Purchase Specification
for
FAST-SC-APC-SM-025/GT Connector

1. Scope

This specification applies to the product named FAST-SC-APC-SM-025/GT connector.

No.	Product Name	Fiber
1	FAST-SC-APC-SM-025/GT	SM10/125 (∅0.25) fiber Drop Cable

2. Structure and Composition

No.	Parts Name	Structure	Q'ty	REMARK
1	Connector Plug	Refer table 1	1	
2	Clamp M ver 3 all (1.6-2.0) CLAMP-M VER3(2.0)*2	CSVM2-109B3 CSVM2-081B3	0.04	2pcs /50connectors
3	CABLE HOLDER (UNI)	AMMS2-191A3	0.02	1pc /50connectors
4	Simplified Stripper(S-P)VN	AMMS2-146B3-**Green**	0.02	1pc /50connectors

(*1)The component parts in the drawing uses the contents in Table-1.

Table-1 <Composition of Connector Plug>

No.	Material name		Drawing No.	Qty
1*	①	Lower Body FAS	CFAS2-033D3-1of3,2of3,3of3 CFAS2-111C3	1
		Lower Body FAS IM APC(VN)	CFAS3-119C3 -> CFAS2-119A3	
	②	Lower Body FAS IM APC	CFAS2-024C3-1of2,2of2	
2*	①	Upper Body 09(700)&FAS(BLACK)	CFAS2-030C3 CFAS3-114B3	1
	②	Upper Body A FAS	PNJHY-0001-71-52	
3*	①	Upper Body B FAS	CFAS2-035C3	1
	②	Upper Body B FAS	PNJHY-0001-71-53	
4*	① Ceramic ferrule (Kyocera)		A0408003A125505 C-01-3326-00 REV.03	1
5	C-Sleeve(S)/ silver color(SANWA) C-Sleeve(S) VN		PNJHY-0001-71-32 CFAS2-047C4 CFAS2-098C4	1
6	FutureGuide SM Blue		JAT-22843	1
7	Spring GSCL		CSCG2-091B4	1
8	Connector Cap (PE Blue) VN		CSVM2-162C4	1
9	Plug Frame (FAST) AR		CSVM2-178F3	1
10	Stop Ring (normal type)		CSVM2-177G3	1

11	Lever VER2 (normal type)	CSVM2-175C3	1
12	Slider-M VER2 AR	CSVM2-176B3	1
13	Clamp M ver 3 all (1.6-2.0) CLAMP-M VER3(2.0)*2	CSVM2-109B3 CSVM2-081B3	1
14	Holder (GT3)	CSVM2-193D3	1
15	Wedge (FA VER2) AR	CSVM2-170B4	2
16	Silicone gel (OC 431A-LVP)	-	1
17	Coupling (GT) with key (PBT)(Green)	CSVM2-219I3-Green	1

* The body parts should be used in same number group ① or ②.

(1) Silicon gel without air bubbles is used at fiber splice point.

(2) Material for Body: PEI（ULTEM）

(3) The connector plug must connect to a connector conforming to JIS C 5973 F04 via an adapter.

(4) Epotek 353ND adhesive is used to fix pre-installed fiber in ceramic ferrule.

(5) Polishing method: Interface-APC polish.

(6) There should be no detrimental damage, chips and adhesive dirt on the products.

(7) Fiber chipping of pre-installed fiber endface : L< 20μm

(8) Pre-installed fiber end is set within Mark of body.

(9) Lot and serial number must be printed on the Coupling GT using laser marking.

(10) Ceramic sleeve endface is to be protected securely by Connector Cap after final inspection.

(11) Refer to End Face Spec PNJHY-0001-40-04A.

(12) Pre-installed fiber must be SM fiber.

(13) Interferometer inspection should be sampling 2 pcs/shift.

(14) Cancel ferrule appearance inspection (PRD), cancel spring check (PRD) and QCS appearance.

(15) Appearance 3 only check fiber, no need check body appearance.

3. Optical Performance Criteria

Product Name	Wavelength	Insertion Loss	Return Loss
FAST-SC-APC-SM-025/GT	1.55±0.02μm	≤0.30dB	≥50dB

(1) Losses are measured at a normal connection.
(2) The number of times of measurement of one product is taken as to max 3 times.
(3) Products are measured by using a drop cable (SR15).
(4) Loss inspection step,
Insert the fiber → Release the wedge
(5) Measuring fiber is changed after 12 times measurement.

4. Mechanical Performance Criteria

Measurement Procedure : IEC60874-1, JIS C 5961

Measurement wavelength is at 1.31±0.01μm and 1.55±0.02μm

(1) Axial Pull
- (a) 10N load applied to drop cable of length 1～2m.
- (b) Loss variation before and after test shall be <0.2dB.
- (c) No visual evidence of mechanical damage.

(2) Flex
- (a) 4.9N load applied to drop cable of length 1～2m.
- (b) Flex the connector about a pivot point for 10 cycles.
- (c) Loss variation before and after test shall be <0.2dB.
- (d) No visual evidence of mechanical damage.

(3) Vibration
- (a) Sinusoidal vibration with amplitude 1.5mm and frequency sweep 10～55Hz applied in 3 perpendicular axis, 2hrs/axis.
- (b) Loss variation before, during and after test shall be <0.2dB.
- (c) No visual evidence of mechanical damage.

(4) Shock
- (a) Half-sine shock pulses with duration 6ms and peak acceleration 100G applied 3 times in each of 3 perpendicular axes.
- (b) Loss variation before and after test shall be <0.2dB.
- (c) No visual evidence of mechanical damage.

(5) Engaging and disengaging force
- (a) Connector insertion strength <19.6N

(6) Durability
- (a) Connect and disconnect 500 times, cleaning the mating interface once every 10 times.
- (b) Loss variation before, during and after test shall be <0.2dB.
- (c) Clean mating interface before test.
- (d) No visual evidence of mechanical damage.

(7) Twist
- (a) 1.96N load applied to drop cable.
- (b) Twist cable ±180° for 200 times.
- (c) Loss variation before, during and after test shall be <0.2dB.
- (d) No visual evidence of mechanical damage.

5. Environmental Performance Criteria

Measurement Procedure : IEC60874-1, JIS C 5961

Measurement wavelength is at 1.31±0.01μm and 1.55±0.02μm

(1) Thermal Cycling
- (a) Temperature variation -40～+70°C for 10 cycles, 6hrs/cycle.
- (b) Loss variation before, during and after test shall be <0.3dB.

(c) No visual evidence of mechanical damage.

(2) Condensation
(a) Temperature variation -10～+25～+65°C with 93%RH at 65°C for 10 cycles, 24hrs/cycle.
(b) Loss variation before, during and after test shall be <0.3dB.
(c) No visual evidence of mechanical damage.

(3) Thermal Aging (High Temp.)
(a) Temperature of 70°C for 240 hrs.
(b) Loss variation before, during and after test shall be <0.3dB.
(c) No visual evidence of mechanical damage.

(4) Thermal Aging (Low Temp.)
(a) Temperature of -40°C for 240 hrs.
(b) Loss variation before, during and after test shall be <0.3dB.
(c) No visual evidence of mechanical damage.

(5) Service life test
(a) 85°C for 336 hrs
(b) 93%RH at +65°C for 336hrs
(c) -40～+23～+75°C for 42 cycles, 8hrs/cycle
(d) Loss variation before, during and after test shall be following.
<0.3dB (1.31±0.01μm)
<0.4dB (1.55±0.02μm)
(e) No visual evidence of mechanical damage.

(6) Corrosive Atmosphere
(a) Expose to 5% concentration salt mist environment with temperature maintained at 35°C for 24hrs.
(b) Loss variation before and after test shall be <0.2dB.
(c) No visual evidence of corrosion.
(d) No visual evidence of mechanical damage.

6. Inspection Checklist

Test Items	Pre-Shipping	Custom		Sample size	Quality Assessment Criteria
		FOV	FJK		
Structure*	○			All	Conform to Section 2
Composition	○			All	Conform to Section 2
Appearance*	○			All	No damage, cracks or breakage
Insertion Loss*	◎			All	As specified in Section 3 above
Return Loss*	◎			All	As specified in Section 3 above
Quantity	◎			All	As specified exactly
Dimensions*	○			All	Conform to Section 2 :Fiber length of inside fiber :Ferrule length after polishing
Axial Pull		◎		4	As specified in Section 4(1)above
Flex		◎		4	As specified in Section 4(2)above
Vibration			○	4	As specified in Section 4(3)above
Shock			○	1	As specified in Section 4(4)above
Insertion strength			○	1	As specified in Section 4(5)above
Durability		◎		2	As specified in Section 4(6)above
Twist			○	1	As specified in Section 4(7)above
Thermal Cycling			○	3	As specified in Section 5(1)above
Condensation			○	3	As specified in Section 5(2)above
Thermal Aging(High)			○	3	As specified in Section 5(3)above
Thermal Aging(Low)			○	3	As specified in Section 5(4)above
Service life test			○	3	As specified in Section 5(5)above
Corrosive Atmosphere			○	1	As specified in Section 5(6)above

Note: ○: Pass or NG
◎: Data
Custom test "FOV" items to be performed upon request from Fujikura Asia Limited.
*: These items can be performed as part of the manufacturing process.

7. Packaging

(1) End products (All parts of Table-1) are to be packaged into a PE bag (B-4).

(2) CABLE HOLDER (UNI), Simplified Stripper(S-P) VN and 2pcs of Clamp M ver 3 all (1.6-2.0) or CLAMP-M VER3(2.0)*2 are packed into a PE bag (B-4). 3 PE bags (B-4) is packed into 1 big PE bag (B-5).

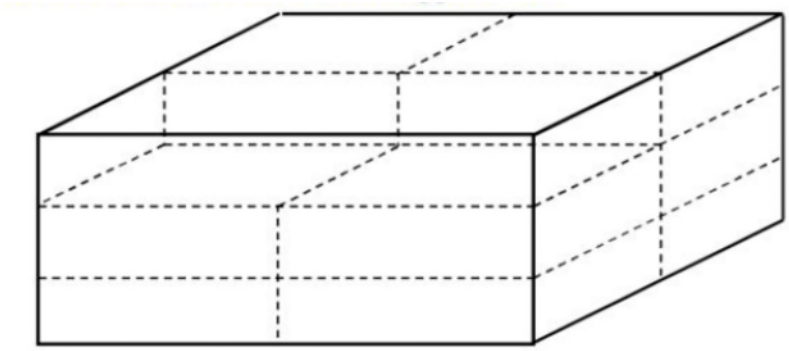
(3) 10 packaged products from (1), "Operating manual (TD-1610-02**B** for English or TD-1610-02**B**-VN for Vietnamese) are to be packaged into a PE bag (G-4). The packaging label (A) shall be fixed on the individual PE bag (G-4).

(4) 15 PE bags (G-4) from (3) (150 products) and 1 big PE bags (B-**5**) from (2) are to be collected in a box (B). The packaging label (B) shall be fixed on the individual box (B) and attach list of Serial Number (laser number) of products into carton box (B).

(5) Box (B) from (4) are to be packed into jumbo boxes according to quantity without exceeding the box capacity. Only products of the same name are to be packaged into one jumbo box. Same products with different order number are to be packaged in separate jumbo boxes and attach list of Serial Number (laser number) of products in jumbo box.

(6) No labeling should in any way refer to the company name and/or logo of FOV.

Box (B): Outer size W160mmXD320mmXH150mm approximate



8. Labeling

Label (A)

The following items are to be labeled on the packaging PE bag (G-4).

(1) Product Name : FAST-SC-APC-SM-025/GT

(2) Quantity: 10pcs

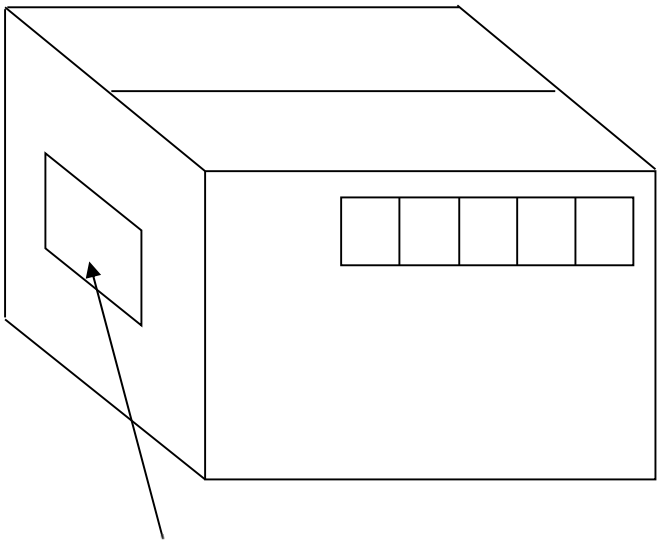
(3) Barcode means Product Name, Manufacture Date and Serial No. (if necessary to display)

Label (B)

The following items are to be labeled on the packaging box (B). Please indicate FAL P/O number.

受注番号 Entry No.			発注番号 Control No.		
品目ＣＤ Product Code			管理ＣＤ Stock Code		
品名 Product Name					
客先品名 Customer's Product Name					
数量 Quantity		条長 Length		T. No.	
製造年月 Manufacturing Date	年 Year	月 Month	／ Box No.	個口	
Fujikura			（バーコード印字スペース）		

Box (B)



Label (B)

The following items are to be labeled on the packaging jumbo box.

(1) Product Name

(2) P/O No. FAL P/O No. (eg. ALPO24060011) and End customer P/O No. (eg. 02. FUJIKURA.NDC.2024). P/O information will be indicated in the REMARKS of FAL P/O to FOV.

(3) Quantity (eg. 200)

(4) Date code (eg. Mar/2005)

(5) Box No.(*)

* For the case where products with the same order number are packaged into several boxes and shipped together, 1/3, 2/3, 3/3 (eg. 3 boxes) shall be used to label the individual boxes.

9. General Specification on Substance Control Requirements

When the component voluntarily selected (include attached assembly manual and packing materials) is used, they shall be complied with General Specification on Substance Control Requirements, PNJAA-0068-25-01.

10. Documentation

(1) Test Report and Certification of quality/quantity

- Test reports shall be provided in Excel format via email to PIC in FAL." **(for FAL when requested)**
- Results of inspection checklist, Product name, Lot/Serial number and shipping date shall be included in the test report.
- Certification of quality/quantity(COQ) for all PO shipment/shipments

(2) QC Plan
To be submitted before first piece build.

(3) Test Report of Custom test(FOV)
To be submitted within 1 month after the first shipment.

11. Traceability

Establish control method such as check sheet to trace back and identify materials, components and manufacturing history associated with each shipping lot. Records shall be maintained for a period of 5 years after the date of manufacture.

Key components: Connector plug
(Fiber, Lower Body, ceramic ferrule, Upper Body A, Upper Body B,
C-Sleeve, Stop Ring, Matching Grease, Holder, Wedge)

REVISION HISTORY			
Rev	Description of changes	Change by	Date
-	Initial release.	Kathleen Peh	19 July 2016
A	※Update of material (update lasted version) CFAS2-033B3-->CFAS2-033D3 JH-0001-0057D-->JH-0001-0057F Add CFAS2-098C4 CSVM2-177E3-->CSVM2-177F3 CSVM2-175A3-->CSVM2-175C3 CSVM2-176A3-->CSVM2-176B3 CSVM2-193B3-->CSVM2-193C3 CSVM2-219A3-->CSVM2-219E3 TD-1607-02-->TD-1607-02A ※Item 7.Packaging: Add packing requirement: S/N (laser number) of products in carton box. (update customer requirement) ※Printing laser on Coupling GT (correct mistake)	Kathleen Peh	28 Oct 2019
B	Update Assembly Manual to TD-1610-02A and TD-1610-02A-VN Update spec of material CFAS2-033C3 -> CFAS2-033D3 Add CFAS3-119C3 Add CFAS2-111A3 Add CFAS3-114A3	Kathleen Peh	29 May 2020
C	Update spec of material - Optical Fiber: JH-0001-0057F → JH-0001-0057G - Plug Frame (FAST) AR: CSVM2-178C3 → CSVM2-178E3 - Stop Ring: CSVM2-177F3 → CSVM2-177G3 - Holder (GT3): CSVM2-193C3 → CSVM2-193D3 - Coupling (GT): CSVM2-219E3 → CSVM2-219G3	Kathleen Peh	7 Oct 2021
D	Update spec of material - Coupling (GT): CSVM2-219G3 → CSVM2-219H3 - Simplified Stripper: AMMS2-146A3 → AMMS2-146B3 - Plug Frame (FAST) AR: CSVM2-178E3 → CSVM2-178F3	Kathleen Peh	29 Sep 2022
E	Update Packing - Increase packing size from 100 to 150pcs per box.	Kathleen Peh	20 Jul 2023
F	Update material specification/drawing - Coupling (GT): CSVM2-219H3 → CSVM2-219I3	Kathleen Peh	22 Aug 2023
G	Update material specification/drawing CFAS2-111A3--> CFAS2-111B3 CFAS3-114A3--> CFAS3-114B3 CFAS2-035B3--> CFAF2-035C3 CSVM2-170A4-->CSVM2-170B4 CFAS3-119C3--> CFAS2-119A3	Kathleen Peh	20 Sep 2023
H	Update packing - Improve packing for assembly tools from 3 PE bags (B-4) packed individually to pack 3 PE bags (B-4) into 1 big PE bag (B-5).	Kathleen Peh	21 Nov 2023
I	Update material specification/drawing CFAS2-111B3--> CFAS2-111C3	Kathleen Peh	28 Dec 2023
J	Update material specification Optical Fiber (JH-0001-0057G) --> FutureGuide SM Blue (JAT-22843)	Kathleen Peh	01 Mar 2024

K	Update material specification Simplified Stripper from Black to Green color	Kathleen Peh	10 May 2024
L	Update assembly manual from ver A to B.	Kathleen Peh	04 Jun 2024
M	Add P/O details to packaging box (B) and jumbo box labelling requirements	Chen Yu-Hung	24 Jun 2024
N	Update 10. Documentation according to FOV's current process flow	Chen Yu-Hung	23 Sep 2024