



## NCAB Outgoing Report

*The details in this report only for NEW Date Code included in this shipment. The information of OLD date codes is already provided in previous outgoing reports of OLD Date Codes at the first time shipped.*

End Customer(if available)/终端客户(如果有):

End Customer PO(if available)/终端客户PO(如果有):

End Customer Article(if available)/终端客户品名(如果有): /

Delivery Qty/Date code/交货数量/周期: 102pcs/[26pcs3219old/76pcs0420new]

External ECN No./外部工程更改号: /

NCAB article/NCAB 编号: MEH96\_v11

NCAB PO/NCAB订单号: 2001103006

Production Number/制造商编号: 100242536H0299A

This certificate is to serve as proof that all requirements of customer's specification are maintained in fabrication of this lot. This report contains below items which are remarked with "√":  
谨以此证明书作为保证, 此批产品之制造过程均合乎客户所有规格要求. 本报告包含以下有"√"标识的项目:

- ☒ 1. CERTIFICATE OF COMPLIANCE
- ☐ 2. RoHS Declaration
- ☐ 3. REACH Declaration
- ☒ 4. Qualification and Performance
- ☒ 4.1 Finish boards meet all requirements of UL 796 and flammability rating 94V-0
- ☒ 5. Stack-up Measurement
- ☒ 6. Hole Size Measurement
- ☒ 7. Dimensional Measurement
- ☒ 8. Drawing Attachment
- ☒ 9. Ionic Contamination Report
- ☐ 10. CoC of Raw Materials (Provided only when customer specified)
- ☐ 11. Others

Signature by :

核准: ( QA Manager/品质部经理 )

Factory name  
and plant site  
工厂名称和厂址: Suntak Dalian plant  
No.11,Guangming West Street,Economic Developing District,  
Dalian, China

|            |           |              |            |         |            |          |   |
|------------|-----------|--------------|------------|---------|------------|----------|---|
| DATE       | 2011-6-23 | DATE CHANGED | 2019-7-18  | REG.NO  | 7.4.1.33   | REVISION | 7 |
| ACCEPTEDBY | Wendy Liu | MADE BY      | Cathy Wang | COMPANY | NCAB Group |          |   |



## NCAB CERTIFICATE OF COMPLIANCE

### CERTIFICATION OF COMPLIANCE

This certificate is to serve as proof that all requirements of customer's specification are maintained in fabrication of this lot including the followings:

谨以此证明书作为保证，此批产品之制造过程均合乎客户所有规格要求，包括以下项目

- 1 All PCBs shipped should comply with the customer supplied data / procurements specifications / drawings / specified standards / any changes applied through the EQ process.  
所有交货板必需与客户提供的资料/采购标准/图纸/指定标准/确认的EQ保持一致.
- 2 Laminate and prepreg used in fabrication are in compliance with the related standards IPC-4101/4202/4203/4204 etc.  
覆铜板及半固化片符合 IPC-4101/4202/4203/4204等相关标准.
- 3 All final boards have been 100% electrically tested and passed.  
所有成品板 100%电子测试合格.

All information listed on this document is hereby certified in writing to be true.  
所有此证书之资料均书面证明属实.

|            |           |              |            |         |            |          |   |
|------------|-----------|--------------|------------|---------|------------|----------|---|
| DATE       | 2011-6-23 | DATE CHANGED | 2019-7-18  | REG.NO  | 7.4.1.33   | REVISION | 7 |
| ACCEPTEDBY | Wendy Liu | MADE BY      | Cathy Wang | COMPANY | NCAB Group |          |   |

# Qualification and Performance

Test and inspection acc. to Specification: IPC-A-600 / IPC-6012 etc related standards latest revision & customer spec if required.

The details in this report only for NEW Date Code included in this shipment. The information of OLD date codes is already provided in previous outgoing reports of OLD Date Codes at the first time shipped.

The details in this report only for NEW Date Code included in this shipment. The information of OLD date codes is already provided in previous outgoing reports of OLD Date Codes at the first time shipped.

End Customer(if available)/终端客户(如果有):

End Customer PO(if available)/终端客户PO(如果有):

End Customer Article(if available)/终端客户品名(如果有) : /

Delivery Qty/Date code/交货数量/周期: 102pcs/[26pcs3219old/76pcs0420new]

External ECN No./外部工程更改号: /

NCAB article/NCAB 编号: MEH96\_v11

NCAB PO/NCAB订单号: 2001103006

Production Number/制造商编号: 100242536H0299A

Confirmed here with that production is according to:

- Flammability UL94V-0;

- UL796;

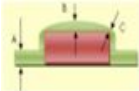
- IPC6012D latest revision, Class: \_\_\_\_\_ 2

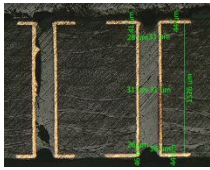
- Customer specification requirement: \_\_NCAB\_\_\_\_;

- ROHS Yes ☐ No ☒

## Microsection (IPC-A-600 / IPC-6012 etc related standards latest revision)

Tested items: Built-up, internal layer connection, isolation spacing internal layer, Hole wall roughness, Plating thickness etc. **unit is mm if unless otherwise specified**

| No# | Insp item                                                                  | Description                                                                                      | Specification/标准值                                   | Actual/实际值              | Unit/单位       | Reference                                      | Acc/Rej |
|-----|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|---------------|------------------------------------------------|---------|
|     |                                                                            | Material Batch Number基材批次号                                                                       |                                                     | W9722B03ID 500          |               |                                                | ACC     |
| 1.  | Laminate 板料                                                                | Material(brand/type) 基材品名/型号                                                                     | FR-4 ITEQ IT158TC                                   | FR-4 ITEQ IT158TC       |               | Procurement Documentation                      | ACC     |
|     |                                                                            | Tg value                                                                                         | TG> 150                                             | TG> 150                 |               |                                                | ACC     |
| 2.  | Finish board thickness and finished Cu thickness of each layer 完成板厚和各层完成铜厚 | Layer Number 层数                                                                                  | 2                                                   | 2                       |               | IPC 6012 Class 3 and Procurement Documentation | ACC     |
|     |                                                                            | Specification 标准值                                                                                | Please see Stack-up&Impedance sheet 测量结果请见排版结构和阻抗页. |                         |               |                                                | ACC     |
| 3.  | Base copper foil 铜箔                                                        | Outer layer/外层                                                                                   | 0.5/0.5                                             | 0.5/0.5                 | oz            | Procurement Documentation                      | ACC     |
|     |                                                                            | Inner layer/内层                                                                                   | /                                                   | /                       | oz            |                                                | NA      |
| 4.  | Logo&UL content 标记和UL内容                                                    | Company Logo/公司标记                                                                                | S                                                   | S                       |               | Procurement Documentation                      | ACC     |
|     |                                                                            | UL File Number & UL Content/UL文件编号和UL内容                                                          | S STD-3 兄 94V-0 E207844                             | S STD-3 兄 94V-0 E207844 |               |                                                | ACC     |
|     |                                                                            | Factory ID of UL content/UL内容里的工厂ID                                                              | 3                                                   | 3                       |               |                                                | ACC     |
|     |                                                                            | Marking Location/标记位置                                                                            | S/S                                                 | S/S                     |               |                                                | ACC     |
| 5.  | Solder mask 阻焊油墨                                                           | Solder mask Batch Number油墨材料批次号                                                                  |                                                     | 59183035A               |               | Procurement Documentation                      | ACC     |
|     |                                                                            | Brand/Type品牌/型号                                                                                  | NANYA LP-4G/G-05A                                   | NANYA LP-4G/G-05A       |               |                                                | ACC     |
|     |                                                                            | Color/颜色                                                                                         | Green                                               | Green                   |               |                                                | ACC     |
|     |                                                                            | Thickness 厚度  | A:>8                                                | 46                      | um            | IPC-6012 3.7.3 or Procurement Documentation    | ACC     |
|     |                                                                            |                                                                                                  | B:10-30                                             | 28                      | um            |                                                | ACC     |
|     |                                                                            |                                                                                                  | C:>5                                                | 20                      | um            |                                                | ACC     |
| 6.  | Silkscreen 丝印字符                                                            | Silkscreen Batch Number字符材料批次号                                                                   |                                                     | 2MSNLB01DB              |               | Procurement Documentation                      | ACC     |
|     |                                                                            | Brand/Type品牌/型号                                                                                  | SUNCHEMICAL_CESN5054                                | SUNCHEMICAL_CESN5054    |               |                                                | ACC     |
|     |                                                                            | Color/颜色                                                                                         | White                                               | White                   |               |                                                | ACC     |
|     |                                                                            | Which side哪面                                                                                     | C/S & S/S                                           | C/S & S/S               |               |                                                | ACC     |
| 7.  | Others 其它                                                                  | Peelable mask/蓝胶                                                                                 | Brand(Type) 品牌(型号)                                  | NA                      | NA            | Procurement Documentation or IPC Standard      | NA      |
|     |                                                                            |                                                                                                  | Which side哪面                                        | NA                      | NA            |                                                | NA      |
|     |                                                                            |                                                                                                  | Thickness厚度                                         | NA                      | NA            |                                                | NA      |
|     |                                                                            | Kapton tape/高温胶带                                                                                 | Brand(Type) 品牌(型号)                                  | NA                      | NA            |                                                | NA      |
|     |                                                                            |                                                                                                  | Which side哪面                                        | NA                      | NA            |                                                | NA      |
|     |                                                                            | Via plugging/塞孔油墨                                                                                | Brand(Type) 品牌(型号)                                  | PHP-900 IR-6P           | PHP-900 IR-6P |                                                | ACC     |
|     |                                                                            |                                                                                                  | Brand(Type) 品牌(型号)                                  | NA                      | NA            |                                                | NA      |
|     |                                                                            | Carbon ink/碳油                                                                                    | Which side哪面                                        | NA                      | NA            |                                                | NA      |
|     |                                                                            |                                                                                                  | Thickness厚度                                         | NA                      | NA            | mm                                             | NA      |
|     |                                                                            |                                                                                                  | Impedance value/阻值                                  | NA                      | NA            | ohms                                           | NA      |

|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             |             |                                         |                                                     |         |
|----------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-----------------------------------------|-----------------------------------------------------|---------|
| 8.                   | Surface Treatment and thickness<br>表面处理及其厚度 | Surface Treatment Type / 表面处理类型                                                                                                                                                                                                                                                                                                                                                                                                                            | Thickness Specification /厚度要求 | Requirement测量要求:<br>Measure 5 points for each treatment / 对板内包含的每类表面处理的厚度各测量5组数据(Unit/单位: um)<br>(≥ 2 shipping panels must be measured unless the order QTY is <2 shipping panel / 至少取2块出货板测量除非订单数少于2块) |             |             |                                         | Reference                                           | Acc/Rej |
|                      |                                             | Type/类型: HASL/有铅喷锡, LF HASL/无铅喷锡, Immersion Tin/沉锡, Immersion Silver/沉银, OSP/防氧化, Others /其它.....                                                                                                                                                                                                                                                                                                                                                          |                               |                                                                                                                                                                                                         |             |             |                                         |                                                     |         |
|                      |                                             | Sn THK(HAL(Tin lead))(SURFACE))                                                                                                                                                                                                                                                                                                                                                                                                                            | Sn :1-40                      | ①Thk: 4.524                                                                                                                                                                                             | ②Thk: 4.518 | ③Thk: 4.623 | μm                                      | Procurement Documentation /IPC Standard             | ACC     |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               | ④Thk: 4.317                                                                                                                                                                                             | ⑤Thk: 4.549 | /           | μm                                      |                                                     |         |
|                      |                                             | Type/类型: ENIG/沉金, Plated Ni/Au/电金, Gold finger/镀金指, Others/其它.....                                                                                                                                                                                                                                                                                                                                                                                         |                               |                                                                                                                                                                                                         |             |             |                                         |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ①Thk:                         | Au:                                                                                                                                                                                                     | Ni:         | μm          | Procurement Documentation /IPC Standard | NA                                                  |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ②Thk:                         | Au:                                                                                                                                                                                                     | Ni:         | μm          |                                         |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ③Thk:                         | Au:                                                                                                                                                                                                     | Ni:         | μm          |                                         |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ④Thk:                         | Au:                                                                                                                                                                                                     | Ni:         | μm          |                                         |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               | ⑤Thk:                                                                                                                                                                                                   | Au:         | Ni:         | μm                                      |                                                     |         |
| 9.                   | Microsection切片                              | a. Picture:                                                                                                                                                                                                                                                                                                                                                                                                                                                |                               |                                                                                                                                                                                                         |             |             |                                         | Reference                                           | Acc/Rej |
|                      |                                             | Put the actual picture of micro-section about hole herein:                                                                                                                                                                                                                                                                                                                                                                                                 |                               |                                                                                                                                                                                                         |             |             |                                         |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                         |             |             |                                         | IPC 6012 Class 3 3.2.6 or Procurement Documentation | ACC     |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                                                                                         |             |             |                                         |                                                     |         |
|                      |                                             | Remarks: Microsection should be made from at least three of the smallest via hole location. Relevant information of all layers must be presented in here, in case of one section cannot cover all information, then 2 or more sections must be done.<br>Besides, microsection should be done after 3 cycles thermal stress(288+/-5C, 10 seconds)<br>备注: 微切片必须包含最小的3个孔。所有层的相关信息都必须在此呈现, 倘若一个切片不能呈现所有信息, 那么两个甚至更多的切片是必须做的。<br>另外, 切片需经过3次热应力(288+/-5度, 10秒). |                               |                                                                                                                                                                                                         |             |             |                                         |                                                     |         |
|                      |                                             | b. COPPER THICKNESS (孔铜厚度)                                                                                                                                                                                                                                                                                                                                                                                                                                 |                               |                                                                                                                                                                                                         |             |             |                                         |                                                     |         |
|                      |                                             | Type/类别                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Specification /标准值            | Actual/实际值                                                                                                                                                                                              |             |             | Unit/单位                                 | IPC 6012 Class 3 3.2.6 or Procurement Documentation | ACC     |
|                      |                                             | Through hole/通孔                                                                                                                                                                                                                                                                                                                                                                                                                                            | Min20/Avg25                   | A:31                                                                                                                                                                                                    | B:31        | C:36        | um                                      |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               | D:26                                                                                                                                                                                                    | E:31        | F:28        | um                                      |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               | Avg:32.67                                                                                                                                                                                               |             |             | um                                      |                                                     |         |
|                      |                                             | Blind via/盲孔                                                                                                                                                                                                                                                                                                                                                                                                                                               | NA                            | NA                                                                                                                                                                                                      | NA          | NA          | um                                      | IPC 6012 Class 3 3.2.6 or Procurement Documentation | NA      |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               | NA                                                                                                                                                                                                      | NA          | NA          | um                                      |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               | Avg: NA                                                                                                                                                                                                 |             |             | um                                      |                                                     |         |
|                      |                                             | Buried via/埋孔                                                                                                                                                                                                                                                                                                                                                                                                                                              | NA                            | NA                                                                                                                                                                                                      | NA          | NA          | um                                      |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               | NA                                                                                                                                                                                                      | NA          | NA          | um                                      |                                                     |         |
|                      |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               | Avg: NA                                                                                                                                                                                                 |             |             | um                                      |                                                     |         |
|                      |                                             | Copper wrap thickness 铜包覆厚度                                                                                                                                                                                                                                                                                                                                                                                                                                |                               |                                                                                                                                                                                                         |             |             | um                                      |                                                     |         |
|                      |                                             | Copper cap plating thickness铜盖覆电镀厚度                                                                                                                                                                                                                                                                                                                                                                                                                        |                               |                                                                                                                                                                                                         |             |             | um                                      |                                                     |         |
|                      |                                             | c. DEFECTS INSPECTION:                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                                                                                                                                                                                                         |             |             |                                         | Reference                                           | Acc/Rej |
|                      |                                             | hole wall roughness/孔粗                                                                                                                                                                                                                                                                                                                                                                                                                                     | ≤25                           |                                                                                                                                                                                                         | 20          |             | um                                      | IPC-A-600                                           | ACC     |
|                      |                                             | Interconnection Separation 孔壁铜和基材分离                                                                                                                                                                                                                                                                                                                                                                                                                        | NO                            |                                                                                                                                                                                                         |             |             |                                         |                                                     | ACC     |
|                      |                                             | Plating Crack/电镀裂纹                                                                                                                                                                                                                                                                                                                                                                                                                                         | NO                            |                                                                                                                                                                                                         |             |             |                                         |                                                     | ACC     |
| Resin Recession/树脂收缩 | NO                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             | ACC         |                                         |                                                     |         |
| Plating Void/电镀针孔    | NO                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             | ACC         |                                         |                                                     |         |
| Delamination/分层      | NO                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             | ACC         |                                         |                                                     |         |
| Smear/胶迹             | NO                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             | ACC         |                                         |                                                     |         |
| Copper Crack/铜裂纹     | NO                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             | ACC         |                                         |                                                     |         |
| Blistering/起泡        | NO                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             | ACC         |                                         |                                                     |         |
| Laminate Void/板材空洞   | NO                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             | ACC         |                                         |                                                     |         |
| Wicking/电镀灯芯         | NO                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             | ACC         |                                         |                                                     |         |
| Nail Heading/电镀结瘤    | NO                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                               |                                                                                                                                                                                                         |             | ACC         |                                         |                                                     |         |

|                                |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |                    |                                                                                                                                                                                                                                   |                                                        |                                                                    |      |              |                                            |                                                                                                           |         |                    |    |                                                    |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------|------|--------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------|--------------------|----|----------------------------------------------------|
| 10.                            | Stack-up structure<br>排版结构                                                                                                                                                            | Measurement                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |                    |                                                                                                                                                                                                                                   |                                                        | please see Stack-up&Impedance sheet<br>测量结果请见排版结构和阻抗页.             |      |              | Procurement<br>Documentation &<br>IPC-6012 |                                                                                                           | ACC     |                    |    |                                                    |
| 11.                            | Impedance<br>control<br>阻抗控制                                                                                                                                                          | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   | No                 |                                                                                                                                                                                                                                   |                                                        |                                                                    |      |              |                                            |                                                                                                           |         | Customer<br>design | NA |                                                    |
|                                |                                                                                                                                                                                       | Measurement                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |                    |                                                                                                                                                                                                                                   | please see Stack-up&Impedance sheet<br>测量结果请见排版结构和阻抗页. |                                                                    |      |              |                                            |                                                                                                           |         |                    |    |                                                    |
| 12.                            | Key Items<br>Measurement<br>重点测量项目                                                                                                                                                    | Type/类别                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                    | Specification/Tolerance<br>标准值/公差                                                                                                                                                                                                 |                                                        | Actual/实际值                                                         |      | Unit/单位      |                                            | Reference                                                                                                 | Acc/Rej |                    |    |                                                    |
|                                |                                                                                                                                                                                       | Min. track width<br>最小线宽                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |                    | i/l(内层):                                                                                                                                                                                                                          |                                                        | NA                                                                 |      | i/l:         |                                            |                                                                                                           |         | NA                 |    | IPC-6012<br>3.5.1<br>3.5.2<br>3.5.4.2<br>3.5.4.2.2 |
|                                |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |                    | o/l(外层):                                                                                                                                                                                                                          |                                                        | 0.201+/-20%                                                        |      | o/l:         |                                            |                                                                                                           |         | 0.206              |    |                                                    |
|                                |                                                                                                                                                                                       | Min. track space<br>最小线间                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |                    | i/l(内层):                                                                                                                                                                                                                          |                                                        | NA                                                                 |      | i/l:         |                                            |                                                                                                           |         | NA                 |    |                                                    |
|                                |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |                    | o/l(外层):                                                                                                                                                                                                                          |                                                        | 0.19+/-20%                                                         |      | o/l:         |                                            |                                                                                                           |         | 0.185              |    |                                                    |
|                                |                                                                                                                                                                                       | Min.BGA pad size<br>最小的BGA pad尺寸                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                    | NA                                                                                                                                                                                                                                |                                                        | NA                                                                 |      | mm           |                                            |                                                                                                           |         |                    |    |                                                    |
|                                |                                                                                                                                                                                       | Min. SMT width<br>最小的SMT PAD宽尺寸                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |                    | 0.25*1.55                                                                                                                                                                                                                         |                                                        | 0.256*1.554                                                        |      | mm           |                                            |                                                                                                           |         |                    |    |                                                    |
|                                |                                                                                                                                                                                       | Fiducial Mark/光学点                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   |                    | NA                                                                                                                                                                                                                                |                                                        | NA                                                                 |      | mm           |                                            |                                                                                                           |         |                    |    |                                                    |
| 13.                            | Annular ring<br>焊环                                                                                                                                                                    | Internal/内层                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |                    | Via: NA                                                                                                                                                                                                                           |                                                        | NA                                                                 |      | mm           |                                            | IPC-6012 3.6.2.9<br>3.4.2                                                                                 | NA      |                    |    |                                                    |
|                                |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |                    | NA                                                                                                                                                                                                                                |                                                        | NA                                                                 |      | mm           |                                            |                                                                                                           |         |                    |    |                                                    |
|                                |                                                                                                                                                                                       | External/外层                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |                    | Via: NA                                                                                                                                                                                                                           |                                                        | NA                                                                 |      | mm           |                                            |                                                                                                           |         |                    |    |                                                    |
|                                |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |                    | 0.05mm                                                                                                                                                                                                                            |                                                        | 0.086mm                                                            |      | mm           |                                            |                                                                                                           |         |                    |    |                                                    |
|                                |                                                                                                                                                                                       | 14.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Board Size<br>板尺寸 | Unit Size<br>/单元尺寸 |                                                                                                                                                                                                                                   |                                                        | 99.799*160.2                                                       |      | 99.77*160.18 |                                            |                                                                                                           |         | mm                 |    | Procurement<br>Documentation                       |
| Shipping Panel size<br>/出货套板尺寸 |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   | 167.2*199.6        |                                                                                                                                                                                                                                   | 167.22*199.63                                          |                                                                    | mm   |              |                                            |                                                                                                           |         |                    |    |                                                    |
| 15.                            | Hole diameter<br>size (Unit:mm)                                                                                                                                                       | nominal(标准值)<br>/tolerance(公差)                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                    | Please see Hole Size Measurement sheet<br>测量结果请见孔尺寸测量页.                                                                                                                                                                           |                                                        |                                                                    |      |              |                                            | Pin Gauge                                                                                                 | ACC     |                    |    |                                                    |
| 16.                            | Dimensional Results (Unit:mm)<br>Remarks: The series No. of<br>each dimension should be same<br>as marked in the fabricating<br>drawing.<br>尺寸测量结果(单位:mm)尺寸的<br>序列号必须跟图上标注的尺寸顺<br>序一致 | nominal(标准值)/<br>tolerance(公差)                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                    | Please see Dimensional Measurement sheet<br>测量结果请见尺寸测量页.<br>Remarks: The series No. of each dimension should be same<br>as marked in the fabricating drawing.<br>备注: 尺寸的序列号必须跟图上标注的尺寸顺序一致.                                        |                                                        |                                                                    |      |              |                                            | Procurement<br>Documentation<br>X-Y table or<br>X-Y-Z table                                               | ACC     |                    |    |                                                    |
| 17.                            | V-cut                                                                                                                                                                                 | Remaining Thk and Tolerance<br>(余厚和公差)                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |                    | 0.45+/-0.1                                                                                                                                                                                                                        |                                                        | Actual<br>实际值                                                      | 0.46 |              | mm                                         | V-cut measurer                                                                                            | ACC     |                    |    |                                                    |
|                                |                                                                                                                                                                                       | Angle and Tolerance(角度和公差)                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |                    | 30+/-5                                                                                                                                                                                                                            |                                                        |                                                                    | 32   |              |                                            |                                                                                                           |         | °                  |    |                                                    |
| 18.                            | Beveling<br>斜边                                                                                                                                                                        | Specification(标准值)<br>/Tolerance(公差)                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                    | NA                                                                                                                                                                                                                                |                                                        | Actual<br>实际值                                                      | NA   |              | mm                                         | Measurer                                                                                                  | NA      |                    |    |                                                    |
| 19.                            | Bow & Twist<br>板曲/板翘                                                                                                                                                                  | Requirement<br>客户要求                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                    | 0.75%                                                                                                                                                                                                                             |                                                        | Measurement/实际值<br>(Must measure the<br>maximum Value/必须<br>测量最大值) |      | 0.21%        |                                            | Procurement<br>Documentation or<br>IPC-A-600 2.11 if no<br>requirement in<br>procurement<br>documentation | ACC     |                    |    |                                                    |
| 20.                            | Ionic<br>contamination test<br>离子污染测试                                                                                                                                                 | Requirement<br>客户要求<br>(Unit/单位: µg/cm2)                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |                    | Test Requirement: The test mode must be adopted the manual mode<br>and test time must be more than 15 minutes.<br>Test result: please see Ionic Contamination Report sheet.<br>测试要求:需选择手动测试模式且测试时间须至少15分钟以上.<br>测试结果:请见离子污染测试报告页. |                                                        |                                                                    |      |              |                                            | IPC-TM-650<br>2.3.25/NCAB<br>spec/Procurement<br>Documentation                                            | ACC     |                    |    |                                                    |
| 21.                            | Electrical tested<br>电子测试                                                                                                                                                             | All boards must be 100% electrically tested for open and short circuits in accordance with<br>IPC-9252.<br>所有PCB板必须按IPC-9252要求100%通过开短路电子测试.                                                                                                                                                                                                                                                                                                                             |                   |                    |                                                                                                                                                                                                                                   |                                                        |                                                                    |      |              |                                            | IPC-9252                                                                                                  | ACC     |                    |    |                                                    |
| 22.                            | Solderability<br>test<br>可焊性测试                                                                                                                                                        | Test method: Depending on surface treatment and IPC standards and NCAB requirement<br>测试方法:取决于表面处理, IPC标准和NCAB要求<br>Preconditioning before doing solderability test: 1. Go through 2 times reflow OR 2. Boards must be baked 4<br>hours at 155 C<br>可焊性测试前的预处理: 1).进行两次R测试;或 2). 155度下烘烤4小时,<br>Remarks: The condition 1 takes the highest priority, the condition 2 adopted only when the reflow oven<br>unavailable in the factory.<br>注意: 第一方案优先, 第二个方案在工厂没有R设备的时候才可用 |                   |                    |                                                                                                                                                                                                                                   |                                                        |                                                                    |      |              |                                            | IPC-J-STD-003                                                                                             | ACC     |                    |    |                                                    |
| 23.                            | Thermal stress<br>热应力测试                                                                                                                                                               | Test condition<br>测试条件                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |                    | Temperature(温度): 288 C +/- 5 C<br>Time(时间): 10 sec +1/-0 sec, 3times                                                                                                                                                              |                                                        |                                                                    |      |              |                                            | IPC-TM-650<br>2.6.8                                                                                       | ACC     |                    |    |                                                    |
| 24.                            | Hardness test of<br>solder mask<br>绿油硬度测试                                                                                                                                             | Acceptable standard<br>接受标准                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |                    | ≥ 5H                                                                                                                                                                                                                              |                                                        |                                                                    |      |              |                                            | IPC-TM-650<br>2.4.27.2                                                                                    | ACC     |                    |    |                                                    |
| 25.                            | Tape test<br>胶带测试                                                                                                                                                                     | Solder mask绿油(Test should be perferred done at the solder mask dam area/须首选在绿油桥位置做测试).<br>Test method: IPC-TM-650 2.4.28.1D                                                                                                                                                                                                                                                                                                                                              |                   |                    |                                                                                                                                                                                                                                   |                                                        |                                                                    |      |              |                                            | IPC-A-600                                                                                                 | ACC     |                    |    |                                                    |
|                                |                                                                                                                                                                                       | Surface Treatment表面处理<br>Test method: IPC-TM-650 2.4.1E                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                    |                                                                                                                                                                                                                                   |                                                        |                                                                    |      |              |                                            |                                                                                                           | ACC     |                    |    |                                                    |

Remark: All Inspected and Test items should be done once per new date code of each article.  
备注: 每个型号的每个新周期都应该做一次所有项目的检验和测试.

|                     |           |              |            |                        |            |                     |   |                  |  |
|---------------------|-----------|--------------|------------|------------------------|------------|---------------------|---|------------------|--|
| Made by: BYCHI      |           |              |            | Date: 2020.02.06       |            | Approved by: Jackie |   | Date: 2020.02.06 |  |
| Test inspector: XFJ |           |              |            | Quality Manager: DQCAI |            |                     |   |                  |  |
| DATE                | 2011-6-23 | DATE CHANGED | 2019-7-18  | REG.NO                 | 7.4.1.33   | REVISION            | 7 |                  |  |
| ACCEPTEDBY          | Wendy Liu | MADE BY      | Cathy Wang | COMPANY                | NCAB Group |                     |   |                  |  |

## Stack-up&impedance measure

| Board No. | Board thk/tolerance (板厚/公差) | Actual Value/实际值<br>(At least 2 shipping panel boards measured unless the order QTY less than 2shipping panel boards/至少取2块出货板测量除非订单数少于2块) |         | Acc/Rej |
|-----------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|
|           |                             | Result1                                                                                                                                   | Result2 |         |
| 1         | 1.6+/-0.16                  | 1.529                                                                                                                                     | 1.539   | ACC     |
| 2         |                             | 1.582                                                                                                                                     | 1.608   | ACC     |
| 3         |                             | 1.608                                                                                                                                     | 1.624   | ACC     |

## Stack-up measurement

| Layer 层序 | Specification value/tolerance (标准值/公差) | Actual/实际值 | Acc/Rej | Customer layer-up structure                                                                                                                                                                                                                                                                                                                                  |
|----------|----------------------------------------|------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L1       | >=38.4                                 | 46         | ACC     | <b>Put the actual Customer layer-up structure herein:</b><br><br><div> <div>Lyr 层序</div> <div>CU(%) 27 0.5oz</div> <div>CU(%) 49 0.5oz</div> </div> <div> <div>Image</div> <div>Info.</div> <div>客户要求</div> </div> <div>  <div>IT158TC 1.465mm 0.5/0.5(不含铜)</div> </div> |
| A        | 1465+130/-130                          | 1526       | ACC     |                                                                                                                                                                                                                                                                                                                                                              |
| L2       | >=38.4                                 | 44         | ACC     |                                                                                                                                                                                                                                                                                                                                                              |
|          |                                        |            |         |                                                                                                                                                                                                                                                                                                                                                              |
|          |                                        |            |         |                                                                                                                                                                                                                                                                                                                                                              |
|          |                                        |            |         |                                                                                                                                                                                                                                                                                                                                                              |
|          |                                        |            |         |                                                                                                                                                                                                                                                                                                                                                              |

## Impedance Measurement

| Layer 层序 | Spec Trace width/spacing 客户线宽/间 | Spec Impedance 客户阻抗 | Actual trace width/spacing 实际线宽/间 | Actual Impedance 实际阻抗 | Acc/Rej | Micro-section of stack-up |
|----------|---------------------------------|---------------------|-----------------------------------|-----------------------|---------|---------------------------|
|          |                                 |                     |                                   |                       |         |                           |
|          |                                 |                     |                                   |                       |         |                           |

|            |           |              |            |         |            |          |   |
|------------|-----------|--------------|------------|---------|------------|----------|---|
| DATE       | 2011-6-23 | DATE CHANGED | 2019-7-18  | REG.NO  | 7.4.1.33   | REVISION | 7 |
| ACCEPTEDBY | Wendy Liu | MADE BY      | Cathy Wang | COMPANY | NCAB Group |          |   |



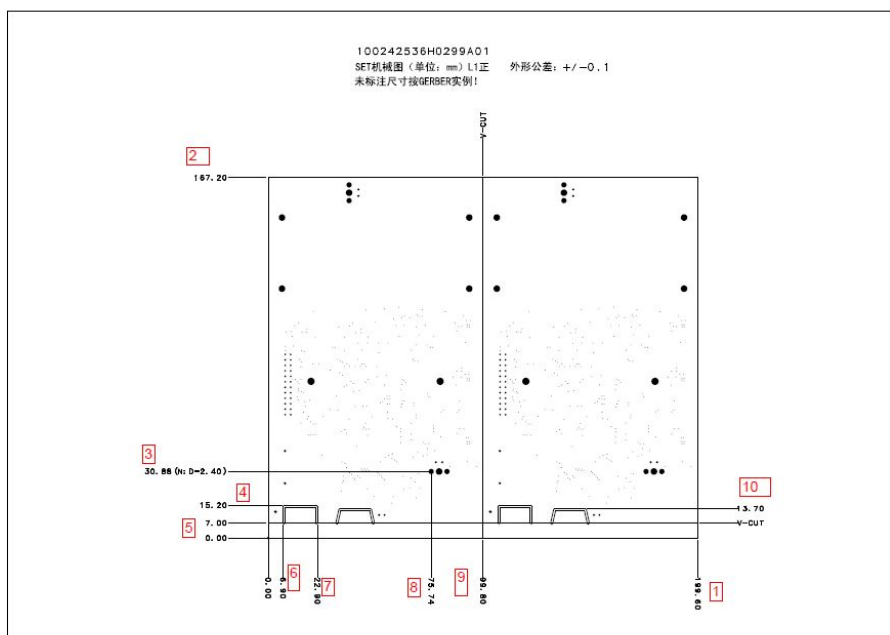


**unit is mm if unless otherwise specified**

[illegible]

### Put the actual Drawing herein:

(If the drawing is too big and the data will be unclear when attached in here, then factory can insert the drawings by the attachments way in here. But the drawings should be printed and attached in paper file/如果所附图纸太大导致数据不能清楚显示, 那么工厂可以使用插入的方式将图纸插入在此页中。但是纸档报告中应将此图纸打印出来)



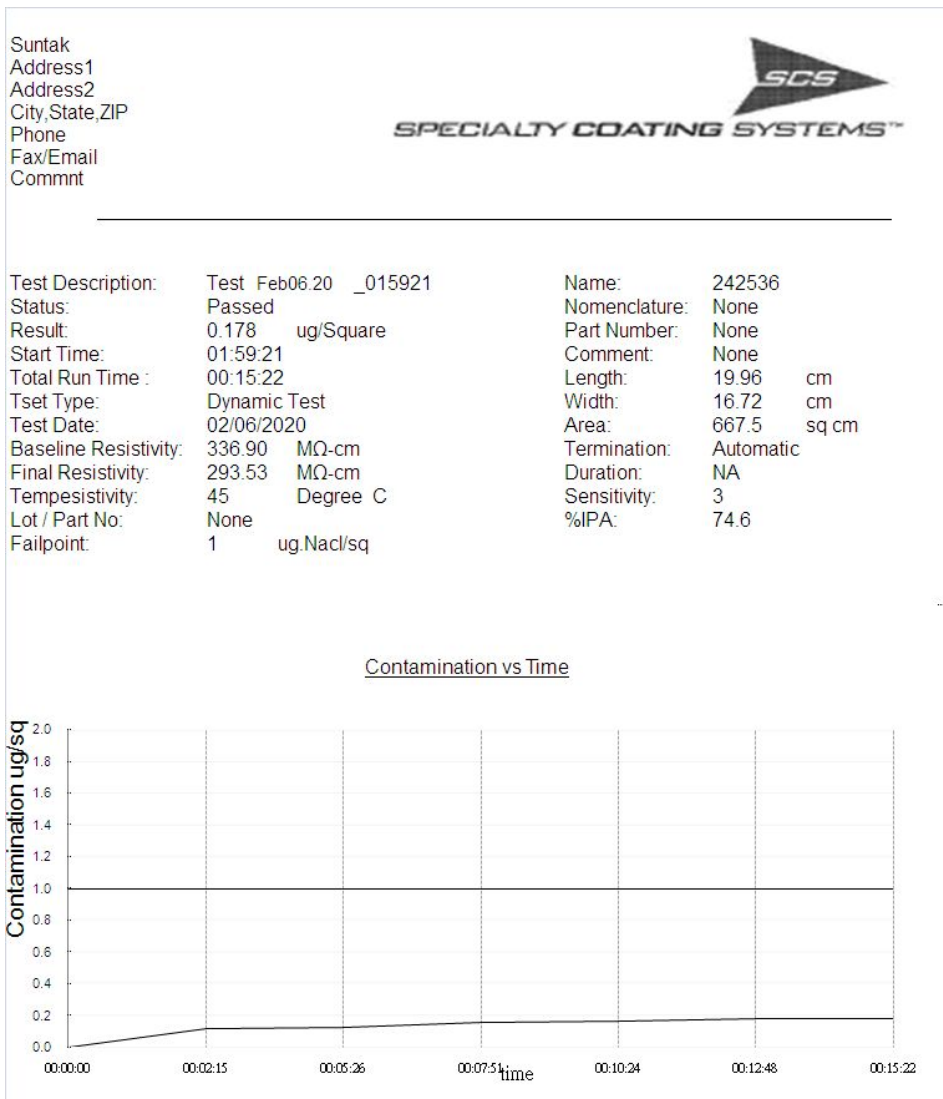
|            |           |              |            |         |            |          |   |
|------------|-----------|--------------|------------|---------|------------|----------|---|
| DATE       | 2011-6-23 | DATE CHANGED | 2019-7-18  | REG.NO  | 7.4.1.33   | REVISION | 7 |
| ACCEPTEDBY | Wendy Liu | MADE BY      | Cathy Wang | COMPANY | NCAB Group |          |   |

## Ionic Contamination Test

NCAB article/NCAB 编号: MEH96\_v11

|                   |                                                                      |
|-------------------|----------------------------------------------------------------------|
| Test Method测试方法   | IPC-TM-650 2.3.25                                                    |
| Test time测试时间     | ≥ 15 min (分钟)                                                        |
| Specification/标准值 | ≤1ug.NaCl/sq.cm                                                      |
| Actual/实际值        | 0.178ug.NaCl/sq.cm                                                   |
| Acc/Rej           | <input checked="" type="checkbox"/> Acc <input type="checkbox"/> Rej |

Put the actual curves picture of Contamination Test herein:



|            |           |              |            |         |            |          |   |
|------------|-----------|--------------|------------|---------|------------|----------|---|
| DATE       | 2011-6-23 | DATE CHANGED | 2018-1-11  | REG.NO  | 7.4.1.33   | REVISION | 6 |
| ACCEPTEDBY | Wendy Liu | MADE BY      | Cathy Wang | COMPANY | NCAB Group |          |   |