PRODUCT/PROCESS CHANGE NOTIFICATION

PCN CCI-CSD/10/5361
Notification Date 02/12/2010

T&F and Assembly activity transfer of PDIP 14-16 (CCI products) from ST Shenzhen plant to ST Long gang plant

Table 1. Change Implementation Schedule

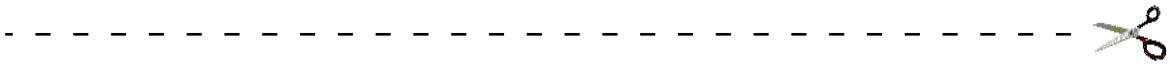
Forecasted implementation date for change	10-Feb-2010
Forecasted availabillity date of samples for customer	05-Feb-2010
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	05-Feb-2010
Estimated date of changed product first shipment	01-Mar-2010

Table 2. Change Identification

Related APCN	5151
Product Identification (Product Family/Commercial Product)	see attached
Type of change	Testing location change
Reason for change	Standardization with similar product lines.
Description of the change	Relocation of "PDIP14-16" assembly line and final testing from ST Shenzhen Plant to ST Longgang Plant.
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	Traceability code for ST Longgang plant: G4
Manufacturing Location(s)	

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt	**PCN CCI-CSD/10/5361**
Please sign and return to STMicroelectronics Sales Office	**Notification Date 02/12/2010**

☐ Qualification Plan Denied	Name:
☐ Qualification Plan Approved	Title:
	Company:
☐ Change Denied	Date:
☐ Change Approved	Signature:

Remark

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DOCUMENT APPROVAL

Name	Function
Stefanone, Mauro	Division Marketing Manager
Astone, Giuseppe	Division Product Manager
Pennati, Silvia Maria	Division Q.A. Manager

T&F and Assembly activity transfer of PDIP 14-16 (CCI products) from ST Shenzhen plant to ST Longgang plant

WHAT:

Relocation of "PDIP14-16" assembly line and final testing from ST Shenzhen Plant to ST Longgang Plant.
BOM, production machines, procedure and applied specs are unvaried.
List of affected products is following.

WHY:

Standardization with similar product lines

HOW:

By internal qualification.
Data of package qualification are attached.
Data of testing qualification are attached

WHEN:

Transfer will be completed by Q1 2010.

DEVICES INVOLVED:

Here below the list of the devices involved in the changes:

E-TEA3718DP
E-IL13528
E-TEA3718SDP
E-L6210

PDIP second testing source validation

- **TESTING: The results show good STZ/ LGG correlation**
  - see operative notes below with results.
- **OTHER VALIDATIN MEASUREMENT: The results show good SHZ/ LGG correlation**
  - Stability/repeatability (1 device/100 run) + 100 run on critical parameters and check Cpk
  - Check receiving and sending plant disttribution on critical parameters
  - El. AIQ on two lots =0
- **FINISHING: The results show good STZ/ LGG correlation**
  - 3718 device selected: test+scan one tray in LGG and then SHZ

Device list

Line	Technical code	Commercial code	Testing condition	Note
3718	C517*3718GA6	E-TEA3718DP	TA,TH	
3719	D517*3719IA6	E-IL13528	TA,TH	
3719	E517*3719IA6	E-TEA3718SDP	TA,TH	
L736	B517*L7362AX	E-L6210	TA	

Operative notes for Testing (3718)

- **Procedure to be applied for 3718 (Move one Jig to LGG)**
  - **LGG**: Lot n.1 raw-lines to be tested at **ambient (**datalog enabled)
    - Good and rejects to be kept separated
    - Move both set of parts to SHZ

Device	Lot NO	Wafer_Id	TraceCode	1st test						
				Program	Temp	Test IN	Good	HBIN7(Para)	HBIN8(O/S)	Yield
L517*3718GA6	G494908U01	V6822NH0	G494908U	E3718FA05	25'C	1360	1351	1	8	99.34%
	G494908URR					1300	1292	1	7	99.38%

  - **SHZ**: Lot n.1 to be re-tested at ambient (datalog enabled)
    - Good and rejects must be tested separately
    - Compare the results
    - Keep on hold all the material waiting further disposition

Device	Lot NO	Wafer_Id	TraceCode	1st test						
				Program	Temp	Test IN	Good	HBIN7(Para)	HBIN8(O/S)	Yield
L517*3718GA6	G494908U01	V6822NH0	G494908U	E3718FA05	25'C	1351	1351	0	0	100%
	G494908URR					N/A				

Operative notes for Testing (3718)

- **Reject Correlation- > 100%**

Device	Lot NO	Wafer_Id	TraceCode	Program	Temp	LGG REJECT		STS CONFIRM	
						HBIN7(Para)	HBIN8(O/S)	HBIN7(Para)	HBIN8(O/S)
L517*3718GA6	G494908U01	V6822NH0	G494908U	E3718FA05	25'C	1	8	1	8
	G494908URR					1	7	1	7

Operative notes for Testing (3719)

- **Procedure to be applied for 3719**
  - **LGG**: Lot n. 2 raw-lines to be tested at ambient (datalog enabled)
    - Keep only the good parts
    - Test the good (coming from test @ ambient) at hot temperature (datalog enabled)
    - Keep good and rejects separated
    - Move both set of parts to SHZ

Device	Lot NO	Wafer_Id	TraceCode	1st test							2nd test						
				Program	Temp	Test IN	Good	HBIN7(Para)	HBIN8(O/S)	Yield	Program	Temp	Test IN	Good	HBIN7(Para)	HBIN8(O/S)	Yield
L517*3719IA6	G49490CU01	V6941F59	G49490CU	E3719FA11	25'C	1306	1293	4	9	99%	N/A						
	G49490CURR					1300	1288	3	9	99.08%	E3719FH01	130'C	1288	1288	0	0	100%

  - **SHZ**: Lot n.2 to be re tested at hot temperature (datalog enabled)
    - Good and rejects must be tested separated
    - Compare the results
    - Keep on hold all the material waiting further disposition

Device	Lot NO	Wafer_Id	TraceCode	1st test							2nd test						
				Program	Temp	Test IN	Good	HBIN7(Para)	HBIN8(O/S)	Yield	Program	Temp	Test IN	Good	HBIN7(Para)	HBIN8(O/S)	Yield
L517*3719IA6	G49490CU01	V6941F59	G49490CU	E3719FA11	25'C	1293	1293	0	0	100%	N/A						
	G49490CURR					N/A					E3719FH01	130'C	1288	1288	0	0	100%

Operative notes for Testing

- **Procedure to be applied for L736**
  (Move one Jig to LGG)

  – **LGG**: Lot n.1 & n.2 raw-lines to be tested at ambient (datalog enabled)
    - Good and rejects to be kept separated
    - Move both set of parts to SHZ

Device	Lot NO	LGG test						
		Program	Temp	Test IN	Good	HBIN7(Para)	HBIN8(O/S)	Yield
L736	G40020BK01	L736FA01	25'C	1277	1255	1	21	98.28%
	G40020BKRR			1318	1310	1	7	99.39%

  – **SHZ**: Lot n.1& n.2 to be re-tested at ambient (datalog enabled)
    - Good and rejects must be tested separately
    - Compare the results
    - Keep on hold all the material waiting further disposition

Device	Lot NO	LGG test						
		Program	Temp	Test IN	Good	HBIN7(Para)	HBIN8(O/S)	Yield
L736	G40020BK01	L736FA01	25'C	1277	1255	1	21	98.28%
	G40020BKRR			1318	1310	1	7	99.39%

– ST Internal –

PDIP 14-16
ST LongGang

Transfer of line from STS Shenzen to STS LongGang

QP-027-09

G.L. Gobbato

2007
1987
20 years dedicated to the future

- **Purpose:**
  - To validate transfer of PDIP line from STS Shenzen to ST LongGang

- **Scope:**
  - E-TEA3718DP
  - E-IL13528
  - E-TEA3718SDP
  - E-L6210

- **Class change:**
  - **Class change is 1**

- **Information to customers:**
  - Mandatory through PCN

- Test Vehicles :
  - 2025
  - 3719
- Trials:
  - 1 qualification lot with 2025 device
  - 1 qualification lot with 3719 device
- Transfer of line has been already qualified by HED, MMS and APM ST divisions.

Documents

- Transfer of plant to be performed according 8092361.
  - PCRB change authorization as SOP262.
- Ramp up data
  - R&R data for single machine
  - CPk and yield data
- Internal
  - BSA update.
  - PCN release.

All document reviewed and approved.

Minimal CA Requirements

- External visual inspection
- Package outline dimension
- X-ray analysis
- Scanning acoustic microscope results
- Internal visual inspection
- Cross section analysis
- Wire pull test
- Ball shear test
- Bond cratering test
- Solderability test
- Wetting angle test

0 Non conformity reported.

Reliability

Line	Final test	Reliability plant	Particular points
2025	Shenzhen	Shenzhen	
3719	Shenzhen	Shenzhen	

TEST	CONDITIONS	SAMPLE SIZE	
		2025	*3719*
TC	JL3 + Thermal cycling (JESD-22a104) Ta=-65/+150°C Steps: 0, 500 cycles, 1000 cy T-SCAN + C-SAM after 500 cycles	*77*	*77*
AC	JL3 + Autoclave (JESD-22a102) P=2atm, Ta=121°C, 100%RH Steps: 0, 96,168 T-SCAN + C-SAM after 168h PPT	*77*	*77*
HTSL	High temperature storage life (JEDS-22a103) Ta=150°C Steps: 0, 500, 1000 hours T-SCAN + C-SAM after 1000 hours	*77*	*77*
THS	Temperature Humidity storage (JESD-22a118) Ta=85°C/85%Rh Steps: 0, 500, 1000 hours T-SCAN + C-SAM after 1000 hours	*77*	*77*

0 electrical defect after all reliability trials.

Conclusion

After review of internal documentation,

Assy line of PDIP in LGG has been qualified.

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