



Product/Process Change Notice

PCN # P-2111-0004

Date: 2021/12/22

Dear Customer:

Please be informed that Macronix is going to add 2nd source assembly subcontractor to backup customer original approved assembly subcontractors for 8WS0N 8x6 package products. The 2nd source assembly subcontractor is ASECL.

The detailed information about this change is described in the following pages. This process 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, otherwise Macronix will assume customer received the PCN with no comments and the change is acceptable to the customer. Macronix follows JEDEC J-STD-046, it stipulates: ".....Lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change".

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-2111-0004**Issue Date :** 2021/12/20**Subject:** Adding a new assembly vendor–ASECL for 8WSON 8x6 package products.**Affected Macronix Part No.:**

MX25L12836EZNI-10G

MX25L12845EZNI-10G

MX25L12865EZNI-10G

MX25L25635EZNI-12G

Package type: 8WSON 8x6 package products**Change Category:** New assembly vendor**Reason of Change:**

To increase 8WSON 8x6 package assembly capacity and flexibility.

Before Change :

Assembly vendor:

1. LINGSEN

After Change :

Assembly vendors:

1. LINGSEN
2. ASECL

Product identification:

ASECL assembled IC the marking has vendor code: X

LINGSEN assembled IC the marking has vendor code: L

Assessment of Change:

1. No impact to Form, Fit, Function, Quality & Reliability.
2. ASECL assembled 8WSON 8x6 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 ASECL assembled 8WSON 8x6 package qualification reports.
3. ASECL has been one of Macronix' qualified assembly vendors with good quality for a long time.

Schedule:

Sample available date: 2022/1/7

1st shipping date: 2022/2/1 (Or follow PCN agreement with the customer)



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ASECL 8L WSON (8 x 6 x 0.8 mm) Package Qualification Report

1. PURPOSE:

To qualify the new assembly subcontractor “ASECL” for 8L WSON (8x6x0.8 mm) package.

2. PACKAGE PROFILE:

| | |
|--------------------|-----------------------------|
| ASSEMBLY HOUSE | ASECL |
| PACKAGE | 8L WSON (8 x 6 x 0.8mm) |
| DIE SIZE | 5570 x 4436 μm^2 |
| DIE ATTACH | Henkel ATB-125 (Film) |
| LEAD FRAME | Copper |
| WIRE BOND MATERIAL | Au |
| MOLD COMPOUND | Hitachi 9240HF |
| LEAD FINISH | Matte Sn |

3. QUALIFICATION ITEMS, TEST CONDITION AND FLOW:

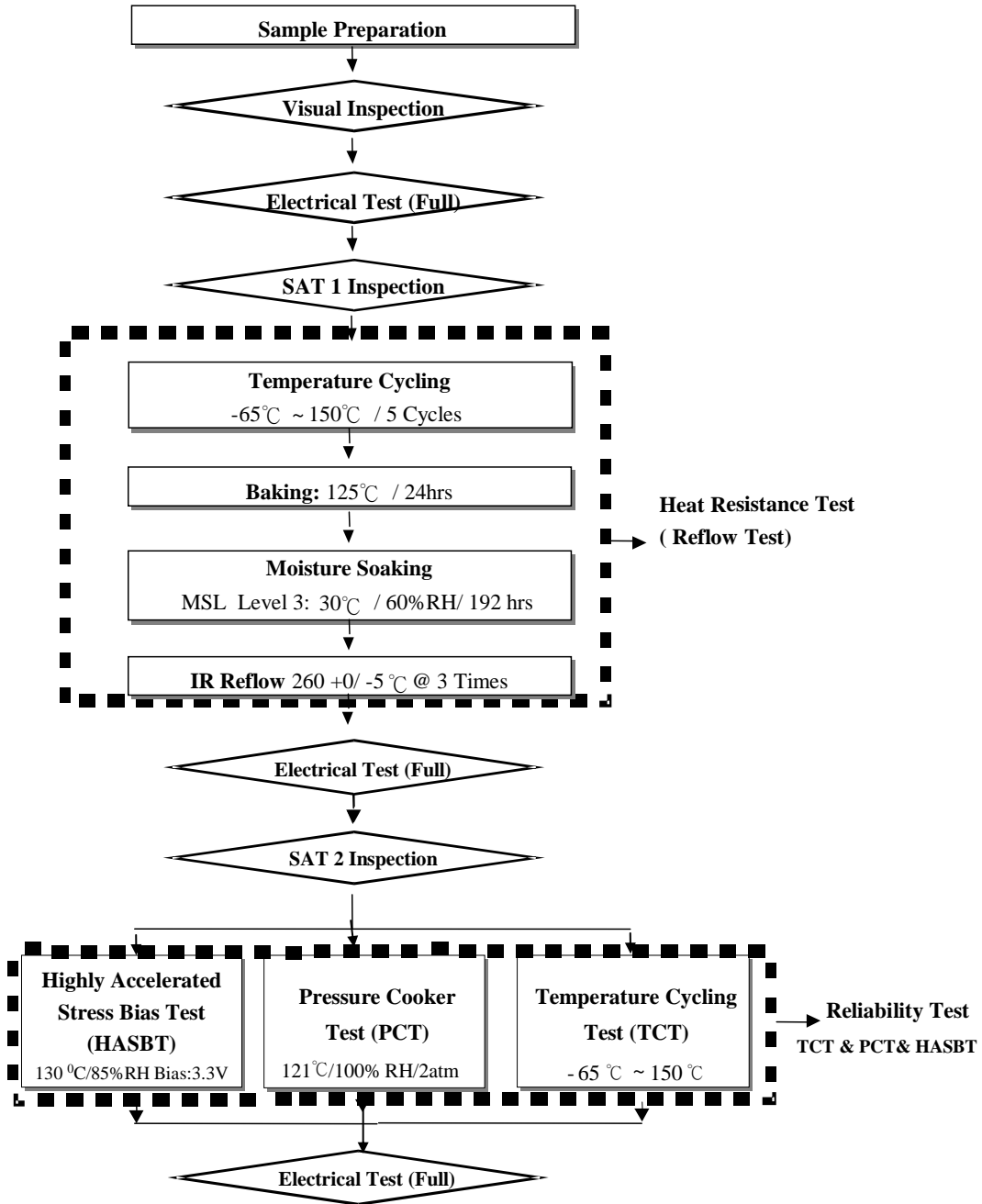
3-1. QUALIFICATION ITEMS:

| 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/2 atm |
| 3. Temperature Cycling Test | JESD22-A104 | -65°C ~50°C |
| 4. Highly Accelerated Temperature and Humidity Stress Test | JESD22-A110 | 130°C / 85% RH, Bias: 3.3V |
| 5. 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.



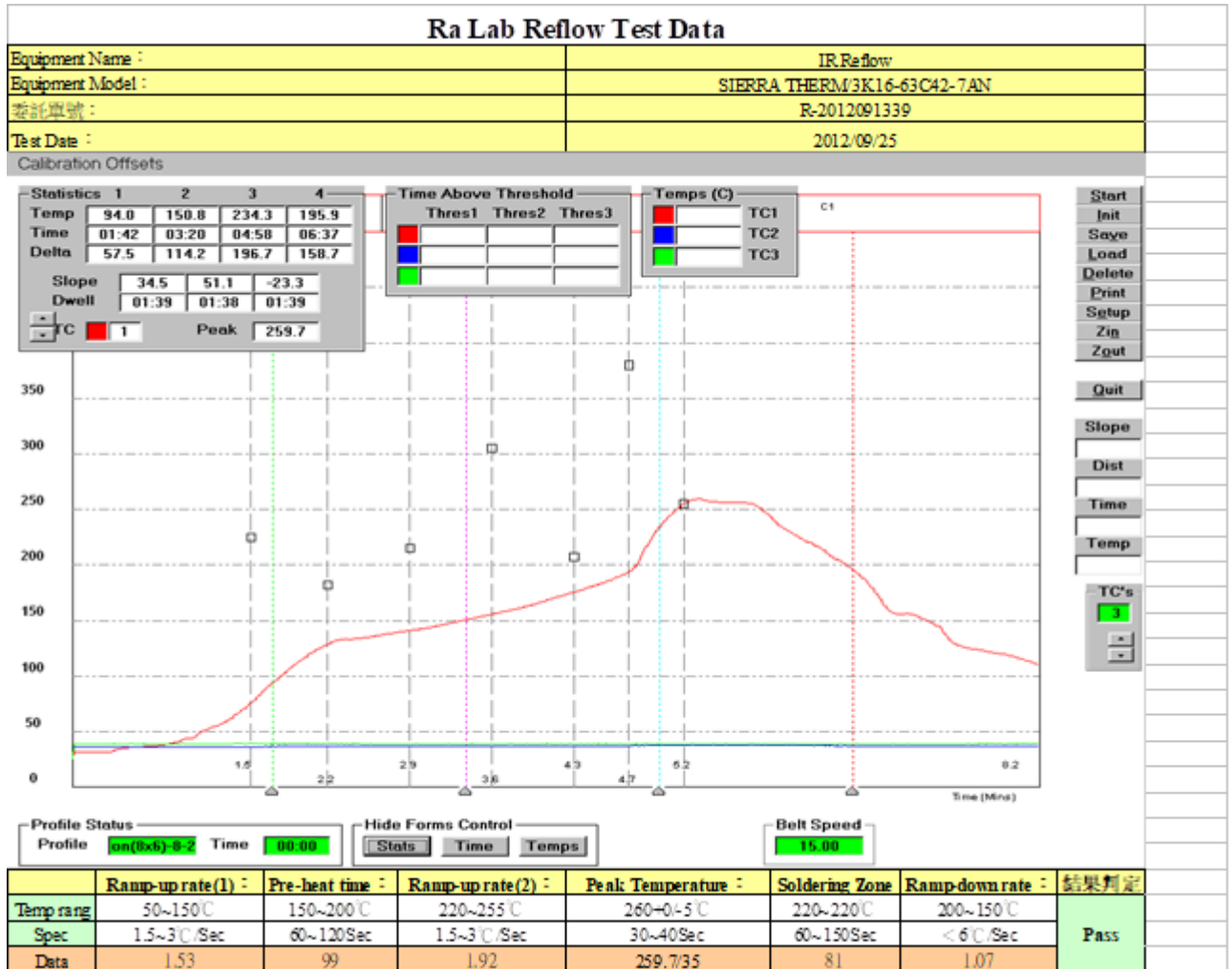
3-2. HEAT RESISTANT TEST (REFLOW TEST) AND RELIABILITY TEST FLOW





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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:

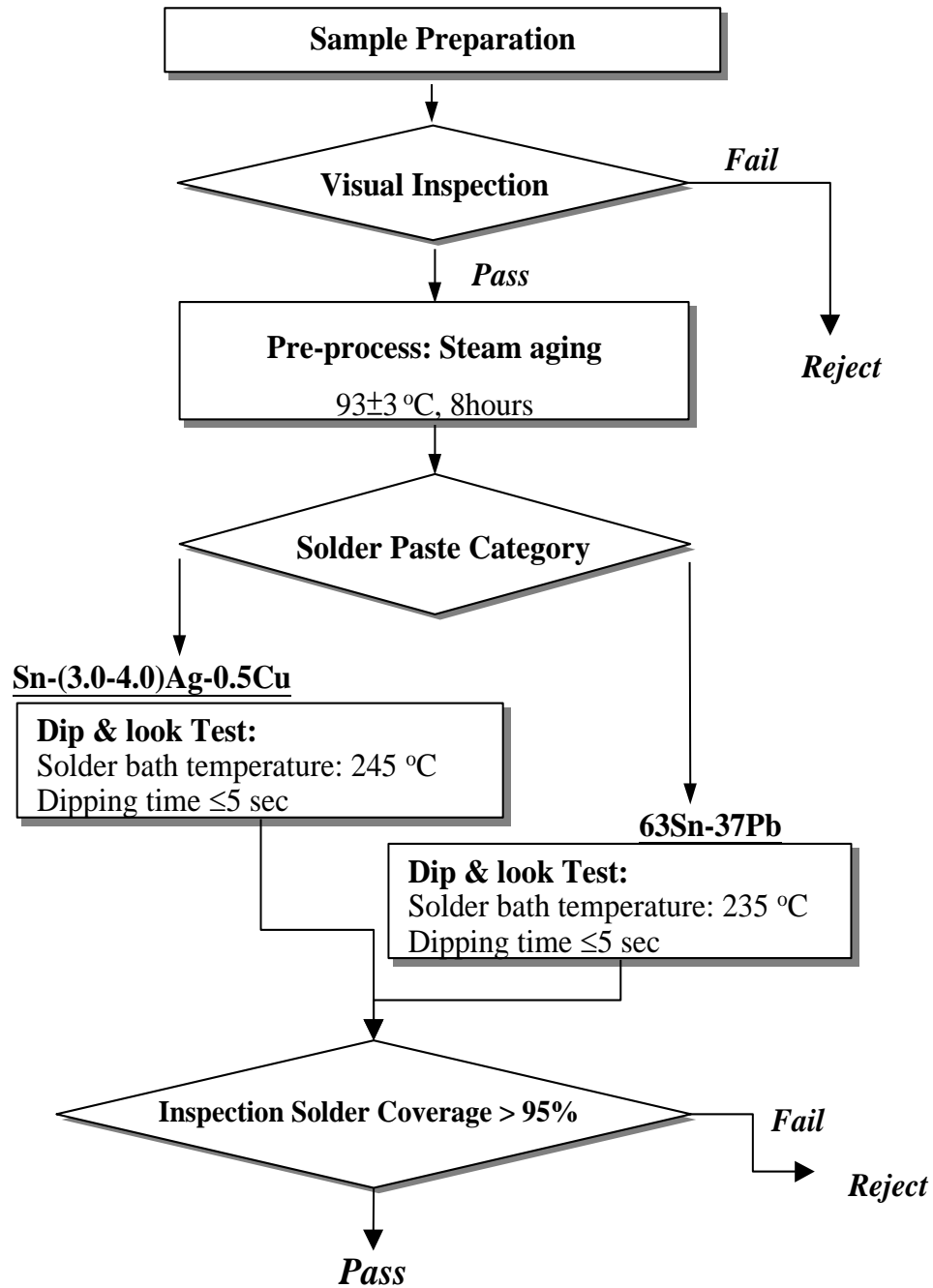
LTPD= 3%, PCT 96 hours and TCT 500 cycles & HASBT 96 hours.

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 | 6691E | | |
| LOT# | 7A495400C1 | LOT# | 7A495400C1 |
| DATE CODE | X1225 | DATE CODE | X1225 |
| SAT 1 | 0/22 | SAT 1 | 0/22 |
| PRECON | 0/250 | PRECON | 0/250 |
| SAT 2 | 0/22 | SAT 2 | 0/22 |
| PCT 96 HRS | 0/77 | PCT 96 HRS | 0/77 |
| TCT 500 CYC | 0/77 | TCT 500 CYC | 0/77 |
| HASBT 96 HRS | 0/77 | HASBT 96 HRS | 0/77 |

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

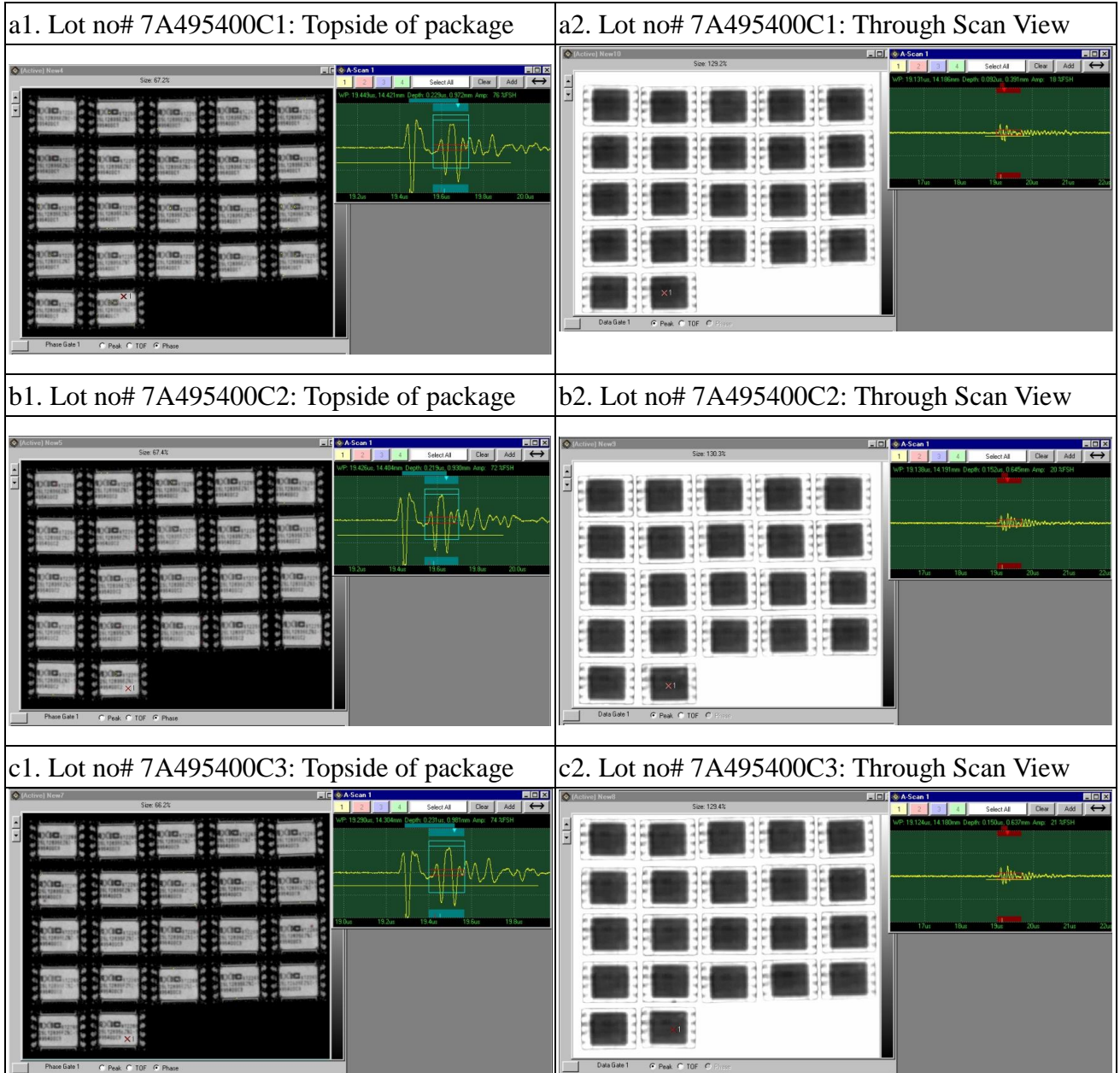


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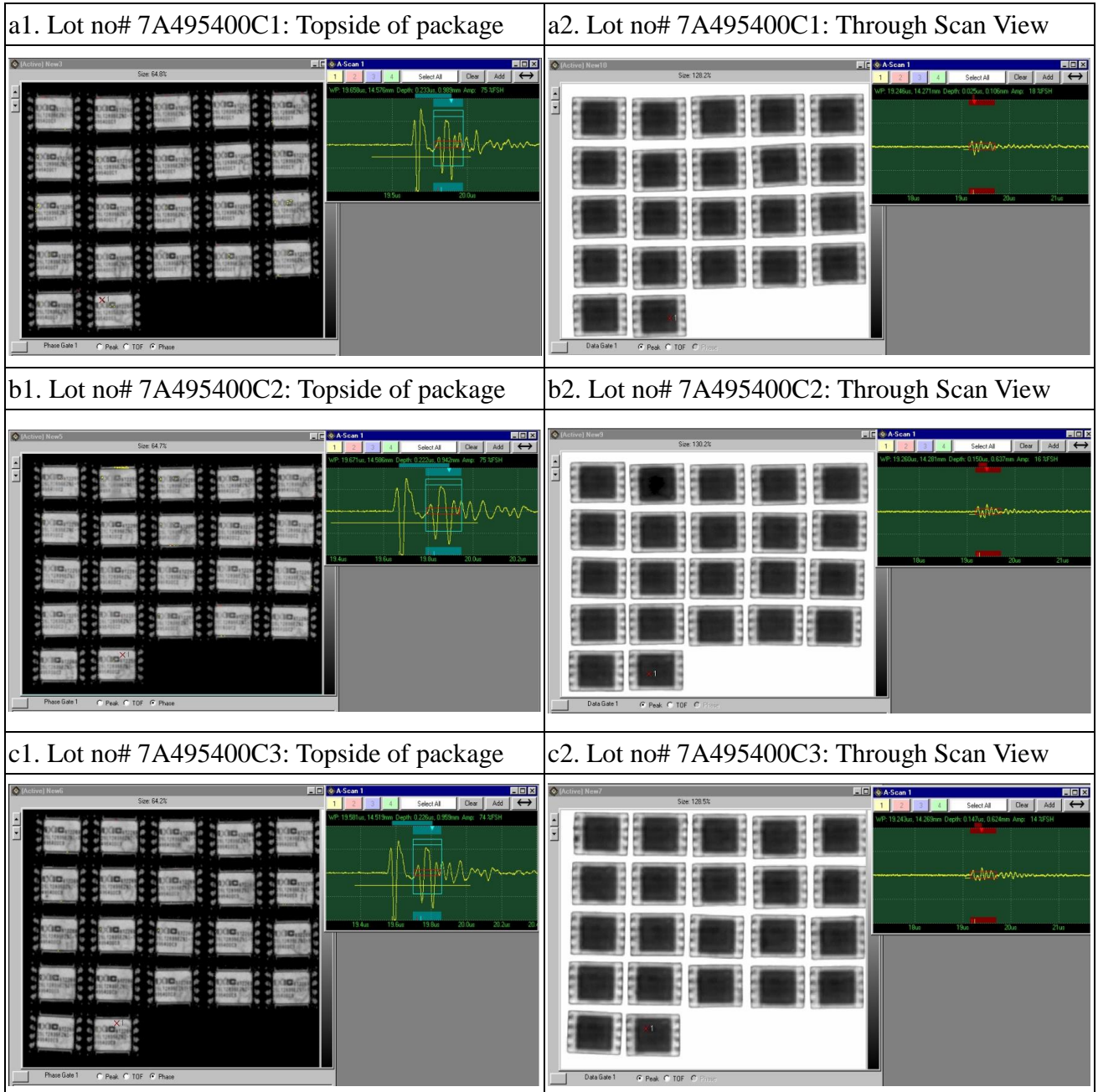
6. ATTACHED FILE:

6-1. SAT PHOTO

6-1-1. BEFORE PRE-CONDITION



6-1-2. AFTER PRE-CONDITION



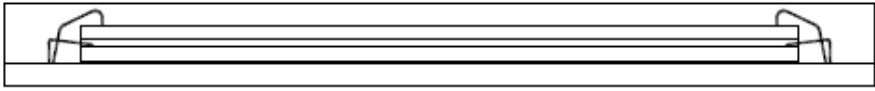


ASECL 8WSO (8 x 6 x 0.8 mm) Stack Die Package Qualification Report

1. PURPOSE:

To qualify the new assembly subcontractor “ASECL” for 8L WSON (8x6x0.8 mm) package.

2. PACKAGE PROFILE:

| | |
|--------------------|--|
| ASSEMBLY HOUSE | ASECL |
| PACKAGE | 8WSO (8 x 6 x 0.8 mm) |
| DIE SIZE | 6711X: 6576 x 4151 μm^2 (Top Die) 6711R: 6576 x 4151 μm^2 (Btm Die) |
| DIE ATTACH | Henkel NEX-130(Fow) (Top Die) Henkel ATB-125(Film) (Btm Die) |
| LEAD FRAME | C7025 Cu Alloy |
| WIRE BOND MATERIAL | Au |
| MOLD COMPOUND | Hitachi CEL-9240HF |
| LEAD FINISH | Matte Sn |
| STRUCTURE |  |

3. QUALIFICATION ITEMS, TEST CONDITION AND FLOW:

3-1. QUALIFICATION ITEMS:

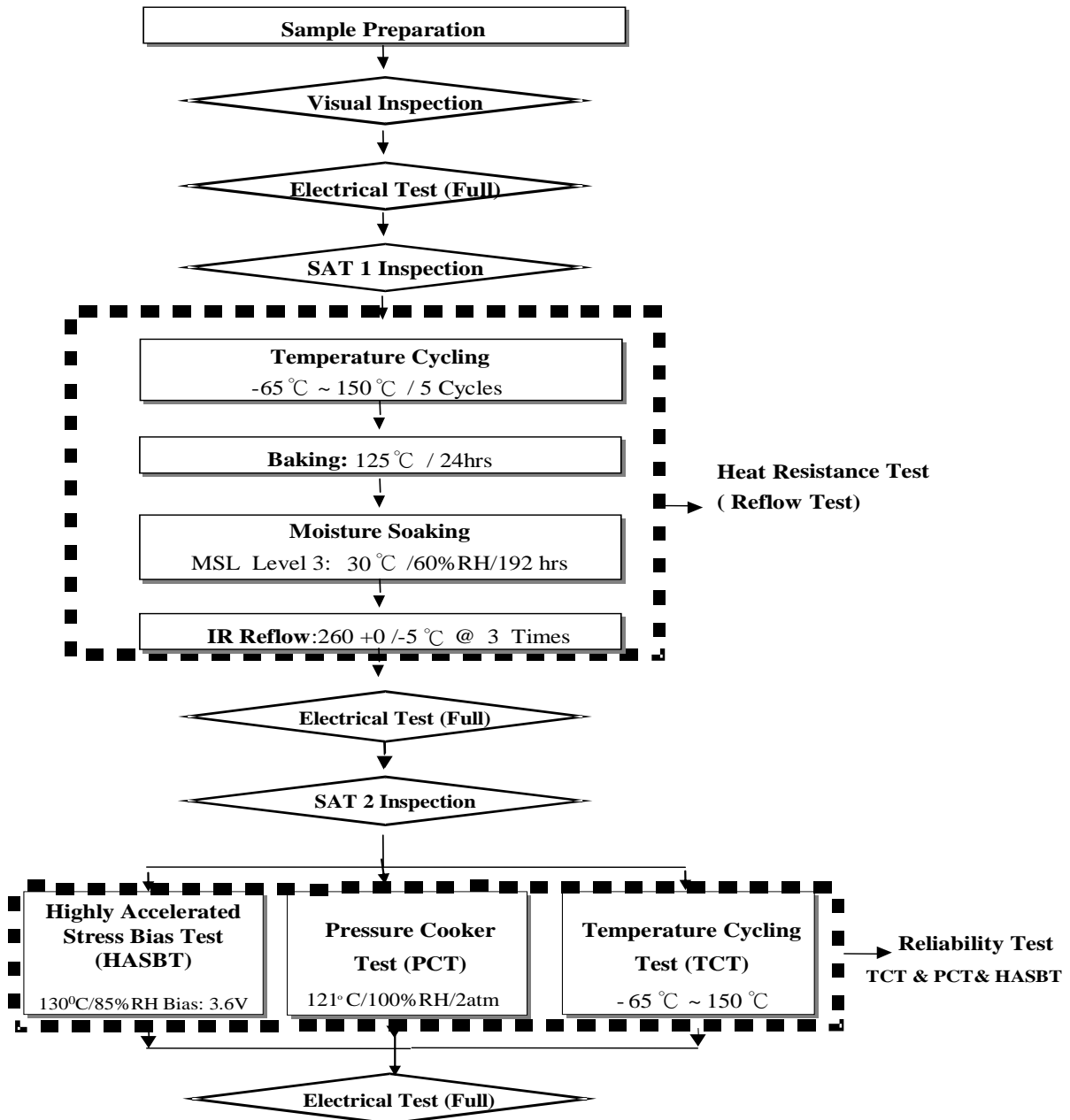
| Test Item | Reference | Test Condition |
|--|--------------------|---|
| 1. Heat Resistance Test: Reflow Test | JEDEC J-STD-020 | MSL: Follow JEDEC MSL Level 3 (30°C/60%RH, 192hrs) |
| 2. Pressure Cooker Test | JESD22-A102 | 121°C / 100%RH/2 atm |
| 3. Temperature Cycling Test | JESD22-A104 | -65°C ~ 150°C |
| 4. Highly Accelerated Temperature and Humidity Stress Test | JESD22-A110 | 130°C / 85% RH, Bias: 3.6V |
| 5. 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.



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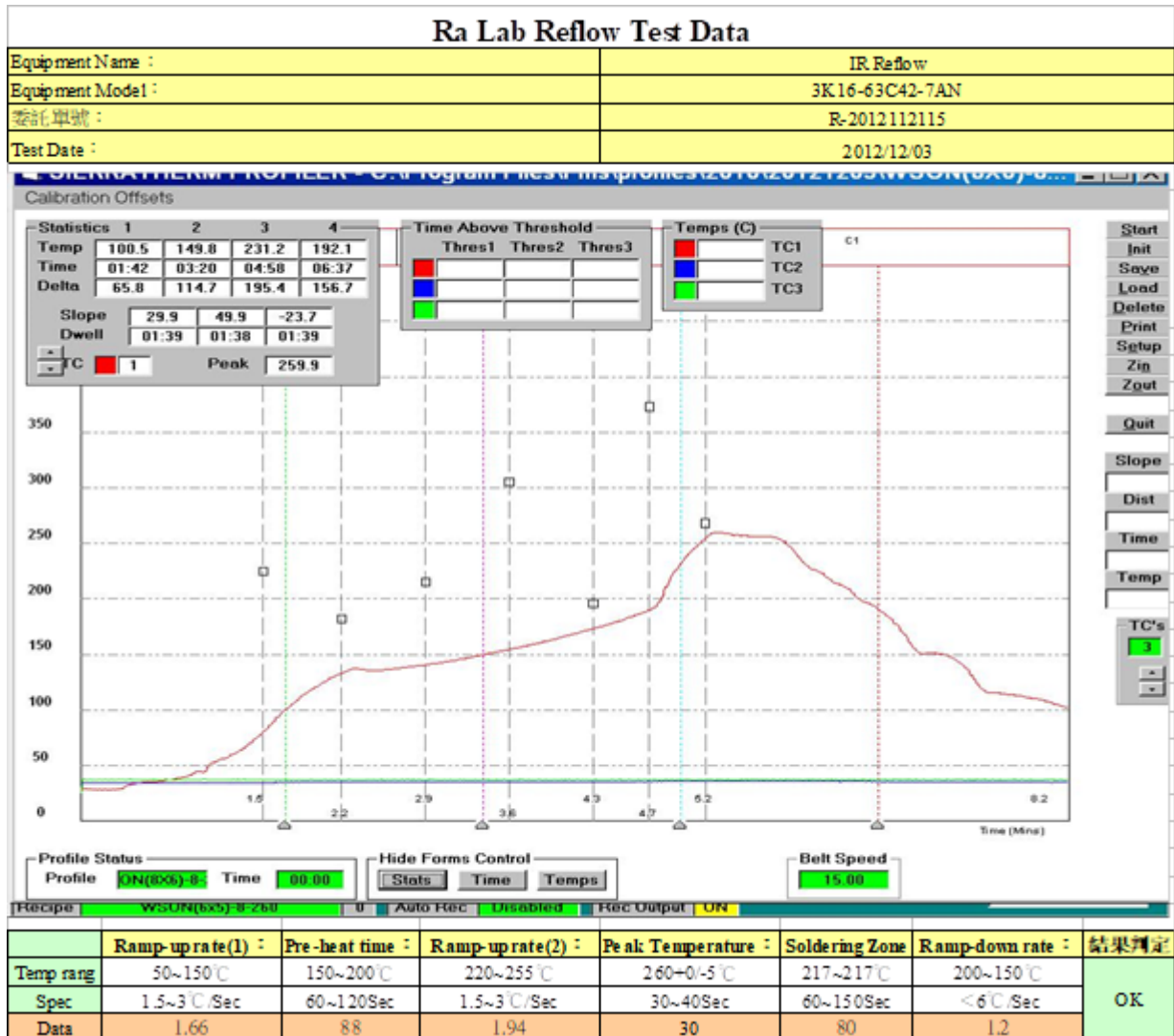
3-2. HEAT RESISTANT TEST (REFLOW TEST) AND RELIABILITY TEST FLOW





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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:

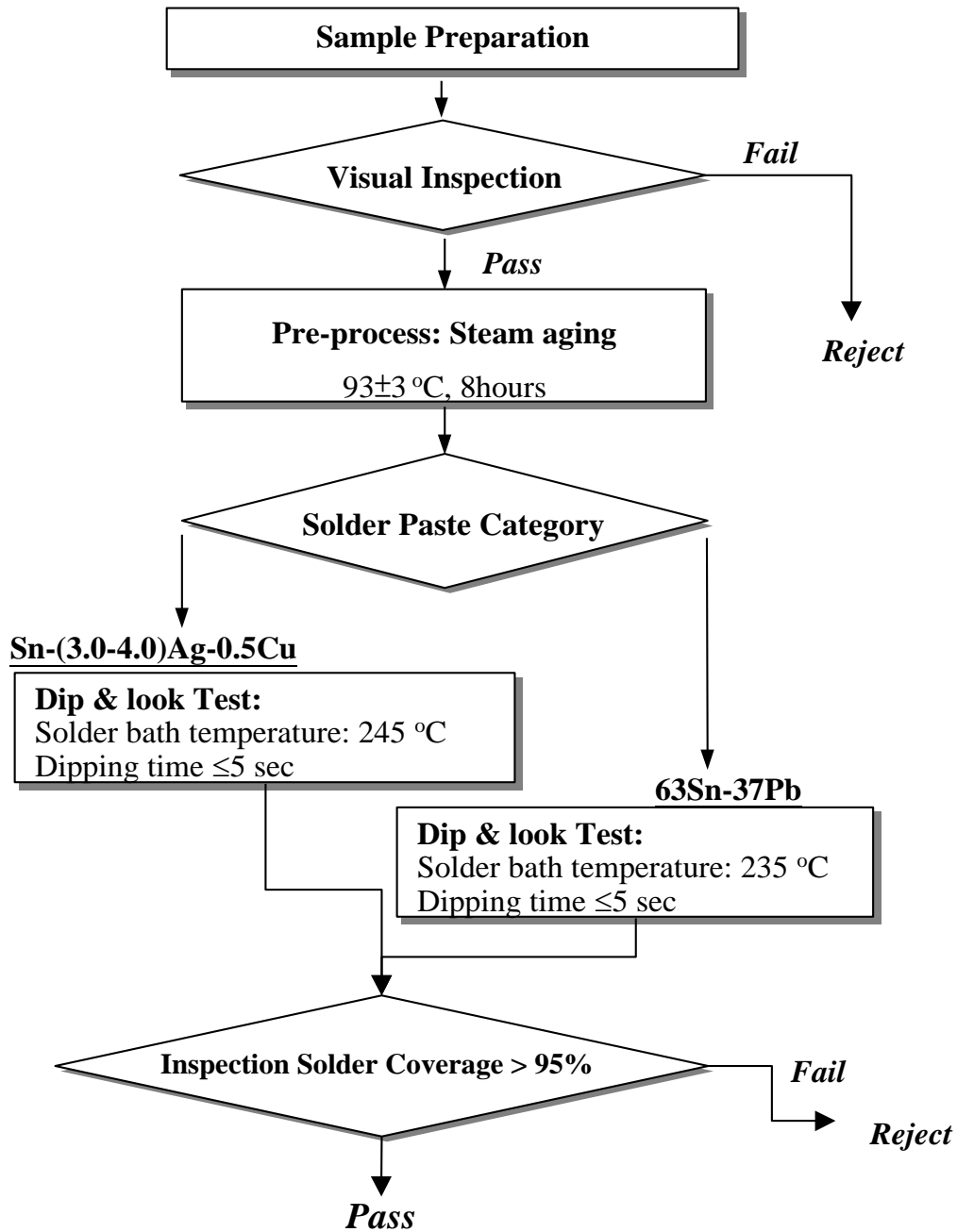
LTPD= 3%, PCT 96 hours and TCT 500 cycles & HASBT 96 hours.

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 | 6124L | | |
| LOT# | 8A10440D-4 | LOT# | 8A10440D-4 |
| DATE CODE | X1247 | DATE CODE | X1247 |
| SAT 1 | 0/22 | SAT 1 | 0/22 |
| PRECON | 0/250 | PRECON | 0/250 |
| SAT 2 | 0/22 | SAT 2 | 0/22 |
| PCT 96 HRS | 0/77 | PCT 96 HRS | 0/77 |
| TCT 500 CYC | 0/77 | TCT 500 CYC | 0/77 |
| HASBT 96 HRS | 0/77 | HASBT 96 HRS | 0/77 |

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

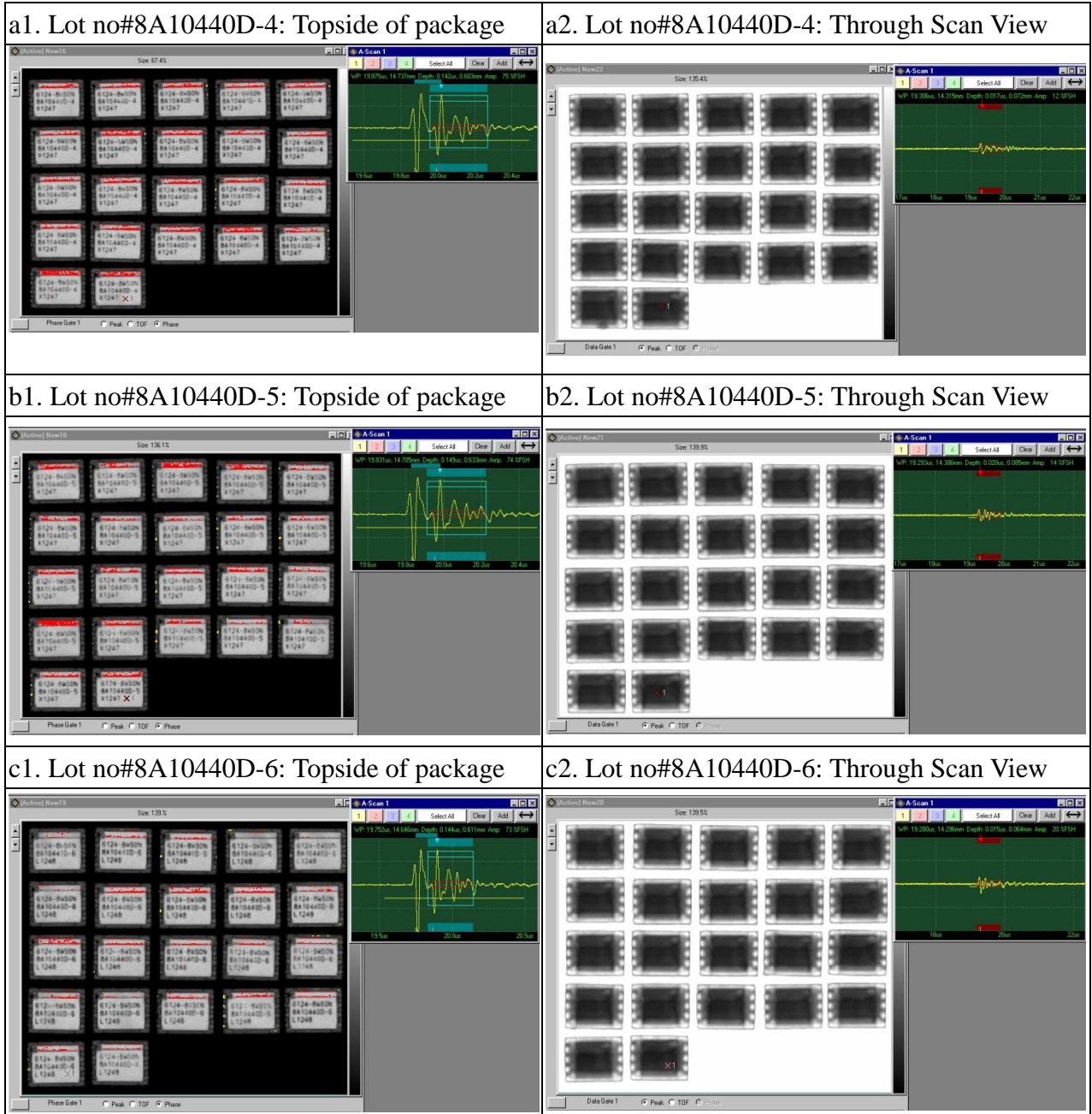
5. CONCLUSION: PASS



6. ATTACHED FILE:

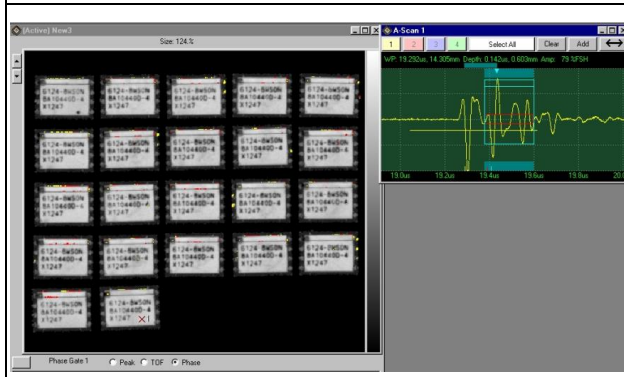
6-1. SAT PHOTO

6-1-1. Before Pre-Condition

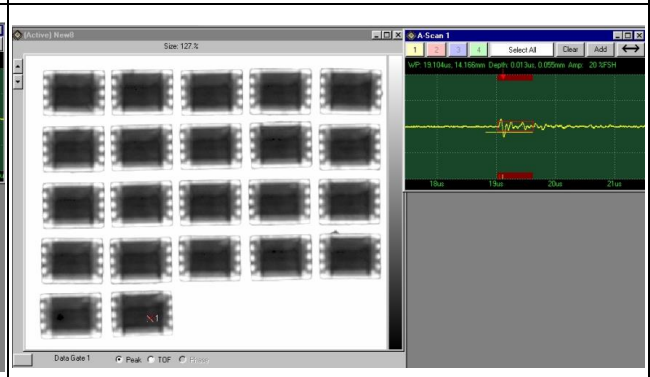


6-1-2. After Pre-Condition

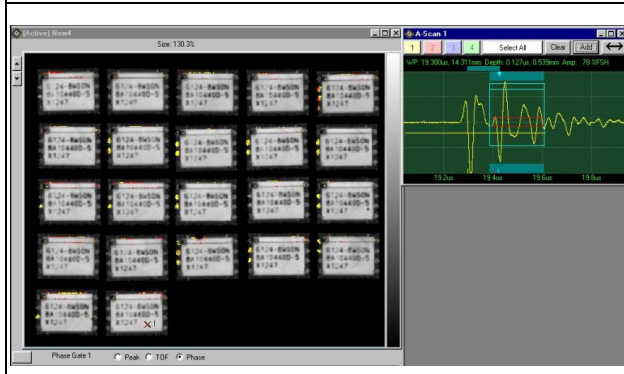
a1. Lot no#8A10440D-4: Topside of package



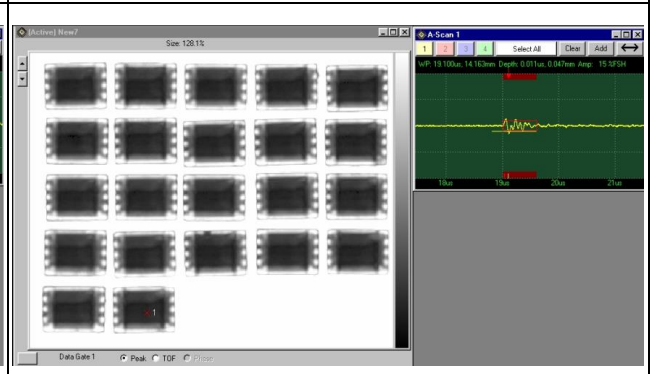
a2. Lot no#8A10440D-4: Through Scan View



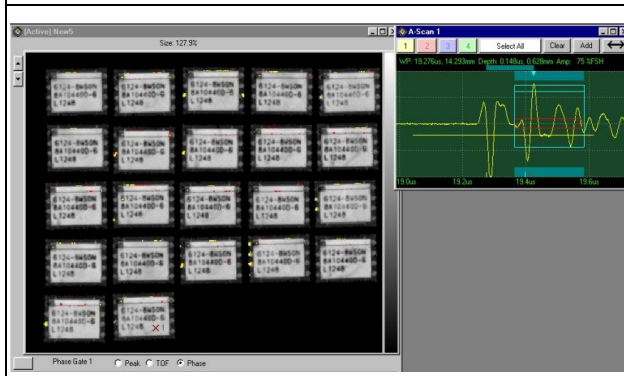
b1. Lot no#8A10440D-5: Topside of package



b2. Lot no#8A10440D-5: Through Scan View



c1. Lot no#8A10440D-6: Topside of package



c2. Lot no#8A10440D-6: Through Scan View

