

BFX-UA300 FFC cable 8D report

FOXCONN CPEG JBD_VN
2022-May-24
Version 06

D1. Establish the Team

Team Leader

Team Member

Foxconn

- MFG Director: David Yin
- QA Manager : CB Lin/Toney



PE: Jack Han, Michael
ME: Cheng Lun, Wen Thai
PM: Ben Zheng, An Tran
PD: Ruan Wen Yong
QA: Rachel / Robert
TE: Mark Wu, Allan Pham
IE: Hai Ly / Heng Ruan

D2. Description of Problems

Issue Description

- 2021-Oct-21, ALT customer complain [BFX-UA300] defect 2 units BFX-AU300
Symptom : No turn on the LED, No button operation.

No.	MAC ID	Shipping SN	Production date	Failure Description Feedback from Customer	ALT Checked connections FFC cable
1	A8934AFE796F	2149695001202199000013	2021-Sep-27	Not turn on the LED	LED FFC : 14 Pin open
2	A8934AFE797E	2149695001202199000010	2021-Sep-27	Not operation the Button	Button FFC : 14, 15 Pin open



D3. Containment

Check FG stock status

- 2022-March-10, Check K18X001.00 product inventory. Have 824 units, Re-check function 48 units is normal .

Table **Z** MODEL K18X001.00 VERSION ALL

QTY : 3 Query(Q) SAVE SAVE TO CSV(C)

MO: By Mo MOTECH

MODEL_NAME	TOTAL_COUNT	VERSION_CODE	TA_VER
K18X001.00	1	05S5	
K18X001.00	820	07S7	
K18X001.00	3	03S3N	

Summary: Check inventory , products has been shipped, has 824 units inventory left. Check function at OBA 48 units (1 pallet) all normal.

D4. Root Cause

1. Check Customer feedback 02 units production test log.

Check tested log is normal, LED and Button function working normal.

Number	K18X001.00				
	MAC ID	Shipping SN	Test Log		
1	A8934AFE796F	2149695001202199000013	 FT1_PASS.doc	 FT2_PASS.doc	 FT3_PASS.doc
			 RC_PASS.doc	 RC1_PASS.doc	 RC2_PASS.doc
2	A8934AFE797E	2149695001202199000010	 FT1_PASS.doc	 FT2_PASS.doc	 FT3_PASS.doc
			 RC_PASS.doc	 RC1_PASS.doc	 RC2_PASS.doc

D4. Root Cause

2. Check Customer feedback 02 units production history

Check production data , two units was been rework 2 times , the first time cause housing button issue and 2nd time cause suspect gasket making AMP_SDA & GND short issue.
Rework follow SFC control process , and OP re-assembly and function test follow SOP defined.

No.	MAC	SN	Carton ID	Pallet ID
1	A8934AFE796F	2149695001202199000013	214CYU91390017	PYU91390002
2	A8934AFE797E	2149695001202199000010	214CYU91390054	PYU91390002

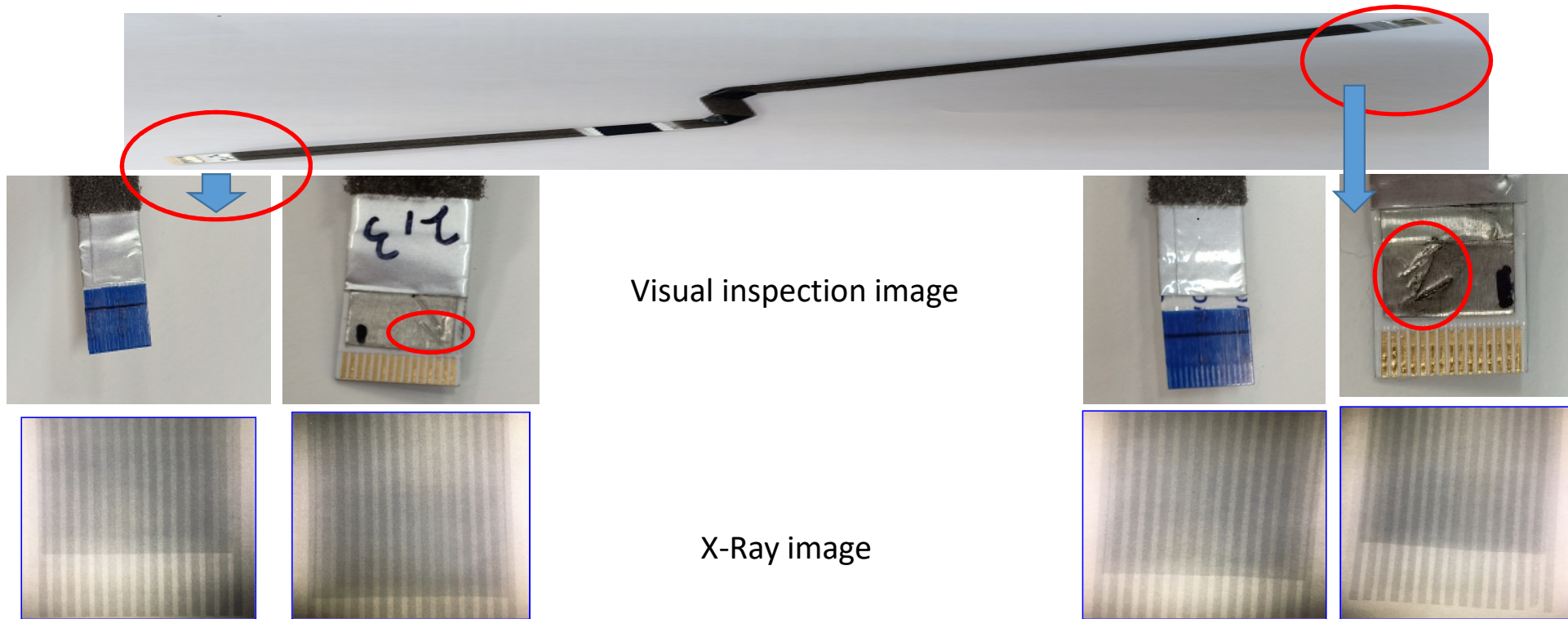


2 Units SFC
production data.xls

D4. Root Cause - FFC NG sample analysis

3. NG FFC cable Checking VI and X-ray data.

2022-Feb-07, Fii received 01 pcs FFC cable NG from P-TW vendor .



Summary : Check visual inspection defect FFC cable had damage before Fii received (as picture)
Checking X_Ray connect zone of FPC_LED_BOARD Jack LED => **Not found out open.**

D4. Root Cause - FFC NG sample analysis

4. NG FFC button cable impedance measurement

- Measure connection of 2 points of Button FFC NG cable, (compared with button FFC OK cable).

→ Find out Pin 13(KB_ PWR), Pin14(GND) of NG sample Open (as Picture 2).

Pin14

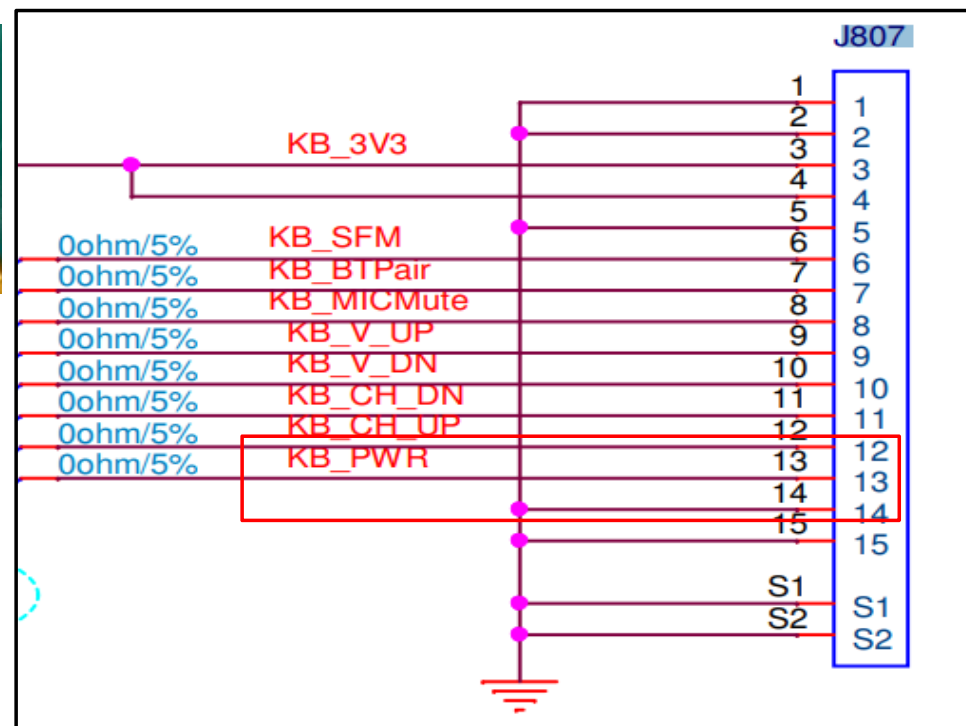
Pin13

OK sample

Pin14

Pin13

NG sample

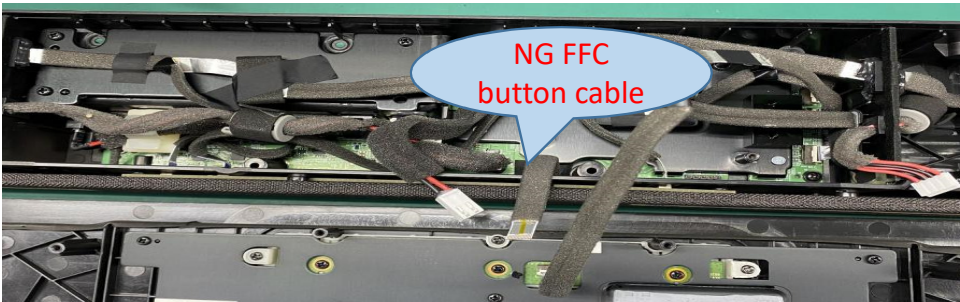


Summary: NG FFC cable has Pin13, Pin14 open.

D4. Root Cause - FFC NG sample analysis

5. Re-Assembly and function test station on line result

1. Use NG button FFC cable assemble into OK product to test at FT1 station (Check Button function). => Result Fail button test.



No #	Station	Test Log	Result	Remark
1	FT1	 NG FFC cable _FT1_BUTT01	Fail	Fail Button 0 (Power button)

2. Test Button function by hand

- Re test 3 times button function by hand, using command “adb shell fac check_button BUTTON_0” , result fail at Power button (button 0), and other button is pass normally

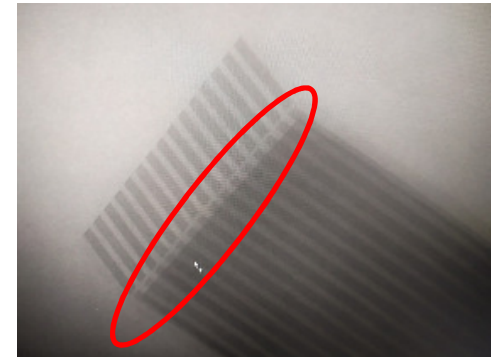
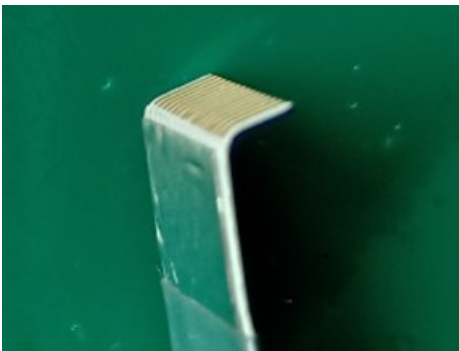
No #	Result	Remark
1	Fail	Fail Button 0 (power button), other button is pass
2	Fail	Fail Button 0 (power button), other button is pass
3	Fail	Fail Button 0 (power button), other button is pass

Summary: NG FFC button has Pin 13, Pin 14 open ➔ test Power button fail at FT1 station.

D4. Verification Folded FFC Cable

6. Fii verify 01 units Fold FFC cable (OK sample) 3 times then check VI and Xray.

1. Fii verify 1 units – FFC cable folded 3 times (Golden finger location). Check visual , X-Ray defect all golden finger had broken.
2. 2 units failure at customer defect not by FFC folded issue, cause if FFC cable folded will fail all pin open (NG FFC cable has Pin13, Pin14 open).



Check visual , X-Ray defect all gold finger had broken.

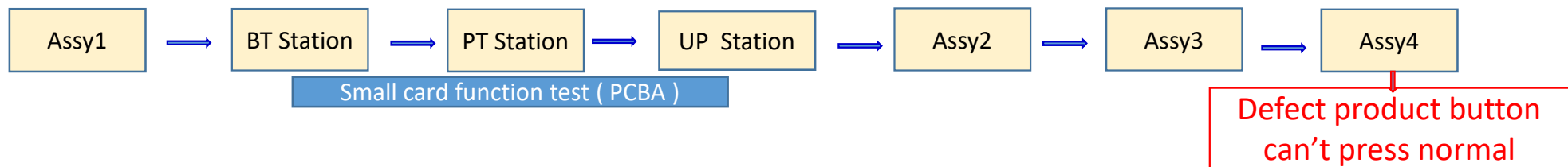


Summary: Maybe cause production line rework disassembly housing take out FFC cable more 2 times, OP doing make FFC cable damage, but function test pass normal that time. So can not cover in by function test.

D4. Root Cause – Assembly Online process

7. Production normal process

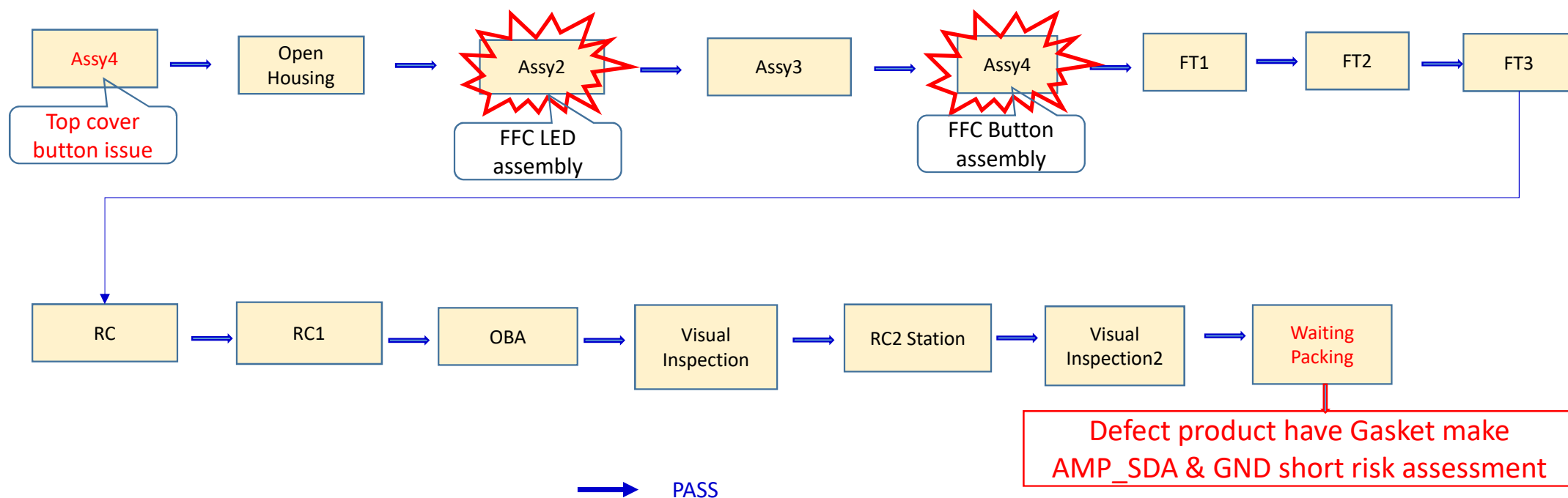
1. 2 NG units customer feedback has been rework disassembly housing 2 times. The first time cause housing button issue and 2nd time cause suspect gasket making AMP_SDA & GND short issue.
2. Production line rework the 1st time back Assy2 repair housing top cover . After rework housing Top cover , product follow normal process doing to waiting Pack Box station.



D4. Root Cause – Assembly Online process and risk assessment

8. Assembly normal process and risk assessment

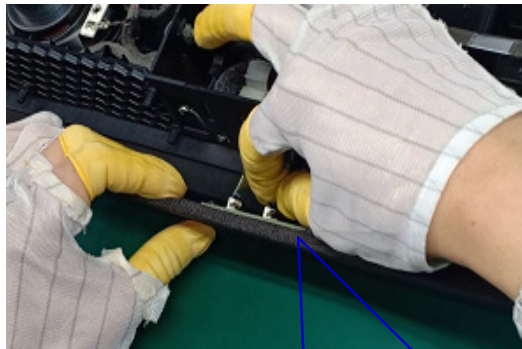
1. Fii rework the 1st time back Assy2 repair housing top cover . After rework housing Top cover , product follow normal process doing to waiting Pack Box station.
2. That time online product we testing defect some product had gasket making AMP_SDA & GND short issue. Then we decided rework open housing 2nd time for re-check gasket status .



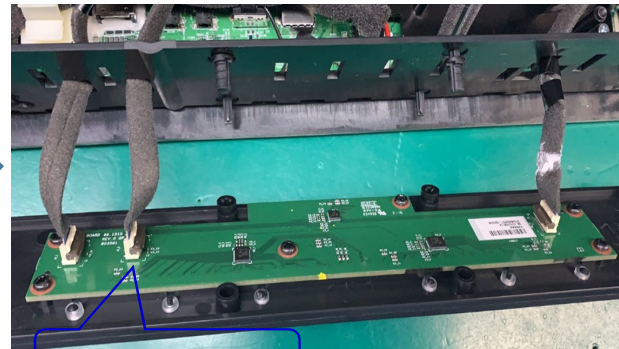
D4. Root Cause – Assembly Online process and risk assessment

9. Assembly LED FFC cable risk assessment at Assy2 station

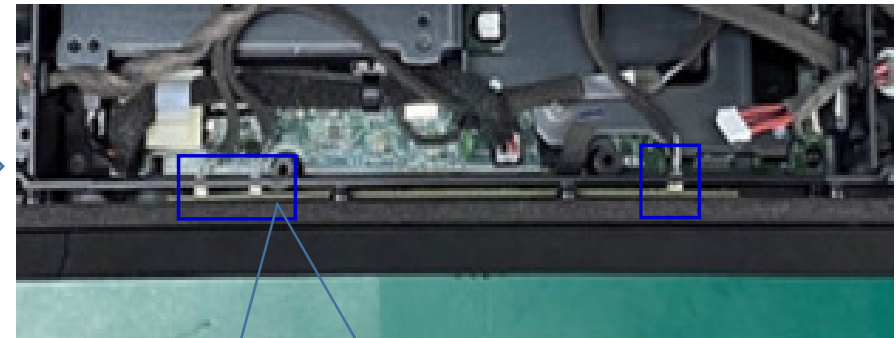
1. The product test FT1 defected housing button top cover can not press (stuck button), We rework back Assy2 station for repair housing button issue and disassembly housing.
2. Due we disassembly housing maybe OP input FFC cable in to connecter LED main board make FFC cable pin damage.



Risk assessment when OP put FFC cable into LED main



LED FFC cable



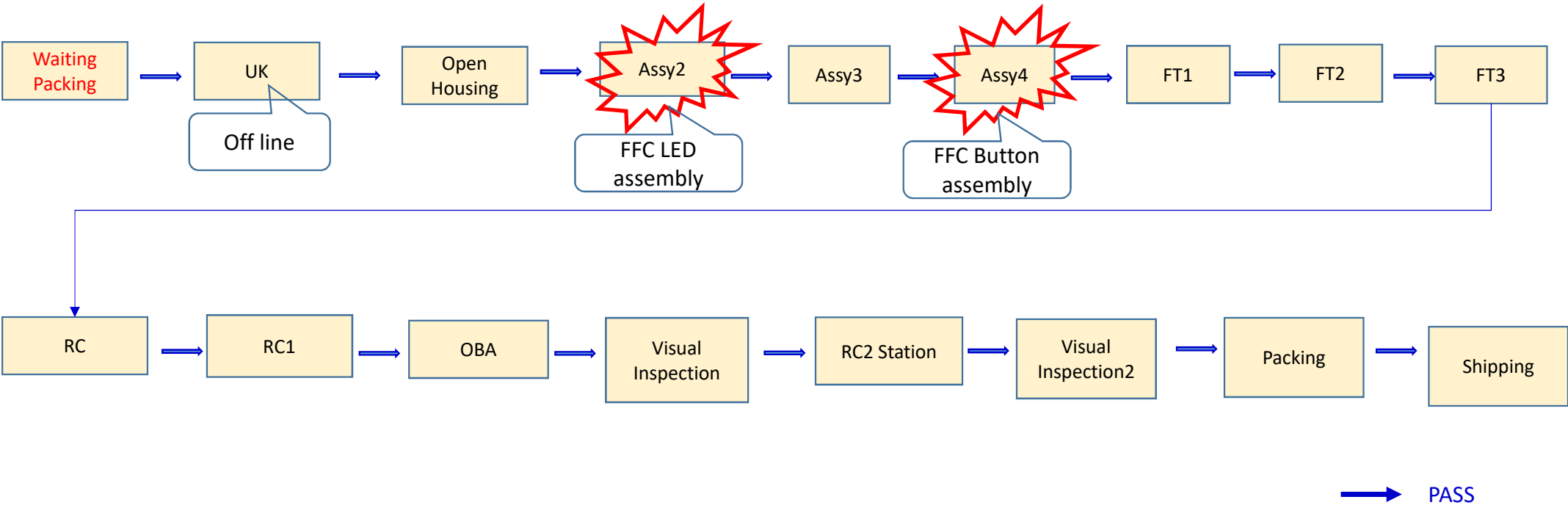
LED FFC cable assembly done

D4. Root Cause – Assembly Online process and risk assessment

10. Assembly normal process and risk assessment

Production line open housing the 2nd times for checking gasket making AMP_SDA & GND short issue and return product to the first assembly station, disassembly housing one more times.

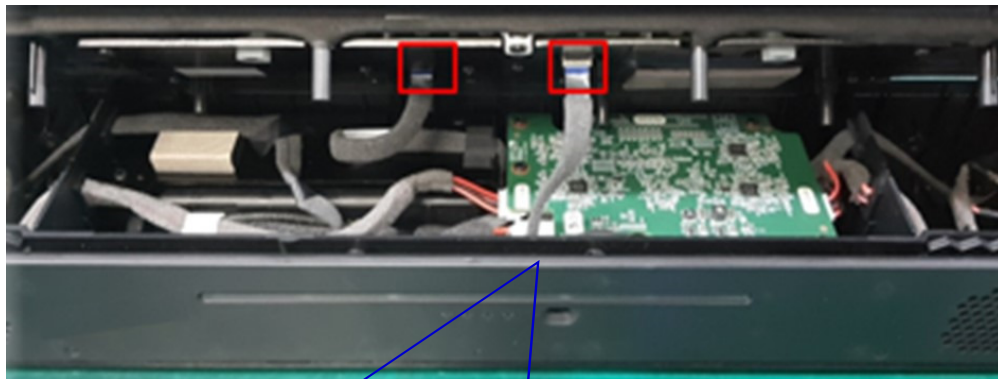
2. All rework process control by SFC system, Doing follow normal process from Assy2 to shipping.



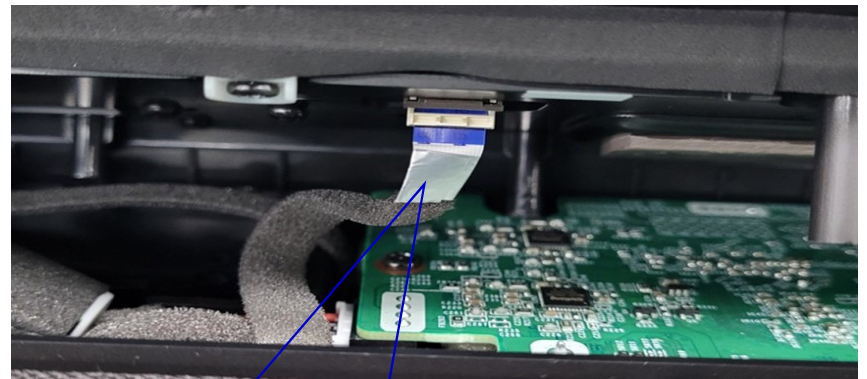
D4. Root Cause – Assembly Online process and risk assessment

11. Assembly Button FFC cable risk assessment at Assy4

Risk assessment when OP re-put in and put out FFC cable into Button main, make FFC damage.



Put FFC cable before close Top cover housing



Risk assessment when OP re-put in and put out FFC cable into Button main, make FFC pin damage.

Summary:

When we disassembly housing maybe OP input FFC cable into connector button main board make FFC cable pin damage.

D4. Analysis Root Cause – Root Cause Summary

6. Summary for root cause analysis

➤ **Disassembly housing [Possible Occur Reason]**

- Disassembly housing 2 times can make FFC cable connector unstable when test function.
- OP assembly FFC cable into main connector careless make FFC pin broken and short.

➤ **FFC cable short issue [Possible Escape Reason]**

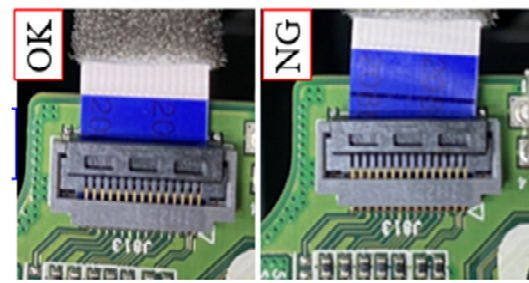
- LED function and Button function test pass normal. So test can cover the FFC pin open defect that time.

D5. Corrective Action

1. In online process:

Notice to SOP, OP doing and re-check after doing when assembly FFC cable on each station, use hand put FFC cable into connector. Done: 2022-Apr-15

4. Requirer OP use hand (only) put FFC cable to connector
(Prohibited use sharps impact to FFC cable)
Yêu cầu công nhân khi lắp FFC cable vào công kết nối , chỉ được dùng tay,
(Nghiêm cấm dùng vật nhọn sắc tác động vào FFC cable)
5. Install the cable so that the black line on the wire is close to the connector end.H10
Chú ý lắp dây cable sao cho đường màu đen trên dây sát với đầu công kết nối.H10



SOP Assemble
ink, Link 96.1531T(

2. Make Quality Alarm

Make Quality Alarm notice OP doing assembly FFC cable follow step by step. Done: 2022-March-10



ALT Quality
Arlam.pdf

Summary: - Notice and training OP online product use hand put FFC cable into connector .

D6. Verification of effectiveness

Verification: No any similar damaged issue found to now for FFC cable fail issue . (from 07-Feb-2022 to 31-March-2022) per 5.7K.

☒ Period	2/ 7/2022	07:30	to	3/31/2022	18:30	
	K18X001.00		ALL		ALL	
Yield Rate Defect Analysis Repair Analysis QC Analysis DPMO DPMO_NEW						
Group Name	Pass QTY	Fail QTY	FIRST_FAIL_QTY	Total QTY	F.P.Y.Rate	E.T.E.Rate
ASSY	5700	0	0	5700	100	100.00
ASSY2	5695	0	0	5695	100	100.00
ASSY3	5695	0	0	5695	100	100.00
ASSY4	5695	0	0	5695	100	100.00

D7. Prevent Recurrence

- 1. Online product fix OP at assembly station, special assembly FFC cable .
- 2. Add on flowchart and SOP – Assembly FFC cable K18X001T00 with AMP board is CTQ station (Critical to quality)

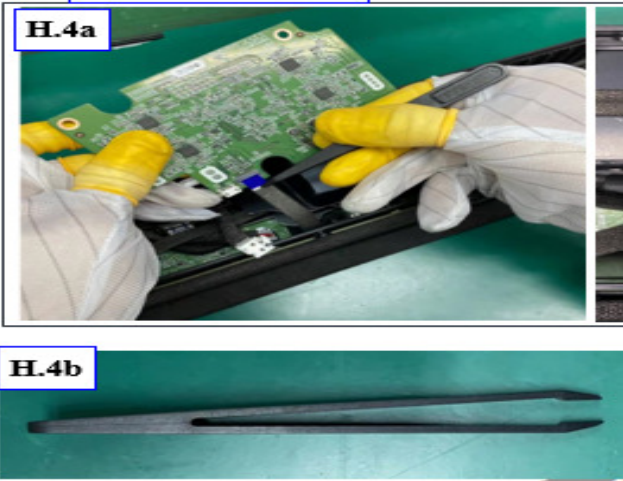
Owner: PD – Van Anh 07-Feb-2022 Done

 		FOXCONN INDU 標準作業規範 QUI	
適用產品 Sản phẩm	K18X001.00 (BFX-UA300)	工站名稱 Công đoạn	Assemble heaksink, Link 96.1531T00& Assembly into Product Lắp tản nhiệt, link 96.1531T00 & lắp vào sản phẩm

- 3. Add to SOP and remind OP use hand (only) put FFC cable to connector (Prohibited use sharps impact to FFC cable), And 96.1531T00 , assembly FFC cable will use plastic tweezers put FFC cable into connector
- . IPQC online checking.

Owner IPQC _Wen Xiu: 24-May-2022 Done.

4. Take 96.1531T00, use tweezers as H4b, assemble cable as H4a, then paste 3M tape around cable as H5.
Lấy bản 96.1531T00 lên, dùng nhíp như H4b lắp dây cáp vào như H4a.



SOP K18X001.00
semble 96.1531T00.ř

D8: Congratulate Your Team

THANK YOU