

**FSC114 Splitter Module****QC FLOW CHART: 4-QC-306**

Version: 06

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**I. Purpose**

- To set up the manufacturing processes which are implemented in Fujikura Fiber Optics Vietnam
- To determine Quality control items of each process

**II. Application**

- This guideline is applied for “**FSC114 Splitter Module**” product
- This document concerns to Production function, Production engineering function, Quality Assurance function and Planning function

**III. Reference documents**

- Customer specification



<b>Product Name</b>	<b>Reference document</b>
1x2 Splitter Module SC/APC (FSC114-1x2-SC/APC)	PNJSC-0114-25-07B
1x2 Splitter Module SC/UPC (FSC114-1x2-SC/UPC)	PNJSC-0114-25-08D
1x2 Splitter Module SC/UPC (FSC114-1x2-SC/UPC)	SC-0114-408\$001
1x3 Splitter Module SC/UPC (FSC114-1x3-SC/UPC)	PNJSC-0114-25-14
1x4 Splitter Module SC/APC (FSC114-1x4-SC/APC)	SC-0114-403\$001
1x4 Splitter Module SC/UPC (FSC114-1x4-SC/UPC)	PNJSC-0114-25-04M
1x4 Splitter Module SC/UPC	PNJSC-0114-25-06A
1x4 Splitter Module SC/UPC (FSC114-1x4-SC/UPC)	SC-0114-404\$001
1x4 Splitter Module SC/UPC <MG2>	SC-0114-430\$001
1x8 Splitter Module SC/UPC (FSC114-1x8-SC/UPC)	SC-0114-402\$001
1x8 Splitter Module SC/APC (FSC114-1x8-SC/APC)	PNJSC-0114-25-01L
1x8 Splitter Module SC/UPC	PNJSC-0114-25-05A
1x2 Splitter Module SC/APC <MG>	PNJSC-0114-25-27B
1x2 Splitter Module SC/UPC <MG>	PNJSC-0114-25-28B
1x4 Splitter Module SC/APC <MG>	PNJSC-0114-25-23B
1x4 Splitter Module SC/UPC <MG>	PNJSC-0114-25-24B
1x8 Splitter Module SC/UPC <MG>	PNJSC-0114-25-22B
1x8 Splitter Module SC/APC <MG>	PNJSC-0114-25-21B
1x8 Splitter Module SC/UPC <MG2>	SC-0114-431\$001
1x2 Splitter Module SC/UPC <MG>	PNJSC-0114-25-28B
1X2 Splitter Module SC/APC (FSC114-1x2-SC/APC)	SC-0114-407\$001
1x8 Splitter Module SC/UPC <MG>	PNJSC-0114-25-22B
1x4 Splitter Module SC/UPC <MG>	SC-0114-424\$001
1x2 Splitter Module SC/UPC <MG>	SC-0114-428\$001
1x4 Splitter Module SC/UPC (FSC114-1x4-SC/UPC)	SC-0114-404\$001
1x2 Splitter Module SC/UPC <MG2>	SC-0114-429\$001
1x8 Splitter Module SC/UPC (FSC114-1x8-SC/UPC)	SC-0114-402\$001
1X8 Splitter Module SC/APC (FSC114-1x8-SC/APC)	SC-0114-401\$001
1x8 Splitter Module SC/UPC <MG>	PNJSC-0114-25-22B
1x2 Splitter Module SC/APC <MG2>	SC-0114-432\$001

Checked by: Dinh Tan Tien  
Date: Follow DMS

Approved by: Nguyen Trung Kien  
Date: Follow DMS

Prepared by: Linh HD; Cross-checked by: Hanh DNV  
Date: 23-Oct-2024

Originator: Hoang Huu Nguyen  
Date: 5 Apr 2010

*(\*) FOV code (original) is Just for reference. Substitution code with same spec & name can be applied as same as original code.*

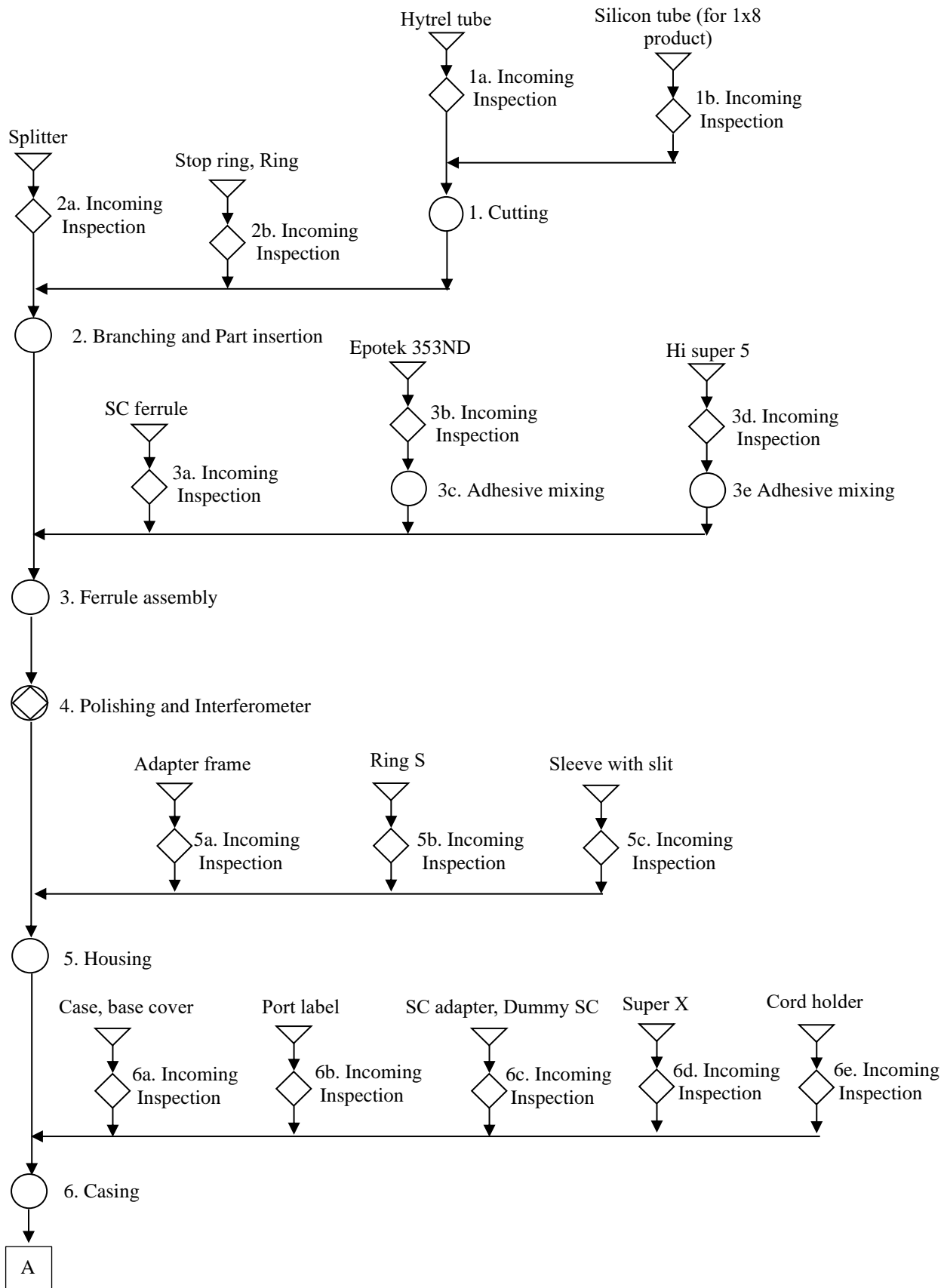
- FMEA: 0-PR-012-0-FO-001-4-RC-0165 ver 2
- 4-OP-306: Operation procedure HD PATCH PANEL MODULE

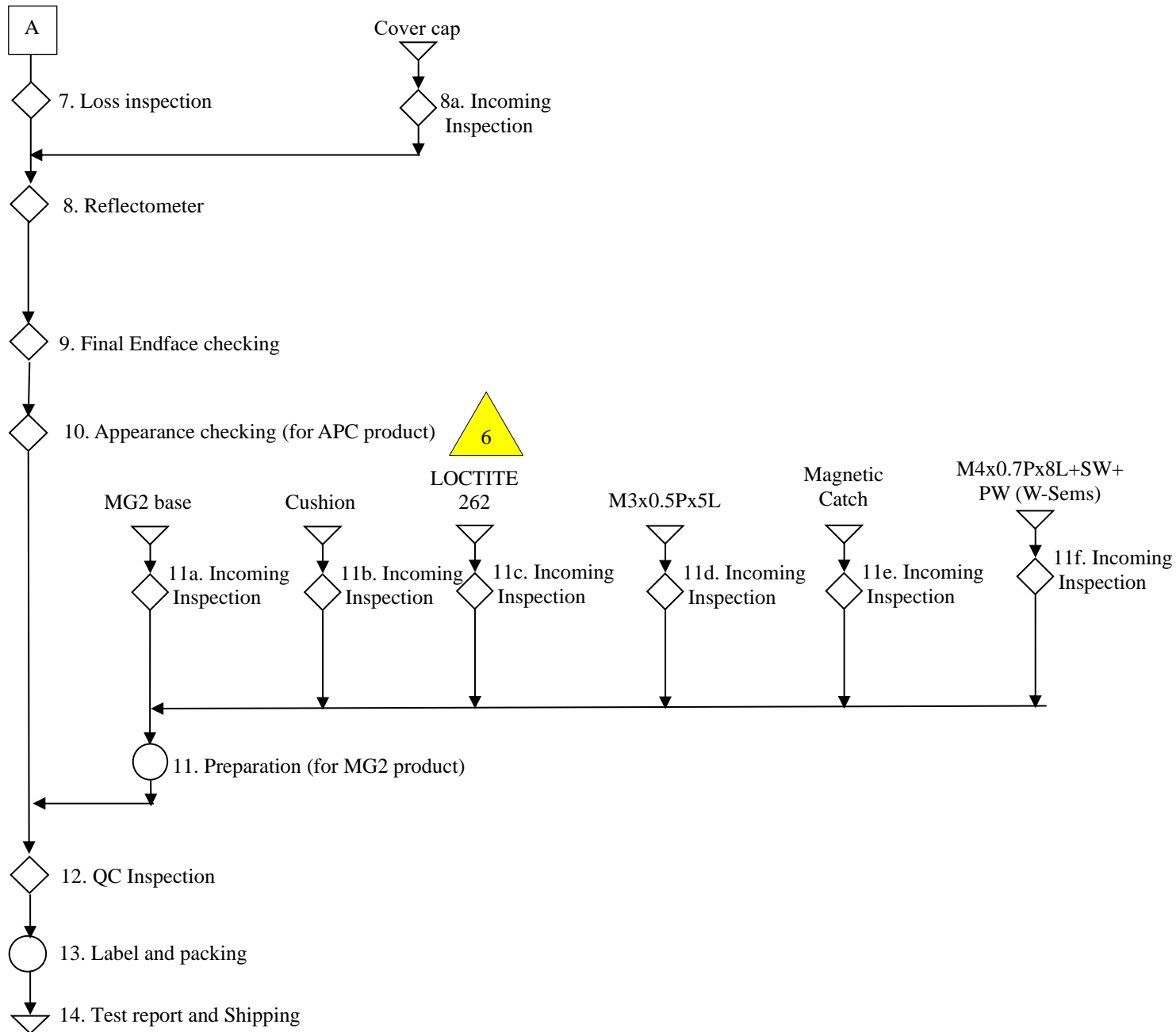
**IV. Term definition**

- FOV: Fujikura Fiber Optics Viet Nam
- OCAP: Out of Control Action Plan
- SIC: Section In Charge

## V. Content

### 1. QC Flow chart:





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**2. Quality control for each process:**

2.1. Quality control items for each process of FSC114 product are shown in the following table:

6

Process		Quality Control Items	Instrument	Sampling size	Refer Doc. No	SIC
No.	Name					
1a	Incoming inspection (Hytrel Tube)	Refer 9-PR-012				PLN, QAE
1	Cutting	Type of hytrel tube, silicon tube	Manual/Cutting program	100%	4-OP-306 9-PR-008-4-WI-0001	PRD, PRE
		Cutting length of hytrel, silicon tube	Machine/Manual	When machine stops or reruns, measure 3 pcs and 3 pcs every 30 minutes.		
		Quantity of hytrel tube, silicon tube	Machine/Manual	100%		
		Appearance of hytrel tube, silicon tube	Manual	When machine stops or reruns, measure 3 pcs and 3 pcs every 30 minutes.		
2a	Incoming Inspection (Splitter)	Refer 9-PR-012				PLN, QAE
2b	Incoming inspection (Boot, Stop ring, Ring)	Refer 9-PR-012				PLN, QAE
2	Branching and Part insertion	Coupler/splitter type, quantity	Manual	100%	4-OP-306 9-PR-008-4-WI-0001	PRD, PRE
		Branching point position	Branching jig/Ruler			
		Part order, direction and quantity	Part insertion jig			
		Mark on hytrel tube position, quantity	Visual			
3a	Incoming inspection (SC Ferrule)	Refer 9-PR-012				PLN, QAE
3b	Incoming inspection (Epotek 353ND)	Refer 9-PR-012				PLN, QAE
3c	Adhesive mixing (Epotek 353ND)	Expiry date of adhesive	Manual	100%	4-OP-500	PRD, PRE
		Mixing ratio	Balance			
		Mixing time	Clock			
		Time of centrifugal	Centrifugal machine			
		Air bubble separation	Centrifugal machine			
		Pressure, time, temperature during injection	Injection machine			
		Pot life	Clock			
3d	Incoming inspection (Hi Super 5)	Refer 9-PR-012				PLN, QAE
3e	Adhesive mixing (Hi Super 5)	Expiry date of adhesive	Manual	100%	4-OP-500	PRD, PRE
		Mixing ratio				
		Mixing time				
		Pot life	Clock			

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

3	Ferrule Assembly	Stripping position	Visual	100%	4-OP-503  000-4-WI-0676  9-PR-008-4-WI-0001	PRD, PRE
		Bare fiber lifetime	Clock/Timer			
		Bare fiber cleaning and screening	Manual			
		Hi super 5 shape, amount	Visual			
		Bare fiber cutting length	Template/Jig			
		Marking position	Manual, Template			
		Adhesive over flow	Visual			
		Epotek amount at ferrule tip	Visual			
		Epotek amount at ferrule end	Visual			
		Heating Temperature	Heater			
		Heating time	Clock			
		Cutting fiber protrusion	Bar cutter/ cutting tool			
		Adhesive check on ferrule body	Ring Gauge			
		4	Polishing			
Polishing sheet life time	Manual/Polisher					
Ferrule & fiber surface check	Microscope					
Ferrule length before re-polishing	Dial gauge					
Interferometer checking	Interferometer					
5a	Incoming inspection (Plug frame, Coupling)	Refer 9-PR-012				PLN, QAE
5b	Incoming inspection (Ring S)	Refer 9-PR-012				PLN, QAE
5c	Incoming inspection (Sleeve with split)	Refer 9-PR-012				PLN, QAE
5	Housing	Part order, Quantity	Manual	100%	4-OP-306 4-OP-0484 9-PR-008-4-WI-0001	PRD, PRE
		Stopper position	Tool/Visual			
		Housing part completely assembly	Visual			
		Appearance	Visual			
6a	Incoming inspection (Case, base cover)	Refer 9-PR-012				PLN, QAE
6b	Incoming inspection (Port label)	Refer 9-PR-012				PLN, QAE
6c	Incoming inspection (SC adapter, Dummy SC)	Refer 9-PR-012				PLN, QAE
6d	Incoming inspection (Super X)	Refer 9-PR-012				PLN, QAE
6e	Incoming inspection (Cord holder)	Refer 9-PR-012				PLN, QAE
6	Casing	Type, quantity	Manual	100%	4-OP-306 9-PR-008-4-WI-0001	PRD, PRE
		Coupler/splitter position and direction	Visual			
		Tracer fiber direction of PLC				
		Clinch sheet position				

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
		Fiber arrangement, not pinching, twisting, bending				
		Sponge position, quantity				
		The order of connectors				
		Adapter direction				
		Dummy direction, position				
		Super X adhesive amount				
		Label position, direction				
		Super X adhesive drying time	Clock			
		Silicon tube position	Visual			
		Module base direction, position				
		Module case and cover position				
		Magnet quantity	Tool			
7	Loss inspection	Master cord type	Visual	100%	4-OP-506	PRD, PRE
		- Wavelength - P0 value - Insertion Loss, Return loss value	Loss system			
		Master cord endface	Microscope	Check endface at least 1 set/time		
		Port checking control	Channel system	100%		
8a	Incoming inspection (Cover cap)	Refer 9-PR-012				PLN, QAE
8	Reflectometer	Fiber break inside ferrule	Reflectometer	100%	4-OP-511	PRD, PRE
		Port checking control	Manual, temporary cap		9-PR-008-4-WI-0001	
		Master cord endface	Microscope	Check endface at least 1 set/time		
9	Final endface checking	Sleeve Appearance		100%	4-OP-527	PRD, PRE
		Adapter direction	Visual		4-OP-306	
		Dummy direction			9-PR-008-4-WI-0001	
		Endface checking	Microscope	100%		
10	Appearance (For APC type product) 	-Clean with OneClick before checking sleeve -Check Sleeve and receptacle and ferrule appearance	-Oneclick -Torch (visual)	100%	4-OP-306 9-PR-008-4-WI-0001	PRD, PRE
11a	Incoming inspection (MG2 base)	Refer 9-PR-012				PLN, QAE
11b	Incoming inspection (Cushion)	Refer 9-PR-012				PLN, QAE
11c	Incoming inspection (LOCTITE 262)	Refer 9-PR-012				PLN, QAE
11d	Incoming inspection (M3x0.5Px5L)	Refer 9-PR-012				PLN, QAE
11e	Incoming inspection (Magnetic Catch)	Refer 9-PR-012				PLN, QAE

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11f	Incoming inspection (M4x0.7Px8L+SW+PW (W-Sems)	Refer 9-PR-012				PLN, QAE
11	Preparation (for MG2 product)	Lot No., type, quantity	Manual	100%	4-OP-306	PRD, PRE
		MG2 base direction	Visual			
		Cushion position, direction	Visual			
		Cushion fixing well				
		Loctite expiry date				
		Loctite amount, position	Visual			
		Magnetic Catch position, direction	Torque driver Bit driver size			
		Screw fixing well				
12	QC Inspection	Appearance module case Cover close body completely Cap quantity Accessories appearance and quantity (For MG2: MG2 Base and Screws)	Visual/Jig 	100%	4-OP-306	PRD, QAE
		Dimension of module and accessories (MG2 Base)	Caliper/JIG	1pc/PO	4-OP-306	PRD, QAE
13	Label and packing	Label position, direction, appearance and content Quantity of product PO No., Product No	Manual/Program	100%	4-OP-306	PRD, QAE
14	Test report & Shipping	-Product type -PO No. -Product spec -Product No. -Loss value -Appearance, Structure, dimension judgment	Manual/ Program	100%	4-OP-306	QAE
		- Product name, quantity of product, PO No., Invoice No.	Manual/ Program	100%	-	PLN

## VI. Record:

No.	Record	Retention time	Responsibility for keeping
-	-	-	-

- Identification, storage, protection, retrieval & disposition of these records refer to 0-PR-004 Control of record.

**Note:** Nonconforming product/material shall be identified & controlled according to relevant procedures: 9-PR-008.



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## REVISION HISTORY

Date	Personal	Version	DESCRIPTION			Change requester
			Old content	New content	Reason	
15-May-24	Linh HD	6	III. Reference document: - PNJSC-0114-25-03K - PNJSC-0114-25-24B - PNJSC-0114-25-28B - PNJSC-0114-25-22B -	III. Reference document: SC-0114-403\$001 SC-0114-424\$001 SC-0114-428\$001 SC-0114-422\$001 Add new spec: SC-0114-432\$001	Update current spec  New product	Tien DT
			-	V.2: Quality control: Update related document	Follow new format	
			-	V.2: Quality control: Update control for magnet quantity	Update current control	
	NhunhNTC	6	10. Appearance (For UPC/APC type) Appearance module case Cover close body completely	10. Appearance For APC type product: -Clean with OneClick before checking sleeve -Check Sleeve and receptacle and ferrule appearance	Update following 9-PR-0014-9-FO-0001-9-RC-0019 (cancel PRD app) and actual process Add ferrule inspection for APC type	DucTNM
			12. QC inspection Dimension of module and accessories (MG2 Base) -Calliper	12. QC inspection Dimension of module and accessories (MG2 Base) - Calliper/JIG	Update following 4-PR-007-4-FO-0007-9-RC-0042	
5- Dec-22	Linh HD	5	-	Item III: Update MG2 product Update spec version	New product  Update spec	Tien DT
			-	Item V: Update preparation process for MG2 product	New product	
			-	Update Final endface checking	Follow requirement from CNC_EN-00749(1)	
	TramNTN	5	Appearance / QC inspection + Adapter direction + Dummy direction	Move to Final Endface + Adapter direction + Dummy direction		DucTNM
			Item V-2-No.11. QC inspection	Item V-2-No.11. QC inspection -Update QC inspection for accessories of FSC114 MG2	-Update for new product -Update and correct following actual process	
	NhunhNTC	5	-No mention cap quantity, dimension inspection	-Update cap quantity, dimension inspection		DucTNM
			Item V-2-No.13.Test report and Shipping	Item V-2-No.13. Test report and Shipping		

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			-No mention for test report	-Update information for test report and separate from Shipping data	- Update and correct following actual process	
04 Mar 2021	Linh HD	4	-	Item V-2, No. 7, 8: add refer. Doc No. and section in charge	Correct mistake: add reference general OP	Tien DT
21 Dec 20	Tan TP	3	-	Item III. Update and add spec of new code	Update spec	Phuc NH
			-	Item V-1. Update number item and correct process flow	Standardize flow chart	
			-	Item V-2. Update format of table	Standard template requirement	
			Not have item V-3.	Add item V-3. Reference additional control items from FMEA	Standard template requirement	
			Item V-2. Incoming inspection: Refer 9-QC-001	Item V-2. Incoming inspection: Refer 9-PR-012	Refer to incoming inspection procedure	
3-Jan-14	Nguyen Tien Nam	2	-	Item V-2, all items: Update quality control items	Make clear quality control items at many processes	Nguyen Trung Kien