



**MACRONIX INTERNATIONAL CO., LTD.**

## **Product/Process Change Notice**

PCN # P-2205-0002

Date: 2022/11/28

Dear Customer:

Please be informed that Macronix is going to add 2nd source assembly subcontractor (vendor) to backup customer original approved assembly subcontractors for 8USON(4x3) package products. The 2nd source assembly subcontractor is LINGSEN.

The detailed information about this change is described in the following pages. This process change has passed Macronix's 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, which stipulates: ".....Lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change".

Thank you.

Macronix International Co., Ltd.

旺宏電子股份有限公司

PCN No.: P-2205-0002

Issue Date : 2022/11/28

**Subject:** Adding a new assembly vendor–LINGSEN for 8USON(4x3) package products.

**Affected Macronix Part No.:**

MX25L3233FZBI-08G, MX25L3233FZBI-08Q, MX25R3235FZBIH0, MX25R3235FZBIL0,  
MX25R3235FZBJL0, MX25U1629FZBI02, MX25U1630FZBI-10G, MX25U1631FZBI-10G,  
MX25U1635FZBI-10G, MX25U2033EZBI-12G, MX25U3229FZBI02, MX25U3230FZBI-10G,  
MX25U3232FZBI02, MX25U3235FZBI-10G, MX25U4033EZBI-12G, MX25V1635FZBI

**Package type:** 8USON(4x3) package products

**Change Category:** New assembly vendor

**Reason of Change:**

To increase 8USON(4x3) package assembly capacity and flexibility.

**Before Change :**

Assembly vendor:

1. ASECL
2. ChipMOS

**After Change :**

Assembly vendors:

1. ASECL
2. ChipMOS
3. LINGSEN

**Product identification:**

ASECL-assembled IC marking vendor code: X

ChipMOS-assembled IC marking vendor code: a

LINGSEN-assembled IC marking vendor code: L

**Assessment of Change:**

1. No impact to Form, Fit, Function, Quality & Reliability.
2. LINGSEN assembled 8USON(4x3) package has passed Macronix's qualification based on JEDEC MSL level 3 standards, and it is also Halogen-Free, and meets the RoHS standards.  
\* Attached is LINGSEN assembled 8USON(4x3) package qualification report.
3. LINGSEN has been one of Macronix's qualified assembly vendors with good quality for a long time.

**Schedule:**

Sample available date: 2022/10/20

1st shipping date: 2023/3/1 (Or follow PCN agreement with the customer)



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## **LINGSEN 8USON(4x3) Package Qualification Report**

### **1. PURPOSE:**

To qualify the new assembly subcontractor “LINGSEN” for 8USON(4x3) package.

### **2. PACKAGE PROFILE:**

ASSEMBLY HOUSE	LINGSEN
PACKAGE	8USON
DIE SIZE	6699 2122 x 2682 $\mu\text{m}^2$
DIE ATTACH	Showa Denko HR-9004
LEAD FRAME	Copper, Ring Silver
WIRE BOND MATERIAL	Au
MOLD COMPOUND	Sumitomo EME-G770
LEAD FINISH	Matte Sn

### **3. QUALIFICATION ITEMS, TEST CONDITION AND FLOW:**

#### **3-1. QUALIFICATION ITEMS:**

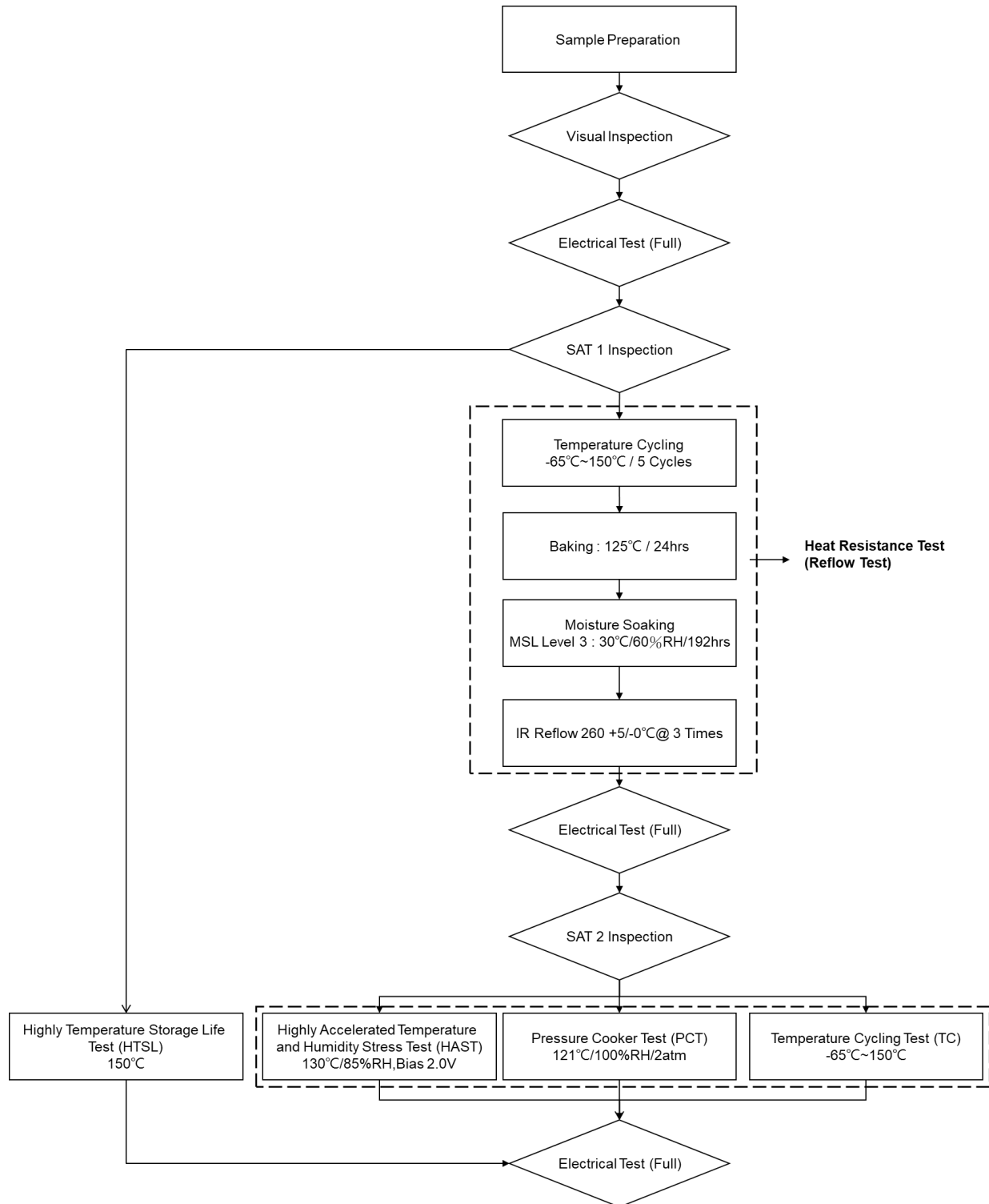
Test Item	Reference	Test Condition
1. Heat Resistance Test: Reflow Test	JEDEC J-STD-020	MSL: Follow JEDEC MSL Level 3 (30°C / 60%RH, 192hrs)
2. Pressure Cooker Test	JESD22-A102	121°C / 100%RH/ 2atm
3. Temperature Cycling Test	JESD22-A104	-65°C ~150°C
4. Highly Accelerated Temperature and Humidity Stress Test	JESD22-A110	130°C / 85% RH, Bias: 2.0V
5. High Temperature Storage Life Test	JESD22-A103	150°C
6. Solderability Test	JESD22-B102	■ 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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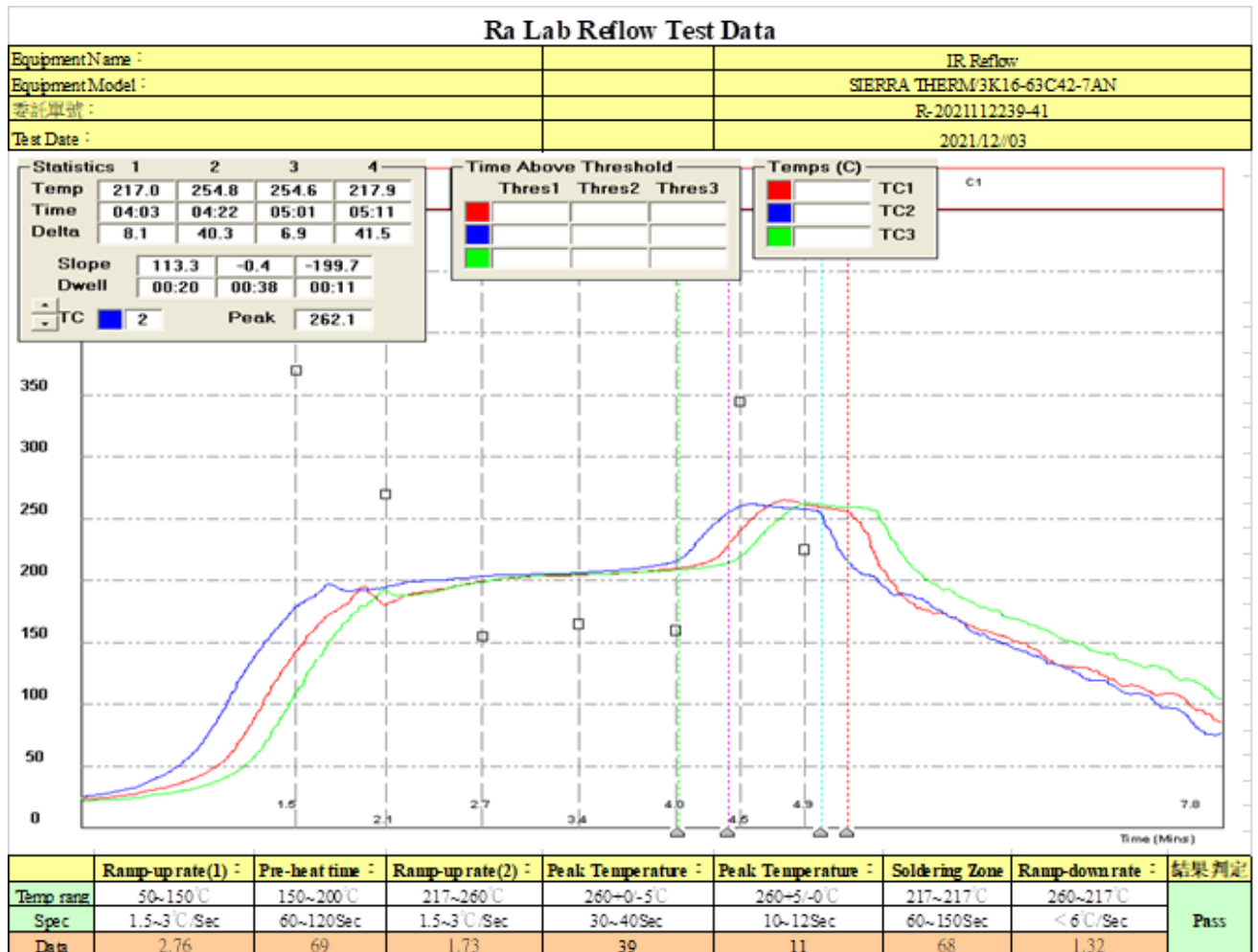
### 3-2. HEAT RESISTANT TEST (REFLOW TEST) AND RELIABILITY TEST FLOW





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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 TC 500 cycles and HAST 96 hours

LTPD= 3%, HTSL 1000 hours.

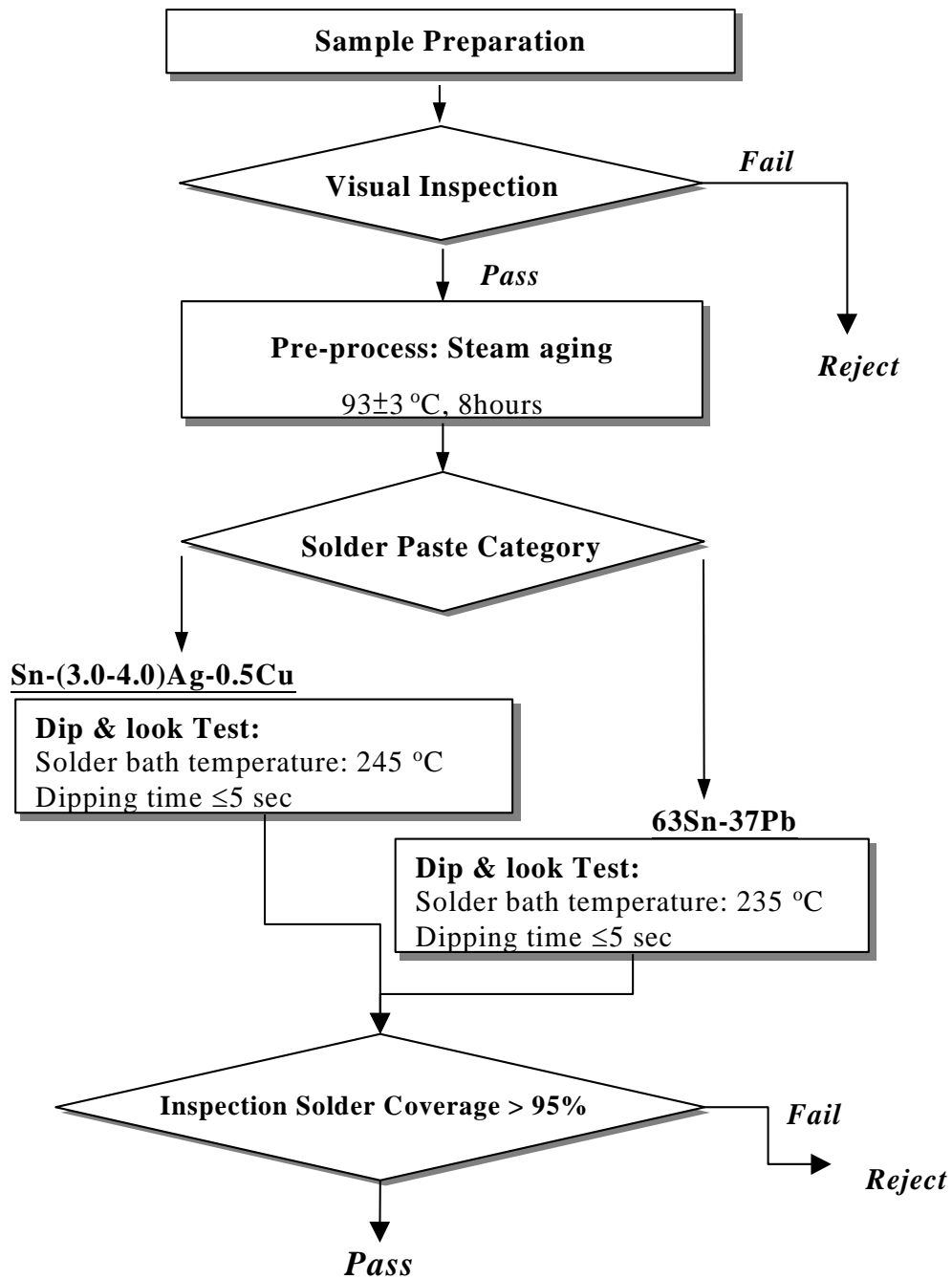
### 3-2-3. REFERENCE SPECIFICATION:

5650-0901: ASSEMBLY RELIABILITY QUALIFICATION SPEC



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### 3-3. SOLDERABILITY TEST FLOW





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#### 4. RESULTS:

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

PRODUCT	6699		
LOT#	8J105600BB	8J105600BC	8J105600BD
DATE CODE	L2136	L2136	L2137
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
HAST 96 HRS	0/77	0/77	0/77
HTSL 1000 HRS	0/77	0/77	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

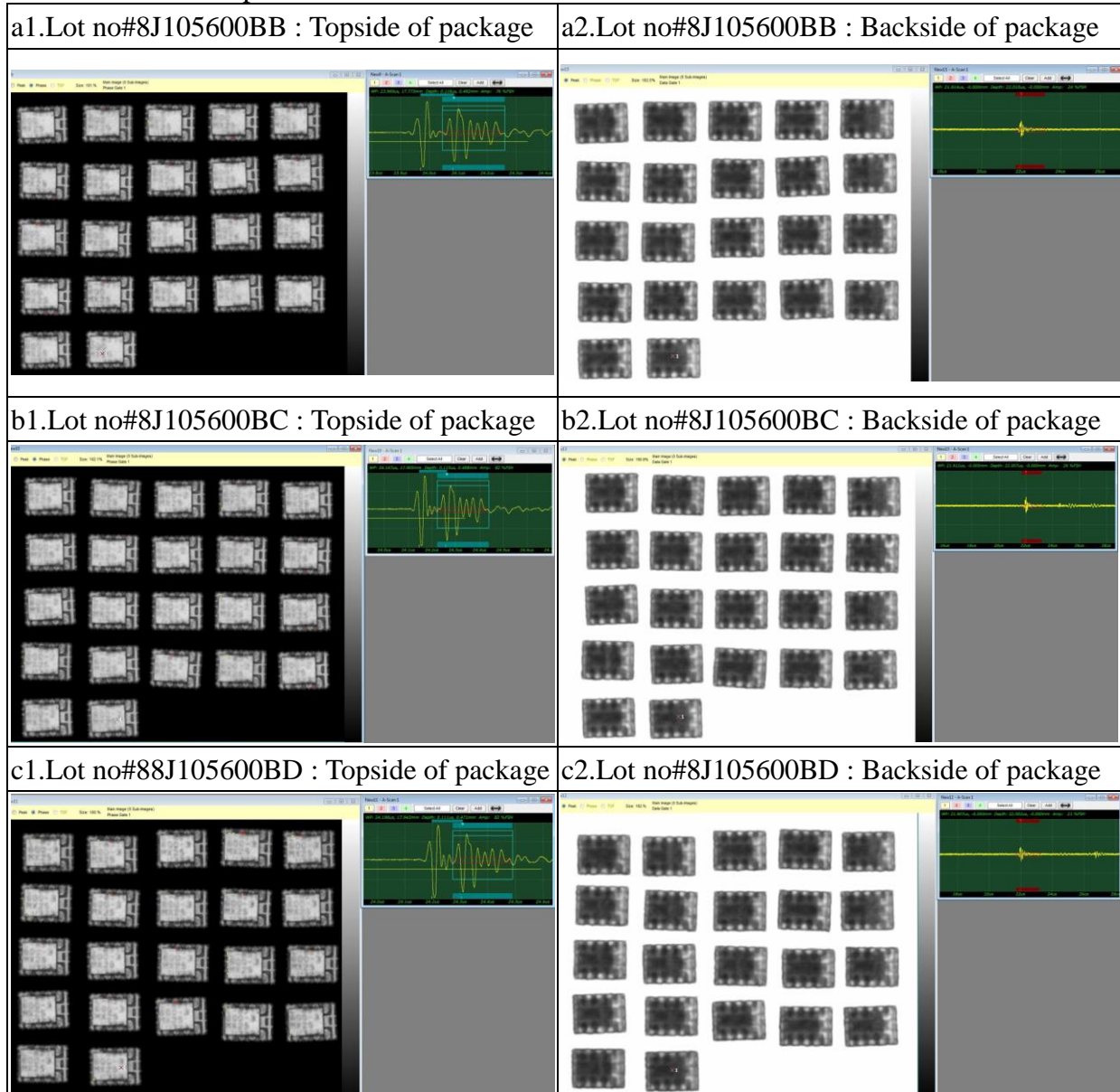


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6. ATTACHED FILE:

6-1. SAT PHOTO

6-1-1. Before pre-condition





## 6-1-2. After pre-condition

