate of change of temperature:</p> <p>Number of cycles:</p> <p>Specimen optically functioning: Measurements required:</p> <p>Pre-conditioning procedure: Recovery Procedure:</p>	<p>1 550 nm <math>\pm</math> 30 nm 1 625 nm <math>\pm</math> 20 nm -40 °C <math>\pm</math> 2°C  +70 °C <math>\pm</math> 2°C  1h  1°C/min.  12  Yes  Before, during (maximum interval 10 min) and after the test, using method IEC 61300-3-3 2 h at normal ambient conditions. The plug and adaptor shall be cleaned with dry lint free material. 2 h at normal ambient. conditions.</p>
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9、Environment Specifications

Operating Temperature	-40°C to +70°C
Installation Temperature	-15°C to +60°C
Storage Temperature	-40°C to +70°C
Connector	UL94-V-0
Cable flame	UL1666

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## 10、Tolerance

L= < 10 m	+100 / -50 mm;
L= 10 - 50 m	+200 / -100 mm;
L= > 50 m	+400 / -100 mm;

## 11、Packages

According to Packaging Specifications

## 12、Banned and Restricted Substances

RoHS 2002/95/EC

Compliant

## 13、Document Revision Information

Revision	Description
A0	First revision