



Product/Process Change Notice

PCN # P-1904-0001

Date: 2019/05/14

Dear Customer:

Please be informed that Macronix is going to change the assembly subcontractor for 32L PLCC package products from OSE to LINGSEN, because the current assembly subcontractor, OSE, plans to close the manufacturing plant by the end of June, 2019.

The detailed information about this change is described in the following pages. This assembly vendor change has passed Macronix' qualification based on JEDEC standard, and the qualification report is attached below.

If you have any questions, concerns, or requests about this change, please contact your local Macronix Sales Representatives within 30 days.

Thank you.

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(Note: For the customers who receive Macronix PCNs via distributors, Macronix will assist the distributors to convey the PCNs to the customers. It is each distributor's responsibility to communicate and track the responses of each customers and report back to Macronix, the distributor shall assume full responsibilities if failed to do so.)

PCN No.: P-1904-0001

Issue Date : 2019/05/14

Subject: Change assembly subcontractor from OSE to LINGSEN for 32L PLCC package products.

Affected Macronix Part No.:

MX29F040CQC-70G, MX29F040CQC-90G, MX29F040CQI-70G, MX29F040CQI-90G
 MX29LV040CQC-70G, MX29LV040CQC-90G, MX29LV040CQI-55Q, MX29LV040CQI-70G
 MX29LV040CQI-90G

Package type: 32L PLCC package products

Change Category : New assembly vendor

Reason of Change:

OSE will close the current manufacturing plant by June, 30th, 2019.

Before Change :

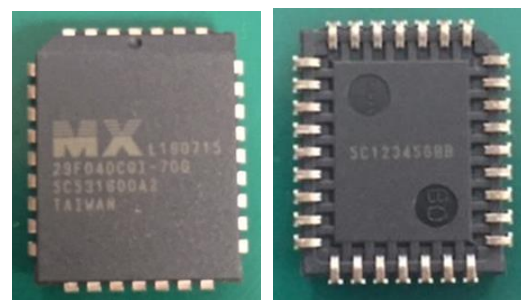
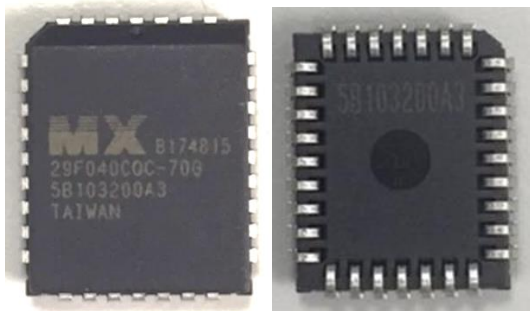
Assembly vendor:

OSE

After Change :

Assembly vendors:

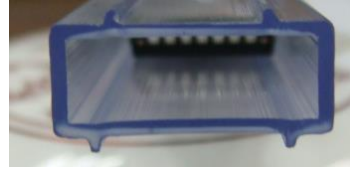
LINGSEN



Material	OSE	LINGSEN
Lead-frame material	Copper	Copper
Die attached material	Hitachi EN4900G	Sumitomo 1076WA
Wire Type	Au	Au
Molding compound	Sumitomo G631	Sumitomo G600
Lead finish	Matte Sn	Matte Sn

Note: The packing tubes used for these two assembly subcontractors are different in dimensions, as specified in the below table.:

TUBE	OSE	LINGSEN
Supplier	K.T. Pak (光泰)	K.T. Pak (光泰)
Length	508±1.0 mm	492.76±1.27mm
Width	15.2mm MAX	15.5mm MAX
Height	5.6±0.25 mm	6.198+0.38/-0.13 mm
Q'ty/Tube	32ea/tube	30ea/tube



Product identification:

OSE assembled IC the marking has vendor code: B

LINGSEN assembled IC the marking has vendor code: L

Assessment of Change:

1. No impact to Form, Fit, Function, Quality & Reliability.
2. LINGSEN assembled 32L PLCC package has passed Macronix' qualification based on JEDEC MSL level 3 standards, and it is also Halogen-Free, and meets the RoHS standards..
* Attached is LINGSEN assembled 32L PLCC package qualification report.
3. LINGSEN has been one of Macronix' qualified assembly vendors with good quality for a long time.

Schedule:

Sample available date: 2019/4/20

1st shipping date: 2019/7/20 (Or follow PCN agreement with the customer)



LINGSEN 32L PLCC Package Qualification Report

1. PURPOSE:

To qualify the new assembly subcontractor “LINGSEN” for 32L PLCC package.

2. PACKAGE PROFILE:

ASSEMBLY HOUSE	LINGSEN
PACKAGE	32L PLCC
DIE SIZE	2031 x 2297 μm^2
DIE ATTACH	Sumitomo 1076WA
LEAD FRAME	Copper, Double Ring Silver
WIRE BOND MATERIAL	Au
MOLD COMPOUND	Sumitomo G600
LEAD FINISH	Matte Sn

3. QUALIFICATION ITEMS, TEST CONDITION AND FLOW:

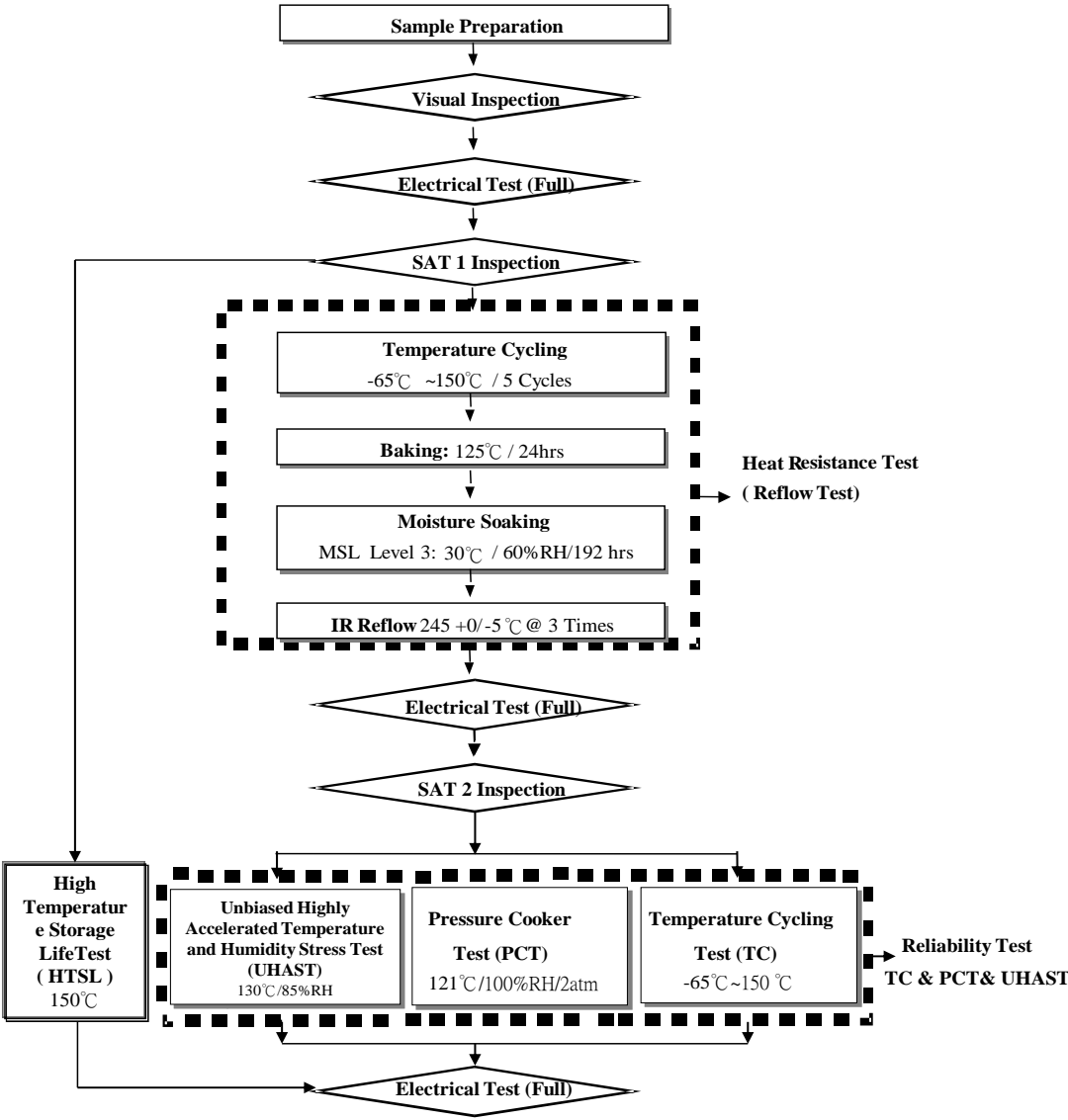
3-1. QUALIFICATION ITEMS:

Test Item	Reference	Test Condition
1. Heat Resistance Test: Reflow Test	JEDEC J-STD-020	MSL: Follow JEDEC MSL Level 3 (30°C / 60%RH, 192hrs)
2. Pressure Cooker Test	JESD22-A102	121°C / 100%RH / 2atm
3. Temperature Cycling Test	JESD22-A104	-65°C ~150°C
4. Unbiased Highly Accelerated Temperature and Humidity Stress Test	JESD22-A118	130°C / 85% RH
5. High Temperature Storage Life Test	JESD22-A103	150°C
6. Solderability Test	JESD22-B102	<ul style="list-style-type: none"> ■ Steam aging 8hrs & Dipping Time \leq 5sec ■ Sn-Ag-Cu solder paste: 245°C ■ Sn-Pb solder paste: 235°C

*Perform SAT examination before and after Preconditioning per JESD22-A112.

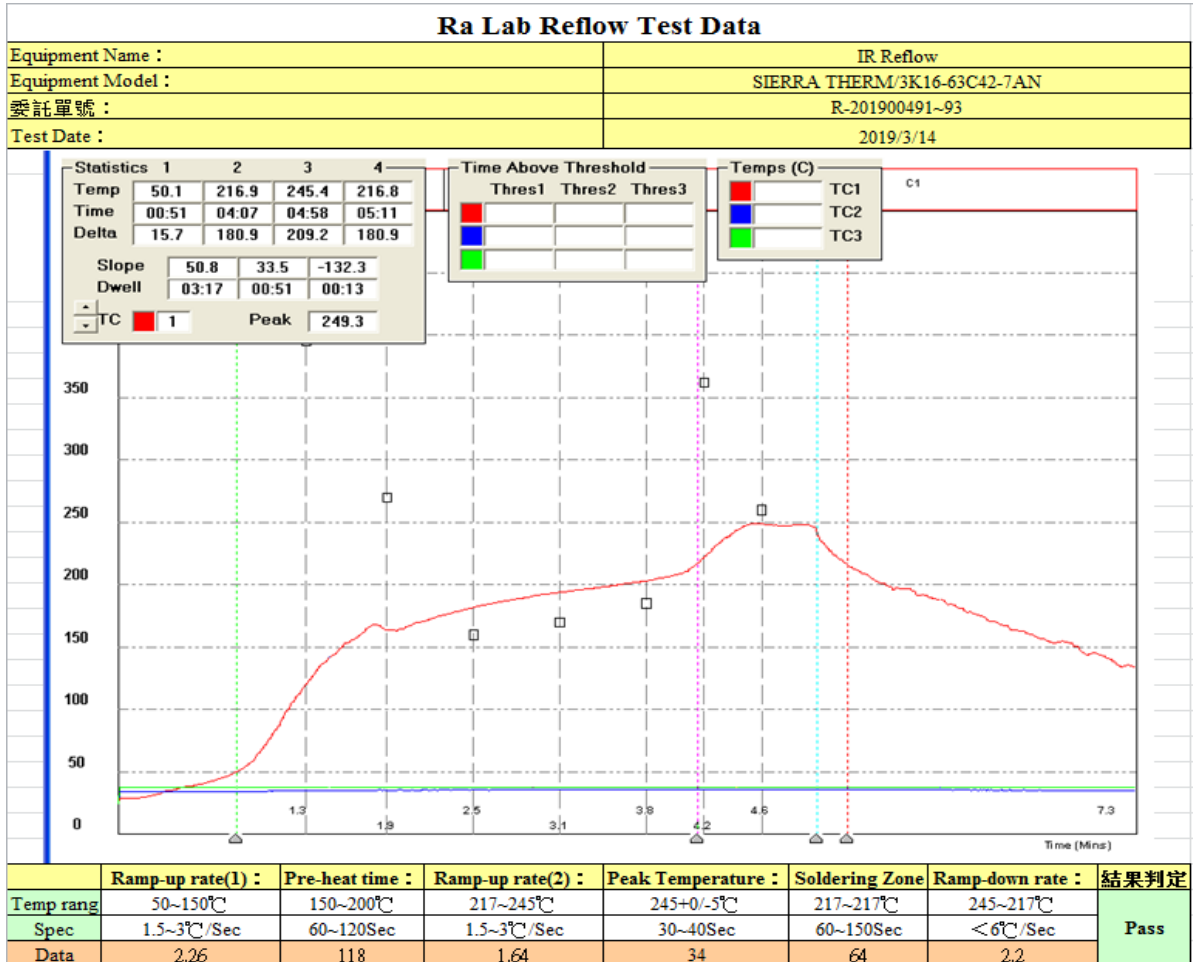


3-2. HEAT RESISTANT TEST (REFLOW TEST) AND RELIABILITY TEST FLOW





3-2-1. REFLOW PROFILE:



Note 1: Subject the samples to 3 cycles of the above defined reflow conditions

Note 2: Time 25°C to peak temperature: 8 minutes max.

Note 3: The time between reflows shall be 5 minutes minimum and 40 minutes maximum.

3-2-2. CRITERIA:

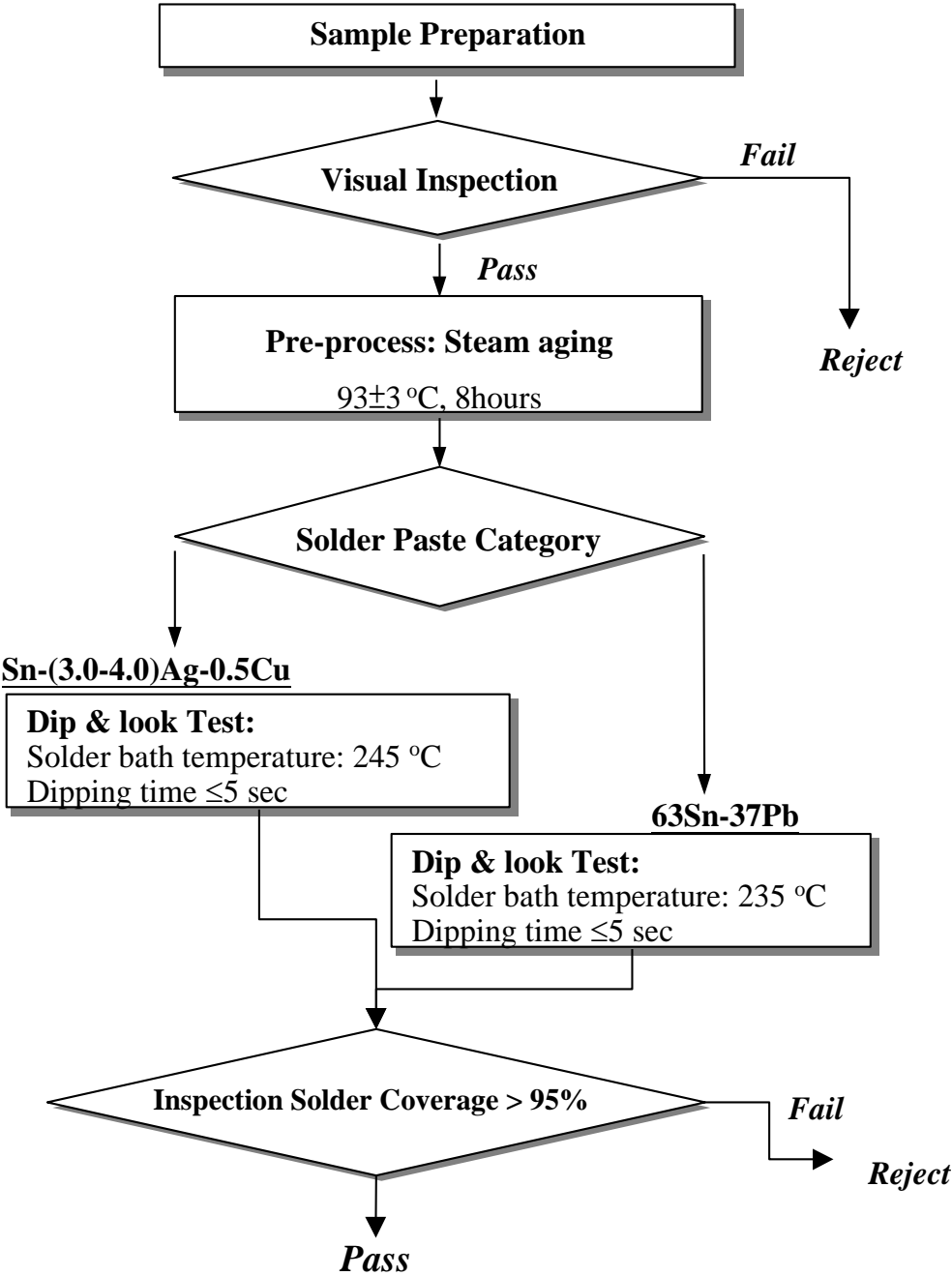
LTPD= 3%, PCT 96 hours and TC 500 cycles & UHAST 96 hours & HTSL 500 hours.

3-2-3. REFERENCE SPECIFICATION:

5650-0901: ASSEMBLY RELIABILITY QUALIFICATION SPEC



3-3. SOLDERABILITY TEST FLOW





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4. RESULTS:

4-1. HEAT RESISTANCE TEST and RELIABILITY TEST RESULTS:

PRODUCT	6615		
LOT#	5C531600BT	5C531600BX	5C531600BQ
DATE CODE	L1907	L1907	L1908
SAT 1	0/22	0/22	0/22
PRECON	0/231	0/231	0/231
SAT 2	0/22	0/22	0/22
PCT 96 HRS	0/77	0/77	0/77
TC 500 CYC	0/77	0/77	0/77
UHAST 96 HRS	0/77	0/77	0/77
HTSL 500 HRS	0/45	0/45	0/45

FAIL / SAMPLE SIZE

4-2. SOLDERABILITY TEST RESULTS:

Matte Sn Plating

Plating Material	Matte Sn		
Solder Paste Material	Sn-(3.0-4.0)Ag-0.5Cu		
INSPECTION	0/5	0/5	0/5

FAIL / SAMPLE SIZE

Plating Material	Matte Sn		
Solder Paste Material	63Sn-37Pb		
INSPECTION	0/5	0/5	0/5

FAIL / SAMPLE SIZE

5. CONCLUSION: PASS

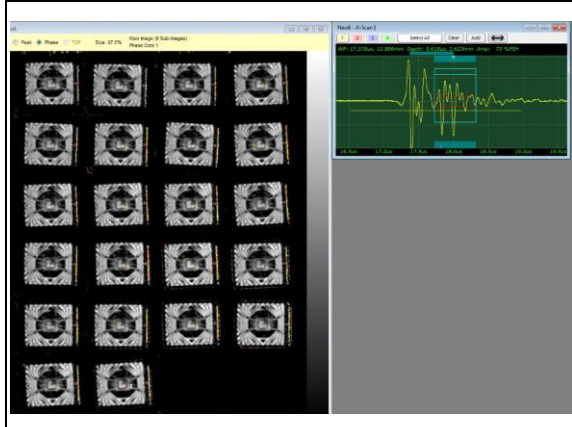
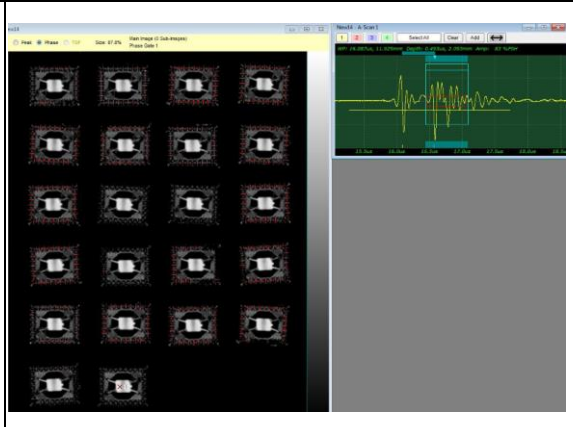
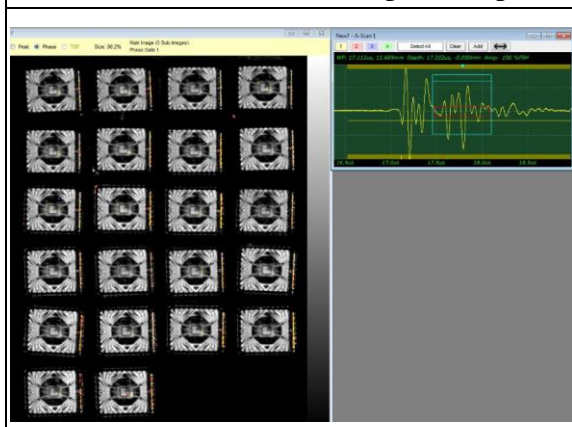
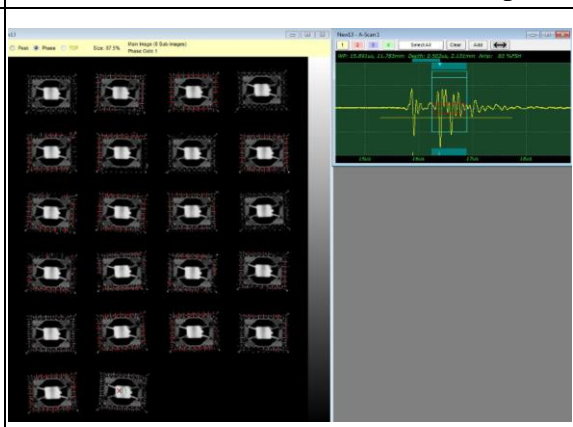
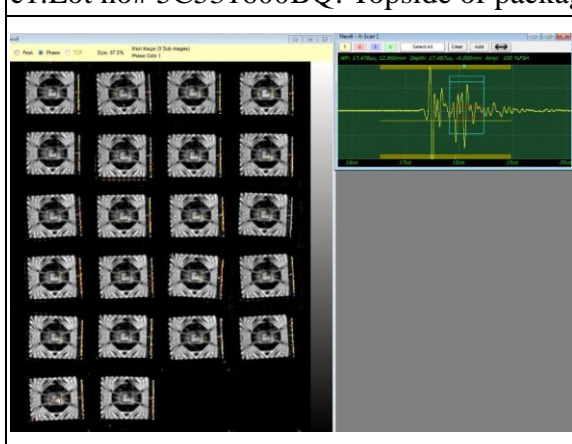
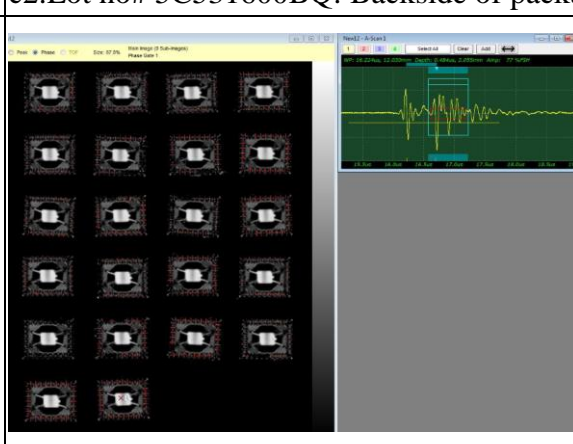


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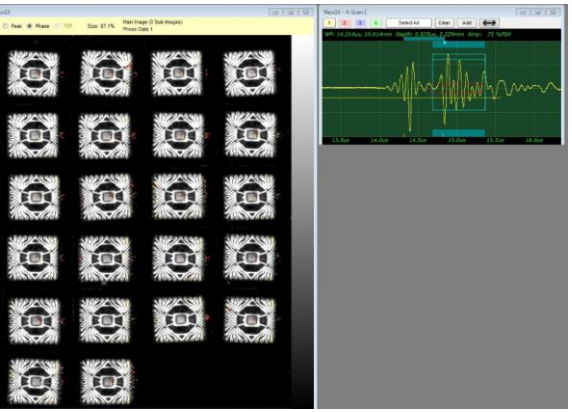
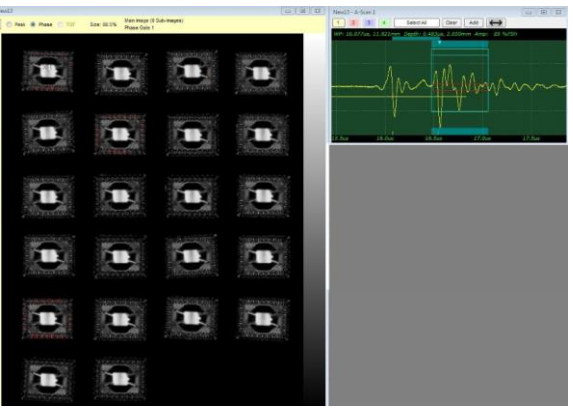
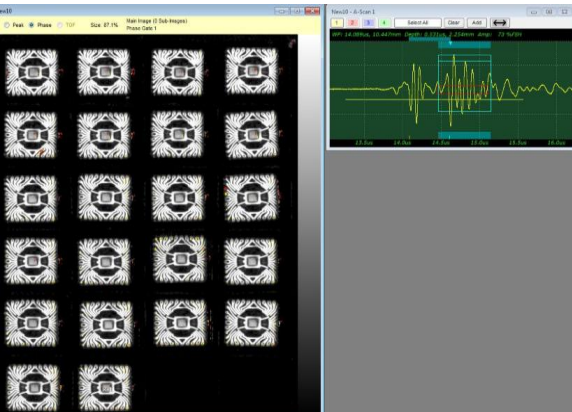
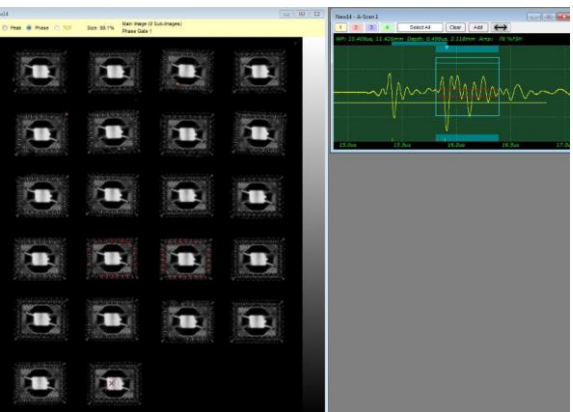
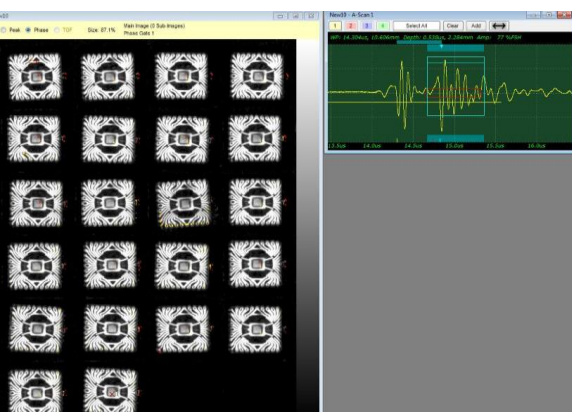
6. ATTACHED FILE:

6-1. SAT PHOTO:

6-1-1. BEFORE PRE-CONDITION

a1.Lot no# 5C531600BT: Topside of package	a2.Lot no# 5C531600BT: Backside of package
	
b1.Lot no# 5C531600BX: Topside of package	b2.Lot no#5C531600BX: Backside of package
	
c1.Lot no# 5C531600BQ: Topside of package	c2.Lot no# 5C531600BQ: Backside of package
	

6-1-2. AFTER PRE-CONDITION

<p>a1.Lot no#5C531600BT: Topside of package</p> 	<p>a2.Lot no# 5C531600BT: Backside of package</p> 
<p>b1.Lot no#5C531600BX: Topside of package</p> 	<p>b2.Lot no#5C531600BTX: Backside of package</p> 
<p>c1.Lot no#5C531600BQ: Topside of package</p> 	<p>c2.Lot no# 5C531600BQ: Backside of package</p> 