

付図. 2 作業指図書様式例

To : FOV

CC. : 光機製・技術

No. EN-01195(2)

Working Direction / 作業指図書		Issued by 発行部門		Kokikai																													
Product Group	Optical cord with LC connector	Date of Issue 発行日		5 Aug. 2024																													
Product Type 製品名	Optical cord with LC connector	<input type="checkbox"/> Deadline 適用期間		31 Dec. 2024																													
		<input type="checkbox"/> P/O 発注番号		T. B. D																													
Title/件名		Approved by	Checked by	Written by																													
Reliability test for LC connector housing kit, LC ferrule and optical cord by low cost suppliers 4th trial		S. Takahashi	M. Hirose	Y. Watanabe																													
<div>1. Purpose/目的</div> <p>Fujikura consider to apply optical cord. To evaluate these materials, samples should be assembled by FOV and evaluated. This WD is to instruct the test procedure.</p> <div>2. Scope/適用範囲</div> <div>Table 1 Samplelist and plan of testing</div> <table><tr><th>Item No.</th><th>Prodct name</th><th>Spec</th><th>Qty</th></tr><tr><td>#7</td><td>Orbray Housing x Orbray Ferrule x SHYS B0 cable (SM 2F)</td><td>Follow "Sample type 3"</td><td>10</td></tr><tr><td>#8</td><td>Orbray Housing x Orbray Ferrule x SHYS B0 cable (SM 24F)</td><td>Follow "Sample type 4"</td><td>1</td></tr></table> <p>(Note1) No adhesive on Kevlar at crimp ring (Note2) No cord aging (Note3) These tests should be finished within 14 Oct.</p> <div>Table2 Material List for the evaluation sample for each Item</div> <table><tr><th>Sample Item No.</th><th>Description</th><th>Spec No.</th><th>Supplier</th></tr><tr><td rowspan="4">1</td><td>Orbray Simplex Housing SM</td><td rowspan="2">PNJHY-0048-22-03E (SPSU-10329(1))</td><td>Orbray</td></tr><tr><td>Orbray Simplex LC Ferrule SM</td><td>Orbray</td></tr><tr><td></td><td>Fujikura Spec No. : T. B. D</td><td></td></tr><tr><td>SHYS Break Out Cable 2F SM</td><td>Maker Spec No. : None</td><td>SHYS</td></tr></table>						Item No.	Prodct name	Spec	Qty	#7	Orbray Housing x Orbray Ferrule x SHYS B0 cable (SM 2F)	Follow "Sample type 3"	10	#8	Orbray Housing x Orbray Ferrule x SHYS B0 cable (SM 24F)	Follow "Sample type 4"	1	Sample Item No.	Description	Spec No.	Supplier	1	Orbray Simplex Housing SM	PNJHY-0048-22-03E (SPSU-10329(1))	Orbray	Orbray Simplex LC Ferrule SM	Orbray		Fujikura Spec No. : T. B. D		SHYS Break Out Cable 2F SM	Maker Spec No. : None	SHYS
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2	Orbray Duplex Housing SM	PNJHY-0048-22-39 (SPSU-1 0363(1))	Orbray
	Orbray Duplex LC Ferrule SM		Orbray
	SHYS Break Out Cable 24F SM	Fujikura Spec No. : T.B.D Maker Spec No. : None	SHYS

※FOV shall get material from each supplier. (CNC don't supply sample material.)

3. Details of work/指示詳細

- (1) FOV make sample (Item#1~Item #2) according to Table 1 and Table 2.
- (2) FOV measure IL and RL for all connectors(both side of connectors). Wavelength: 1310nm, 1550nm
- (3) After measurement, FOV submit report and ship all of product sample to CNC.
- (4) $IL \leq 0.5\text{dB}$ and $RL \geq 50\text{dB}$ should be met as specifications.

FOV just measure optical characteristics, FOV do not inspect PASS/FAIL.

If FOV find any problem or abnormality, FOV inform it to PIC described in chap.5.

4. Request of feedback/フィードバック要求項目（必要な場合は記入すること）

FOV submit test result report before shipping sample to CNC.

- Endface Geometry when initial inspection: PASS/FAIL and measurement result
- Endface Appearance when initial inspection: PASS/FAIL
- Product Appearance at QA: PASS/FAIL
- IL, RL value.

5. Inquiries/問合せ先

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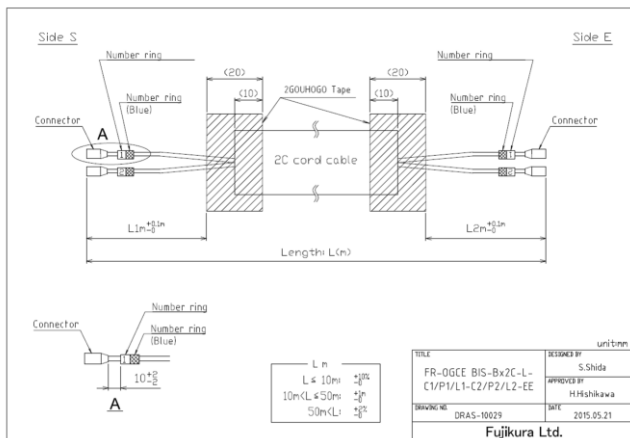
Watanabe Yuho (yuho.watanabe@jp.fujikura.com)

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Rev	Date	History	Reason	PIC
1	5 Aug. 2024	Original issue	—	Y. Watanabe
2	20 Sep 2024	The change is shown as blue letters.	For adding Details of work	M. Yamamoto

Appendix#1 Structure/Spec for sample making

Sample type 1: SM 2F Break Out cord sample



Spec
Radius of Curvature
Fiber Height
Apex Offset

Zone (diameter)	Defects (diameter)	Scratches (width)
A: core zone 25 μm	< 2 μm no limit ≥ 2 μm and ≤ 3 μm maximum 1 > 3 μm none	< 3 μm no limit ≥ 3 μm none
B: cladding zone 25 μm to 110 μm	≤ 25 μm no limit > 25 μm none	No limit

Connector: Simplex LC connector

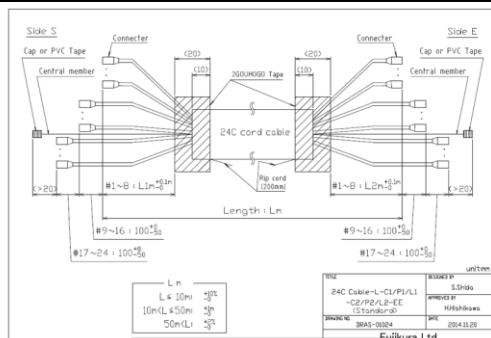
Length L(m): 10m

L1(m), L2(m): 1m

No need to apply number ring for this WD

Any PVC tape can be applied instead of 260UHOGO Tape

Sample type 2: SM 24F Break Out cord sample



Spec
Radius of Curvature
Fiber Height
Apex Offset

Zone (diameter)	Defects (diameter)	Scratches (width)
A: core zone 25 μm	< 2 μm no limit ≥ 2 μm and ≤ 3 μm maximum 1 > 3 μm none	< 3 μm no limit ≥ 3 μm none
B: cladding zone 25 μm to 110 μm	≤ 25 μm no limit > 25 μm none	No limit

Connector: Simplex LC connector

Length L(m): 10m


L1(m), L2(m): 1m

No need to apply number ring for this WD
Any PVC tape can be applied instead of 2GOUHOGO Tape

Appendix#2: Cable spec

FOV use Appendix#3 to prepare material from SHYS.

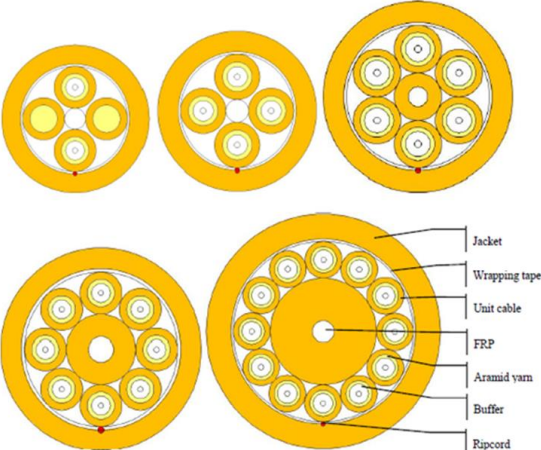
[Break Out Cable 2F SM]



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Indoor Cable Series


Cable Structure



Jacket
Wrapping tape
Unit cable
FRP
Aramid yarn
Buffer
Ripcord

Cable Technical Parameters

Fiber	Type	SM/MM			
	Count	2/4	6	8	12
Buffer	OD(mm)	0.9 ± 0.05			
	Material	PVC			
Unit Cable	OD(mm)	1.95 ± 0.05			
	Material	PVC-OFNR			
Cable	OD(mm)	7.4 ± 0.3	8.2 ± 0.3	9.5 ± 0.5	12.5 ± 0.5
	Material	PVC-OFNR			




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Cable weight(kg/km)±10%		43	58	70	120
Max. tensile	Short-term	660			
	Long-term	200			
Min Bending	Dynamic	20D			
	Static	10D			
Max Crush	Short-term	1000			
	Long-term	300			
Resistance(N/100mm)	850nm	≤3.5dB/km			
	1300nm	≤1.5dB/km			
	1310nm	≤0.4dB/km			
	1550nm	≤0.3dB/km			
Strength Members		FRP ,Aramid yarn			
Temperature range	Storage or transportation	-20℃~+70℃			
	Operation	-10℃~+60℃			

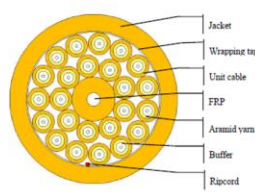
[Break Out Cable 24F SM]



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Indoor Cable Series

Cable Structure



Cable Technical Parameters

Fiber type		SM/MM
Fiber Count		24
Cable	OD(mm)	14.4±0.5
	Material	PVC-OFNR
Unit cable	OD(mm)	1.95±0.05
	Material	PVC-OFNR
Buffer	OD(mm)	0.85±0.05
	Material	PVC
Nominal weight(kg/km)±10%		150
Max tensile Strength(N)	Short-term	660
	Long-term	200
Min Bending Radius(mm)	Dynamic	20D
	Static	10D
Max Crush Resistance(N/100mm)	Short-term	1000
	Long-term	300
Cable attenuation	850nm	≤3.5dB/km
	1300nm	≤1.5dB/km
	1310nm	≤0.4dB/km
	1550nm	≤0.3dB/km
Strength Members		FRP, Aramid yarn



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Indoor Cable Series

Temperature range	Storage or transportation	-20℃~+70℃
	Operation	-10℃~+60℃

○Other detail spec of cords

#	Description	OD[mm]	Fiber count	Fiber type	Jacket type	Jacket color	Remark	Cable marking (Marking frequency is 1m.)
1	Cord-cable, 2 fiber, round, SM(Yellow)	7.4	2	SR15E(G657A1)	OFNR	Yellow	Breakout cable 2mm sub-unit	SHENZHEN YOUNGSUN CABLE 2 FIBER SIMPLEX BREAKOUT CABLE 2MM SUB UNIT G657A1 OFNR
2	Cord-cable, 24 fiber, round, SM(Yellow)	14.4	24	SR15E(G657A1)	OFNR	Yellow	Breakout cable 2mm sub-unit	SHENZHEN YOUNGSUN CABLE 24 FIBER SIMPLEX BREAKOUT CABLE 2MM SUB UNIT G657A1 OFNR