

物料承认书

电子	配件	
结构	配件	
包材	配件	
其它	配件	

页面 1 of 23 承认书编号: LS-20-00071

机种名称:	L12	零件描述:	SMD CHIP 2.4GHz ANT SNCA-2480-S2TF瑞强天线 3.2×1.6×0.5	料号P/N:	L10.157.000009AN
供应商:	瑞强	供应商料号P/N:		生效日期:	2020/2/18
				承认书版本:	A/0

不同的料号共用图纸时勾选:

☐ 对颜色、印字确认 ☐ 组件确认发行次数: ☒ 第1次 ☐ 第2次 ☐ 第3次 ☐ 第4次 图纸对照: ☐ 图纸编号 ☐ 系统对照 ☐ 承认书编号(共用):

承认资料清单	环保文件:	可靠性测试项目
☒ 物料承认书	☐ MSDS报告	结构/包装
☐ 物料规格书	☒ 第三方测试报告	☐ 耐化妆品测试 ☐ 插拔力测试 ☐ 低温存储
☒ 物料图纸	☐ 不使用有害物质协议书	☐ UV测试 ☐ 耐压测试 ☐ 高温存储
☐ FAI全尺寸检测报告	☒ MCD材料成分声明书	☐ 酒精耐磨测试 ☐ 插拔寿命测试 ☐ 高温高湿
☒ 可靠性测试报告	☐ 厂内XRF报告	☐ 橡皮擦测试 ☐ 按键寿命测试 ☐ 冷热循环
☒ 样品		☐ 百格测试 ☐ 吊重测试 ☐ 恒温水浴
☐ 材质证明		☐ 耐溶剂测试 ☐ 摇摆测试 ☐ 盐雾测试
☒ 检测报告		☐ 铅笔硬度 ☐ 拉力测试 ☐ 耐酸测试
☐ 安规资料	环保工程师:	☐ 纸带耐磨测试 ☐ 振动测试 ☐ 附着力测试
		可靠性测试项目
		☐ 电池循环测试 ☒ 高温测试 ☐ 振动试验
		☐ 自放电测试 ☐ 低温测试 ☒ 跌落实验
		☒ 可焊性 ☒ 高温高湿测试 ☐ 安规测试
		☐ 防水测试 ☒ 冷热冲击
		☐ 负荷寿命测试 ☐ 盐雾试验
		☐ 老化测试

其它备注:

检测数据

规格、尺寸		样品实际检查结果					判定结果 (OK/NG)	备注
		样品 #						
序号	必检项目/说明与公差	1	2	3	4	5		
1	L 3.2±0.2mm	3.28mm	3.29mm	3.27mm	3.26mm	3.29mm		
2	W 1.6±0.2mm	1.65mm	1.63mm	1.66mm	1.65mm	1.64mm		
3	H 0.5±0.2mm	0.51mm	0.52mm	0.52mm	0.51mm	0.51mm		
4								
5								
6								
7								
8								
9								
10								

部门/岗位	意见/注释	签名/日期
制表:		1. 2020.2.19
ID工程师		N/A
研发工程师:		1. 2020.2.19
DQE:		黄析强 2020.02.19
研发经理:		2020.2.19

评估结果: (参见样品测量表)

有风险的承认/临时承认特批

☐ 有条件的接受	风险的原因:	
限量:	☐ 无样品	☐ RoHS资料不足
限期:	☐ 检测资料不足	☐ 其它
特批申请人:	特批部门经理:	总经理:
样品分发给: ☒ 采购部 ☒ 品质部 ☒ PMC ☒ 研发部 ☐ 注塑厂 ☒ 组装厂 ☒ 其它供应商		
文件分发给: ☒ 采购部 ☒ 品质部 ☒ PMC ☒ 研发部 ☐ 注塑厂 ☒ 组装厂 ☒ 其它供应商		

SPECIFICATION

Shenzhen Strongpower Communication Co., Ltd

深圳市瑞强通信有限公司

Shenzhen Strongpower Communication Co., Ltd.

SNCA-2480-S2TF 蓝牙陶瓷天线

产 品 承 认 书

客 户	猎声	频 段	2400MHz-2500MHz
机种名称			
瑞强料号	RQ03B110565	颜 色	黑色
R F 设计		结 构	周俊
技术总监	傅以成	日 期	2020/2/17

客户确认:

李峰 2020.2.18

索引

一、3216 回路陶瓷天线.....	3
1、规格.....	3
1.1 电气规格标准.....	3
1.1.1 电性能指标.....	3
1.1.2 匹配电路图.....	3
1.2 天线组成.....	4
2、测试环境.....	4
3、测试.....	4
3.1 驻波(VSWR)的测试.....	4
3.1.1 测试连接.....	4
3.2 增益及效率、功率 (TRP)、灵敏度 (TIS) 的测试.....	4
3.2.1 测试的场地.....	4
3.2.2 测试的仪表.....	4
3.2.3 标准参数.....	4
5、附件图表.....	5
5.1 Return Loss 及 VSWR 参数图表	5
二、使用说明.....	见附图
三、形状和尺寸.....	见附图

保密要求

深圳市瑞强通信有限公司已拥有专有技术所提供的资料，这些专有资料应严加保密，在未经深圳市瑞强通信技术有限公司事先书面同意的时不允许透露给任何人或公司。

一、3216 回路陶瓷天线

1 规格

本报告主要提供 SNCA-2480-S2TF(3216 回路陶瓷天线) 各项电气和结构性能参数的测试状况。

1.1 电气规格标准

1.1.1 电性能指标

天线工作频段在：2400-2500MHz 。下表是瑞强设计和量产天线的电性能的指标。

1.1.2 匹配电路图(匹配未改动)

1.2 天线组成：陶瓷天线。

2、 The Equipment of Active Test （测试环境）

Satimo 3D Chamber 3×3×3(m)

gilent 8960 E5071B

twork analyzer-R&S ZVL

3 测试

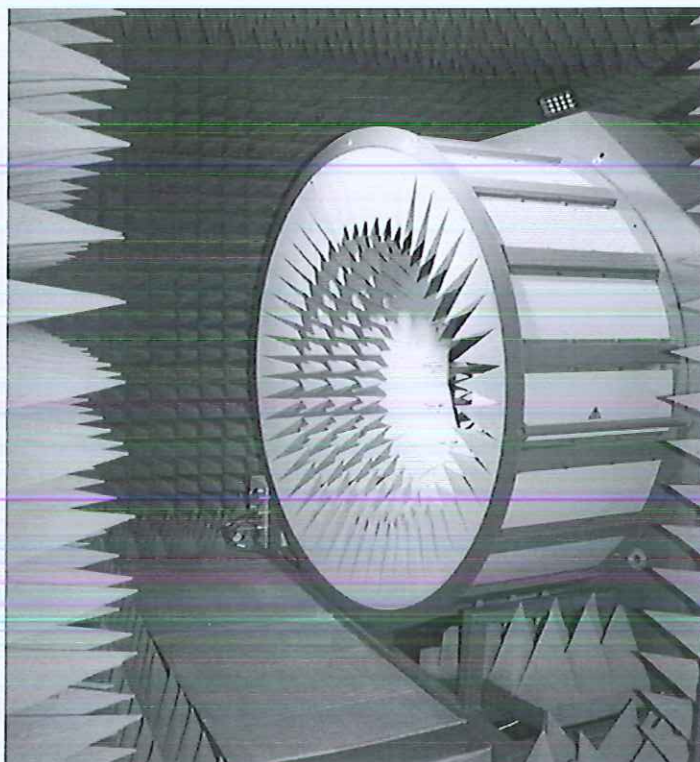
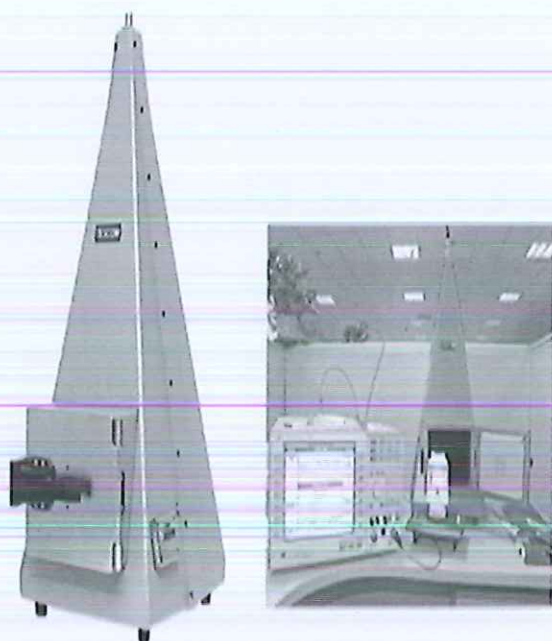
3.1 驻波(VSWR)的测试

3.1.1 测试连接：VSWR 测试装置依次连接为：R&S ZVL 网络分析仪→测试线→测试机
实测

(附图见下页)

保 密 要 求

深圳市瑞强通信有限公司已拥有专有技术所提供的资料，这些专有资料应严加保密，在未经深圳市瑞强通信技术有限公司事先书面同意的时不允许透露给任何人或公司。



3.2 增益及效率、功率（TRP）、灵敏度（TIS）的测试

3.2.1 测试的场地：

微波暗室：测试频率范围为 400MHz—6GHz，静区范围为 50cm 圆周，反射率小于-50 dB。

3.2.2 测试的仪表：

R&S ZVL 网络分析仪、Agilent8960 E5071B、标准喇叭天线、法国 SATIMO-SG24SYSTEM 系统、打印机等。

3.2.3 标准参数：

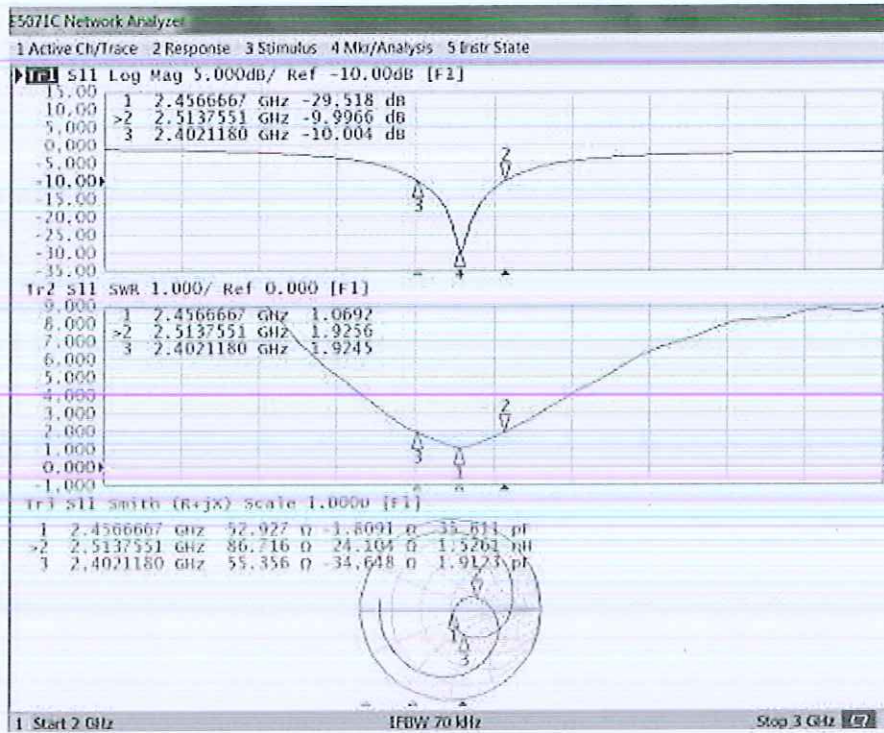
SNCA-2480-S2TF 型陶瓷天线标准参数如下

Frequency	Efficiency	Efficiency . dB
2400	60.74%	-2.17
2410	63.14%	-2.00
2420	64.57%	-1.90
2430	65.37%	-1.85
2440	66.14%	-1.80
2450	66.37%	-1.78
2460	65.11%	-1.86
2470	62.77%	-2.02
2480	61.40%	-2.12
2490	58.06%	-2.36
2500	55.13%	-2.59

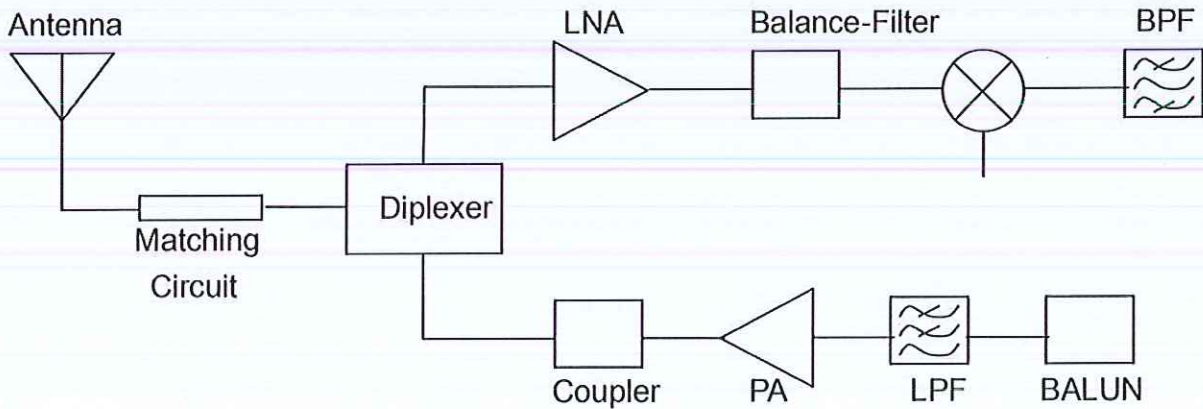
保密要求

深圳市瑞强通信有限公司已拥有专有技术所提供的资料，这些专有资料应严加保密，在未经深圳市瑞强通信技术有限公司事先书面同意的时不允许透露给任何人或公司。

5、附件图表 (Return loss、Smith 图及 VSWR 参数图)



二、使用说明 (图)



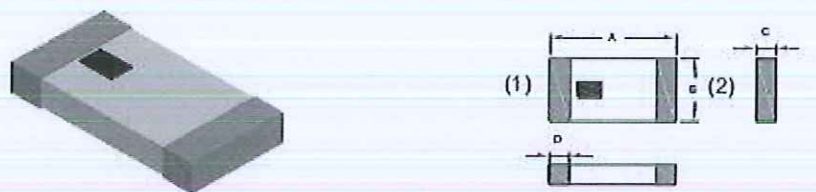
保密要求

深圳市瑞强通信有限公司已拥有专有技术所提供的资料，这些专有资料应严加保密，在未经深圳市瑞强通信技术有限公司事先书面同意的时不允许透露给任何人或公司。

三：形状和尺寸

SNCA-2480-S2TF 型陶瓷天线外形尺寸

外形尺寸参数对照图如下：



Item	A	B	C	D.	Unit: mm
SNCA31	3.2±0.2	1.6±0.2	0.5±0.1	0.5±0.2	

保 密 要 求

深圳市瑞强通信有限公司已拥有专有技术所提供的资料，这些专有资料应严加保密，在未经深圳市瑞强通信技术有限公司事先书面同意的时不允许透露给任何人或公司。

SPECIFICATIONS

Customer	
Product Name	Chip Antenna
Shannon Part Number	SNCA-2480-S2TF
Customer Part Number	

[☒New Released, ☐Revised]

SPEC No.: PH018-12

【This SPEC is total 9 pages including specifications and appendix.】

【ROHS Compliant Parts】

Approved By	Checked By	Issued By

Shenzhen Shannon Semiconductor Co., Ltd.

【For Customer approval Only】

Date: _____

Qualification Status: Full Restricted Rejected

Approved By	Verified By	Re-checked By	Checked By

Comments:

【Version change history】

Rev.	Effective Date	Changed Contents	Change reasons	Approved By
01	8.15,2018	New Release	/	Qiang Zhang

1. Scope

This specification applies to SNCA-2480-S2TF of Multi-layer Chip Antenna.

2. Product Description and Identification (Part Number)

1) Description :Multi-layer Chip Antenna

2) Product Identification (Part Number)

SNCA 2480 S2 T F
① ② ③ ④ ⑤

①	Type
SNCA	Shannon Semi

②	Center Frequency
2480M	2480.0MHz

③	Series Code
	S2

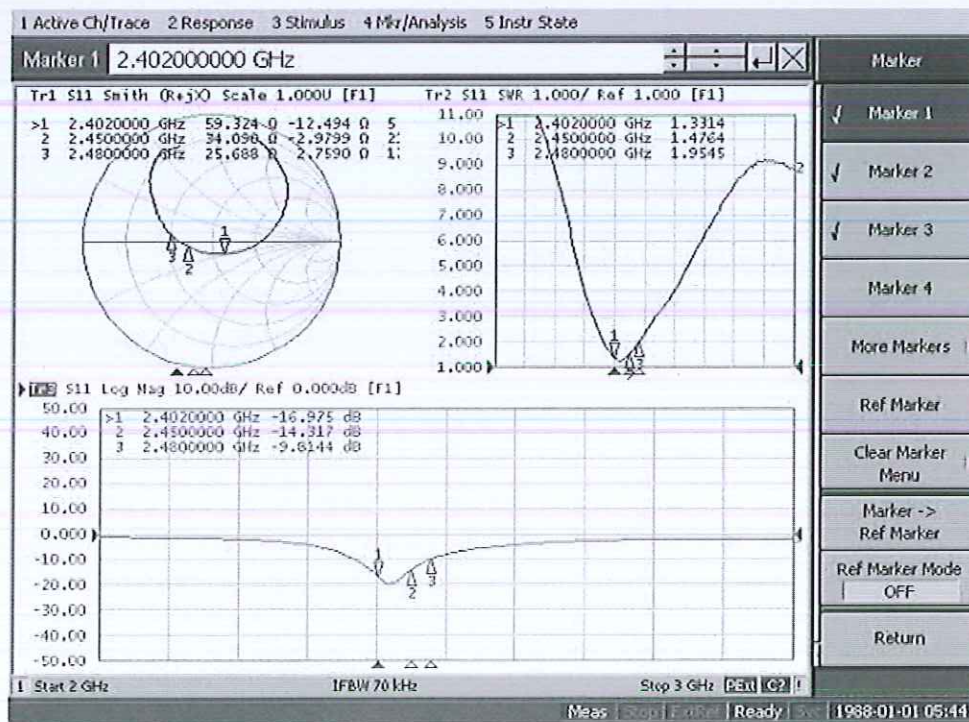
④	Packing
T	Tape Carrier Package

⑤	Hazardous Substance Free Products
F	

3. Electrical Characteristics

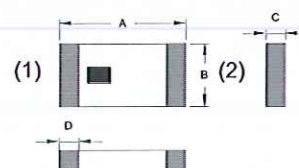
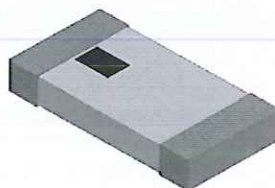
Part Number	Band Width	Peak Gain	Average Gain	VSWR	Impedance	Power Capacity
	MHz	2.5 dBi	0.5 dBi	In BW	Ω	W
SNCA-2480-S2TF	≥ 100	@(XZ-total)	@(XZ-total)	< 2	50	2 W max

- Operating and storage temperature range (individual chip without packing): $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$.
- Storage temperature range (packaging conditions): $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$ and RH 70% (Max.).
- Test equipment: Network Analyzer: E5071B.
- Measuring diagram.



4. Shape and Dimensions

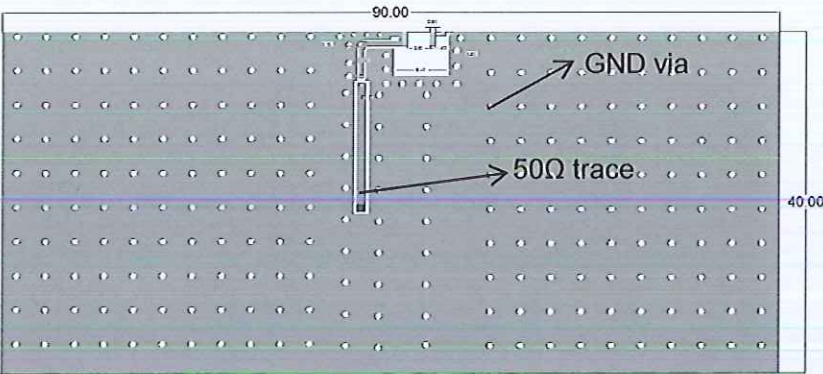
Dimensions and recommended PCB pattern for reflow soldering:



Item	A	B	C	D
SNCA-2480-S2TF	3.2±0.2	1.6±0.2	0.5±0.1	0.5±0.2

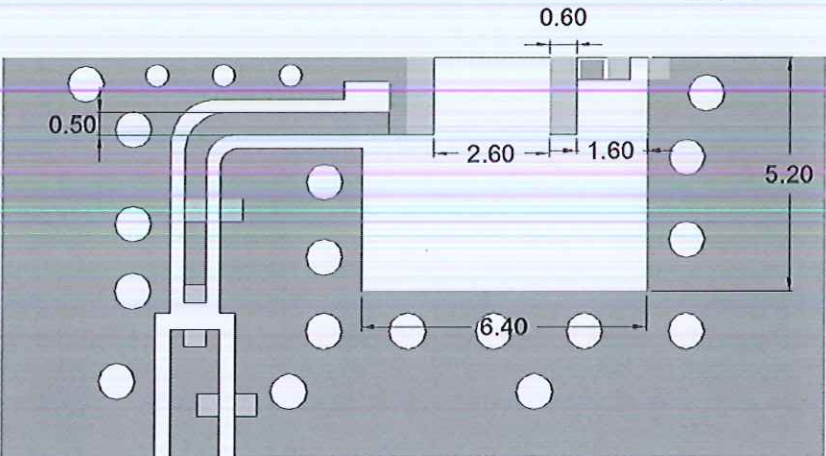
Unit: mm

Demo-board:

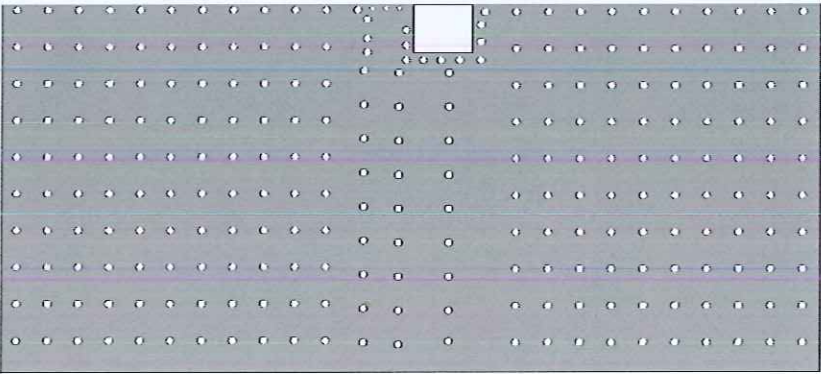


Top view

Unit: mm



Detail view



Bottom view

1) Terminal Configuration:



No.	Terminal Name	No.	Terminal Name
(1)	Feeding Point	(2)	Soldering terminal

5. Test and Measurement Procedures

5.1 Test Conditions

Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

- a. Ambient Temperature: 20±15℃
- b. Relative Humidity: 65±20%
- c. Air Pressure: 86 Pa to 106KPa

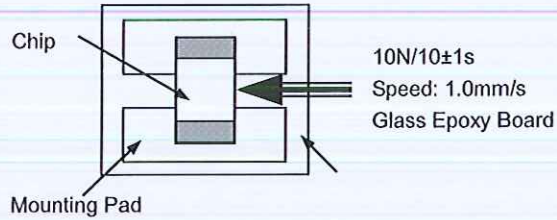
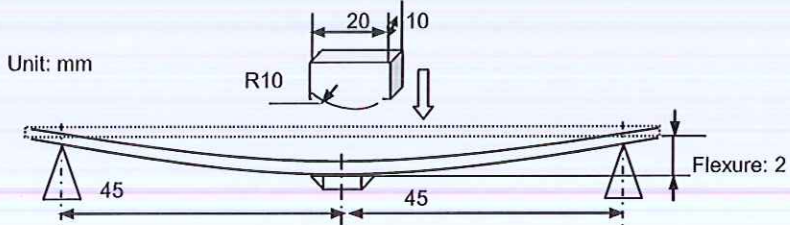
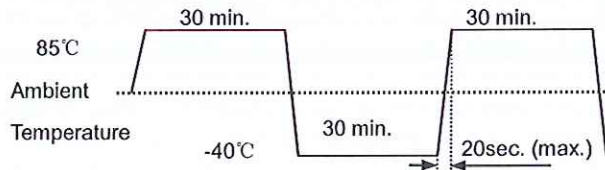
If any doubt on the results, measurements/tests should be made within the following limits:

- a. Ambient Temperature: 20±2℃
- b. Relative Humidity: 65±5%
- c. Air Pressure: 86KPa to 106KPa

5.2 Visual Examination

- a. Inspection Equipment: 20 X magnifier

5.3 Reliability Test

Items	Requirements	Test Methods and Remarks
5.3.1 Terminal Strength	No visible mechanical damage.	① Solder the Antenna to the testing jig (glass epoxy board shown as the following figure) using leadfree solder. Then apply a force in the direction of the arrow. ② 10N force for 3216 series. ③ Keep time: 10±1sec. 
5.3.2 Resistance to Flexure	No visible mechanical damage.	① Solder the chip to the test jig (glass epoxy board) using a leadfree solder. Then apply a force in the direction shown as the following figure. Solder the chip to the test jig (glass epoxy board) using leadfree solder. Then apply a force in the direction. ② Flexure: 2mm ③ Pressurizing Speed: 0.5mm/sec ④ Keep time: ≥30 sec 
5.3.3 Dropping	No visible mechanical damage.	SNCA series: Drop the chip 5 times on a wood floor from a height of 50 cm.
5.3.4 Solderability	① No visible mechanical damage. ② Wetting shall be exceeded 75% coverage.	① Solder temperature: 240±2℃ ② Duration: 3sec ③ Solder: Sn/3.0Ag/0.5Cu ④ Flux: 25% Resin and 75% ethanol in weight
5.3.5 Resistance to Soldering Heat	No visible mechanical damage.	① Solder temperature: 260±5℃ ② Duration: 5 sec ③ Solder: Sn/3.0Ag/0.5Cu ④ Flux: 25% Resin and 75% ethanol in weight ⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
5.3.6 Thermal Shock	① No visible mechanical damage. ② Satisfy electrical Characteristic.	① Temperature and time: -40℃ for 30±3 min→85℃ for 30±3min ② Transforming interval: Max. 20 sec. ③ Tested cycle: 10 cycles ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring. 

5.3.7 Damp Heat (Steady States)	① No visible mechanical damage. ② Satisfy electrical Characteristic.	① Temperature: $60\pm 2^{\circ}\text{C}$ ② Humidity: 90% to 95% RH ③ Duration: 96^{+24} hours ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
5.3.8 Resistance to High temperature	① No visible mechanical damage. ② Satisfy electrical Characteristic.	① Temperature: $85\pm 2^{\circ}\text{C}$ ② Duration: 96^{+24} hours ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.

6. Packaging and Storage

6.1 Packaging

There is one type of packaging for the Multi-layer Chip Antennas. Please specify the packing code when ordering.

6.1.1 Tape Carrier Packaging:

Packaging code: T

- Tape carrier packaging are specified in attached figure Fig. 6.1-1~3
- Tape carrier packaging quantity please see the following table:

Type	3216[1206]
Tape	Paper Tape
Quantity	3K

(1) Taping Drawings (Unit: mm)

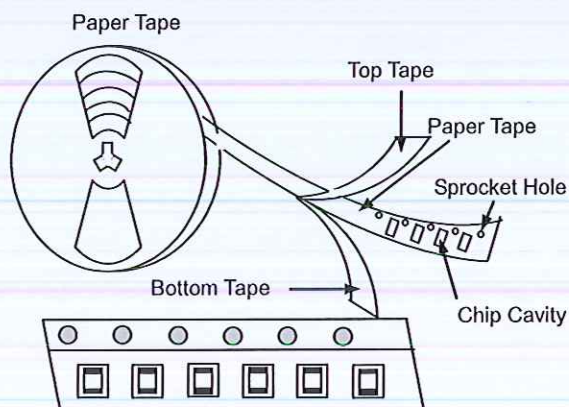
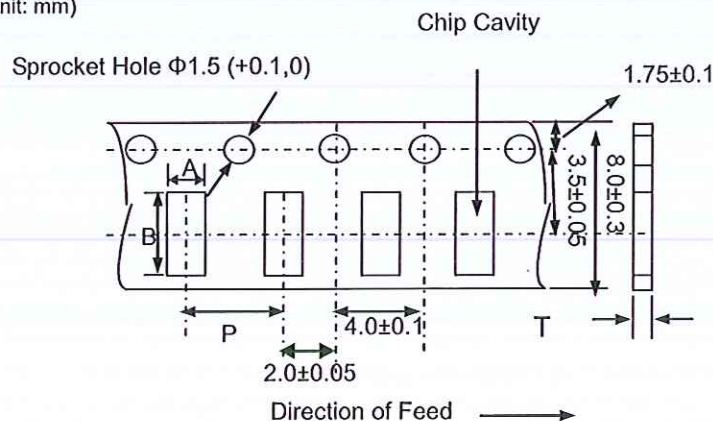


Fig. 6.1-1

Remark: The sprocket holes are to the right as the tape is pulled toward the user.

(2) Taping Dimensions (Unit: mm)



Type	Chip Thickness	A	B	P	T max
SNCA-2480-S2TF	0.5 ± 0.1	1.8 ± 0.1	3.5 ± 0.1	4.0 ± 0.10	0.75

(3)Reel Dimensions (Unit: mm)

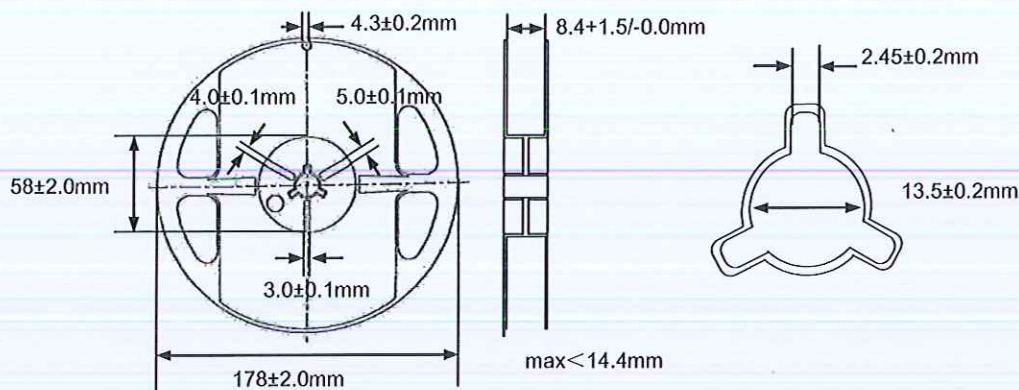


Fig. 6.1-3

6.2 Storage

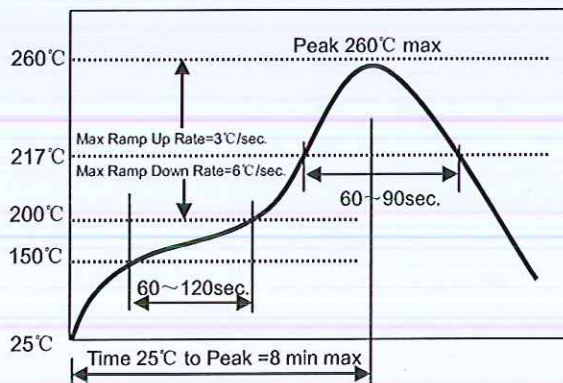
- The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to high humidity. Package must be stored at 40°C or less and 70% RH or less.
- The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to dust of harmful gas (e.g. HCl, sulfurous gas of H₂S).
- Packaging material may be deformed if package are stored where they are exposed to heat of direct sunlight.
- Solderability specified in **Clause 5.3.5** shall be guaranteed for 12 months from the date of delivery on condition that they are stored at the environment specified in **Clause 3**. For those parts, which passed more than 12 months shall be checked solder-ability before use.

7. Recommended Soldering Technologies

7.1 Reflow Profile

- △ Preheat condition: 150 ~200°C/60~120sec.
- △ Allowed time above 217°C: 60~90sec.
- △ Max temp: 260°C
- △ Max time at max temp: 10sec.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Allowed Reflow time: 2x max

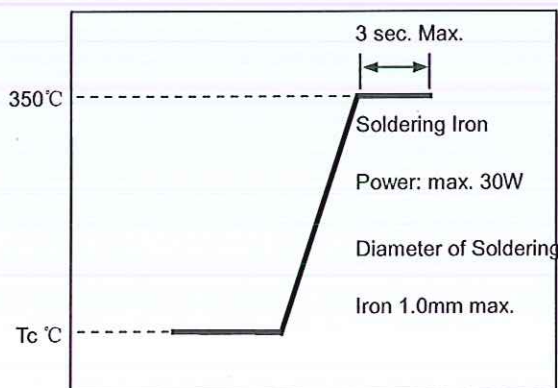
[Note: The reflow profile in the above table is only for qualification and is not meant to specify board assembly profiles. Actual board assembly profiles must be based on the customer's specific board design, solder paste and process, and should not exceed the parameters as the Reflow profile shows.]



7.2 Iron Soldering Profile

- △ Iron soldering power: Max.30W
- △ Pre-heating: 150 °C / 60 sec.
- △ Soldering tip temperature: 350°C Max.
- △ Soldering time: 3 sec Max.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Max.1 times for iron soldering

[Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.]



8. Supplier Information

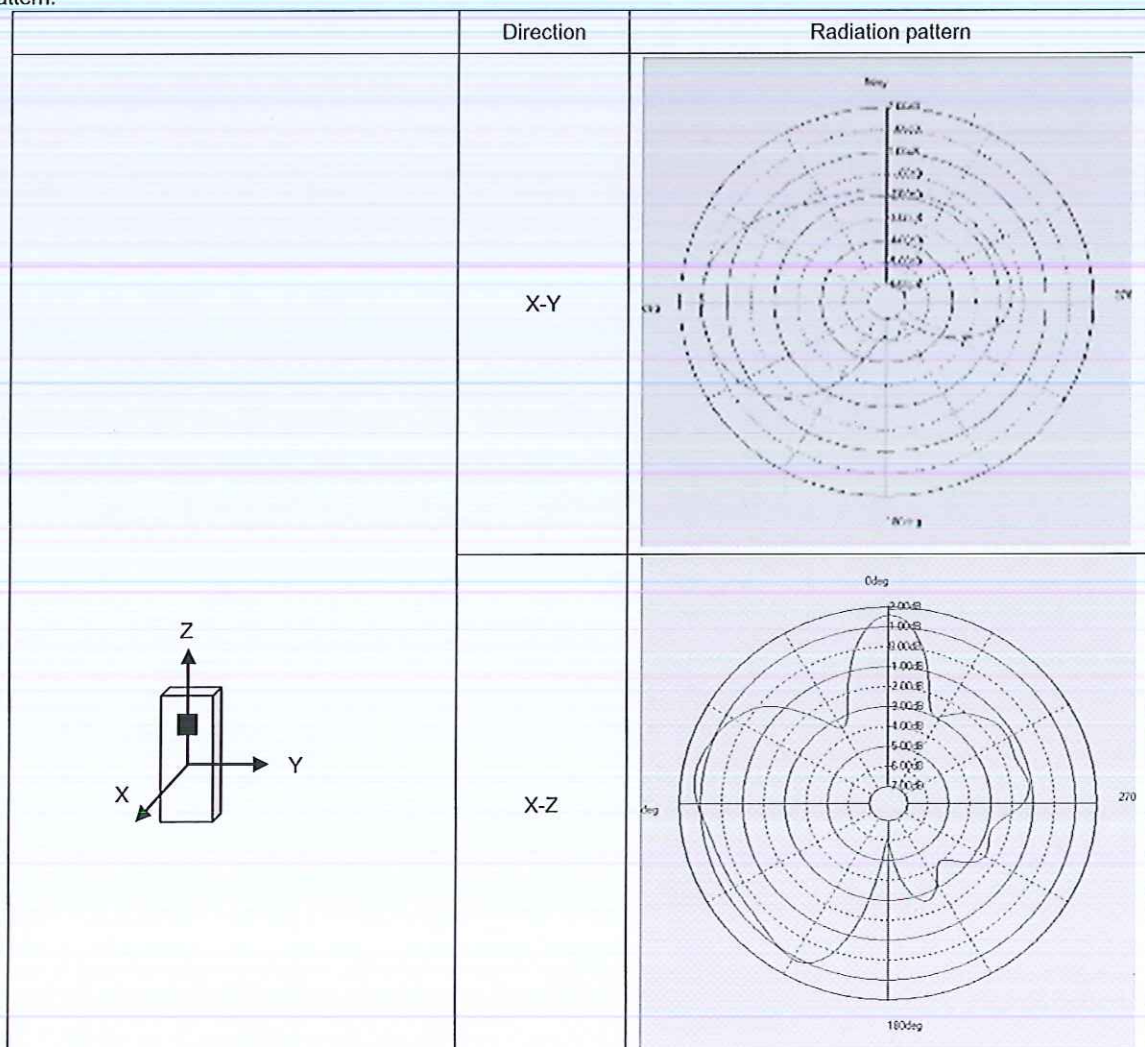
- Supplier:
Shenzhen Shannon Semiconductor Co., Ltd.
- Manufacturer:
Shenzhen Shannon Semiconductor Co., Ltd.
- Manufacturing Address:
Shenzhen nanshan district and high - tech zone Gao Xinnan four W2 - 502 A
Zip: 518000

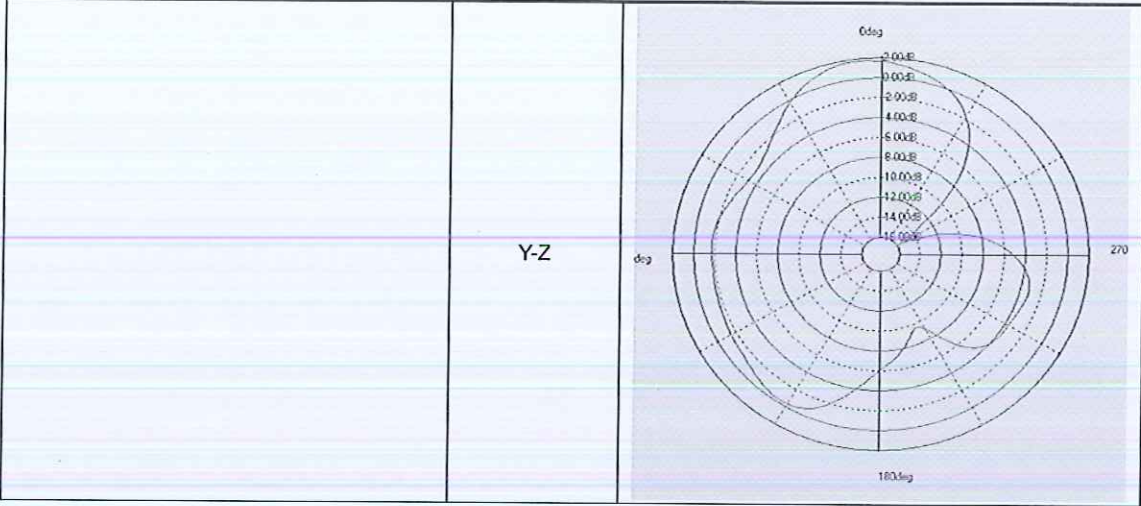
Appendix 1

Efficiency table:

Frequency	Efficiency (%)	Efficiency . dB
2400	70.42	-1.52
2410	76.51	-1.16
2420	76.45	-1.17
2430	77.51	-1.10
2440	77.58	-1.10
2450	79.09	-1.01
2460	79.88	-0.92
2470	79.45	-1.00
2480	78.79	-1.04
2490	77.39	-1.16
2500	75.33	-1.26

Radiation pattern:







检测报告

报告编号 A2190303302101001CR1

第 1 页 共 7 页

申请单位 深圳市香农半导体有限公司

地 址 深圳市南山区高新南四道W2-A栋502

以下测试之样品及样品信息由申请者提供并确认

样品名称 SNCA系列陶瓷天线

样品型号 SNCA

材料名称 陶瓷

样品接收日期 2019.11.12

样品检测日期 2019.11.12-2019.11.15

检测要求 根据客户要求, 对所提交样品中的铅(Pb), 镉(Cd), 汞(Hg), 六价铬(Cr(VI)), 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP), 氟(F), 氯(Cl), 溴(Br), 碘(I)进行测试。

检测依据 请参见下页。

检测结果 请参见下页。



王 俊

郑晴涛

郑晴涛

技术经理

审 核

夏 强

日 期

2019.11.20

No. T411761369

广东省深圳市宝安区新安街道兴东社区华测检测大楼

检测报告

报告编号 A2190303302101001CR1

第 2 页 共 7 页

检测依据

测试项目	测试方法	测试仪器
铅(Pb)	IEC 62321-5:2013	ICP-OES
镉(Cd)	IEC 62321-5:2013	ICP-OES
汞(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六价铬(Cr(VI))*	IEC 62321-7-2:2017和/或IEC 62321-5:2013测试总铬含量	UV-Vis/ICP-OES
多溴联苯(PBBs)*	IEC 62321-6:2015	GC-MS
多溴二苯醚(PBDEs)*	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯(DBP, BBP, DEHP, DIBP)*	IEC 62321-8:2017	GC-MS
氟(F)	参考EN 14582:2016	IC
氯(Cl)	参考EN 14582:2016	IC
溴(Br)	参考EN 14582:2016	IC
碘(I)	参考EN 14582:2016	IC

ATA

ATA

检测报告

报告编号 A2190303302101001CR1

第 3 页 共 7 页

检测结果

测试项目	结果	方法检出限
铅(Pb)	N.D.	2 mg/kg
镉(Cd)	N.D.	2 mg/kg
汞(Hg)	N.D.	2 mg/kg
六价铬(Cr(VI))*	N.D.	8 mg/kg

测试项目	结果	方法检出限
多溴联苯(PBBs)*		
一溴联苯	N.D.	5 mg/kg
二溴联苯	N.D.	5 mg/kg
三溴联苯	N.D.	5 mg/kg
四溴联苯	N.D.	5 mg/kg
五溴联苯	N.D.	5 mg/kg
六溴联苯	N.D.	5 mg/kg
七溴联苯	N.D.	5 mg/kg
八溴联苯	N.D.	5 mg/kg
九溴联苯	N.D.	5 mg/kg
十溴联苯	N.D.	5 mg/kg

测试项目	结果	方法检出限
多溴二苯醚(PBDEs)*		
一溴二苯醚	N.D.	5 mg/kg
二溴二苯醚	N.D.	5 mg/kg
三溴二苯醚	N.D.	5 mg/kg
四溴二苯醚	N.D.	5 mg/kg
五溴二苯醚	N.D.	5 mg/kg
六溴二苯醚	N.D.	5 mg/kg
七溴二苯醚	N.D.	5 mg/kg
八溴二苯醚	N.D.	5 mg/kg
九溴二苯醚	N.D.	5 mg/kg
十溴二苯醚	N.D.	5 mg/kg

检测报告

报告编号 A2190303302101001CR1

第 4 页 共 7 页

检测结果

测试项目	结果	方法检出限
邻苯二甲酸酯(DBP, BBP, DEHP, DIBP)*		
邻苯二甲酸二丁酯(DBP) CAS#:84-74-2	N.D.	50 mg/kg
邻苯二甲酸丁基苄基酯(BBP) CAS#:85-68-7	N.D.	50 mg/kg
邻苯二甲酸二(2-乙基)己酯(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
邻苯二甲酸二异丁酯(DIBP) CAS#:84-69-5	N.D.	50 mg/kg
测试项目	结果	方法检出限
氟(F)	N.D.	10 mg/kg
氯(Cl)	N.D.	10 mg/kg
溴(Br)	N.D.	10 mg/kg
碘(I)	N.D.	10 mg/kg

样品/部位描述 混测，带有银色金属的灰色固体和带有银色金属的白色固体

备注: -对于检测铅, 镉, 汞之样品已完全溶解。
-根据客户要求, 对样品进行混合测试, 测试结果不代表混合测试样品中任何一种单一材质的含量。
-N.D. = 未检出 (小于方法检出限)
-mg/kg = ppm = 百万分之一

注释: -*表示该项目/方法不在CNAS认可范围内。
-本报告于原报告(报告编号A2190303302101001C)基础上修改了“样品型号”。本报告替换原报告A2190303302101001C, 自本报告签发之日起, 原报告A2190303302101001C作废。
-本报告中的数据结果供科研、教学、企业内部质量控制、企业产品研发等目的用。

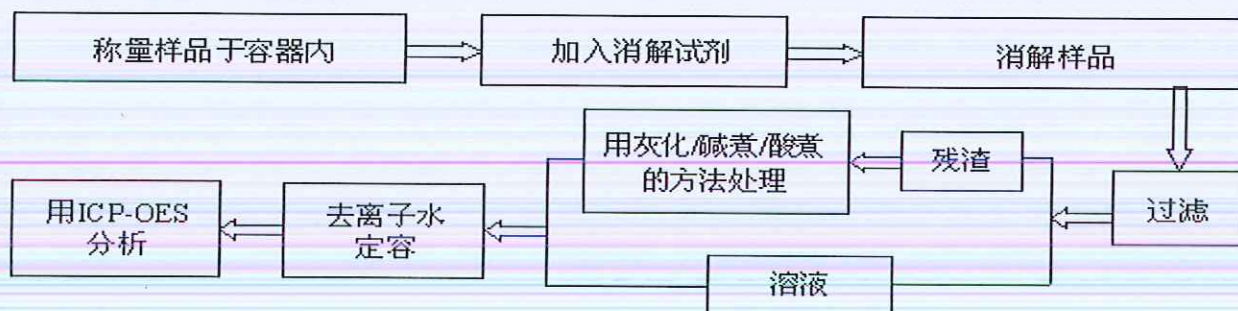
检测报告

报告编号 A2190303302101001CR1

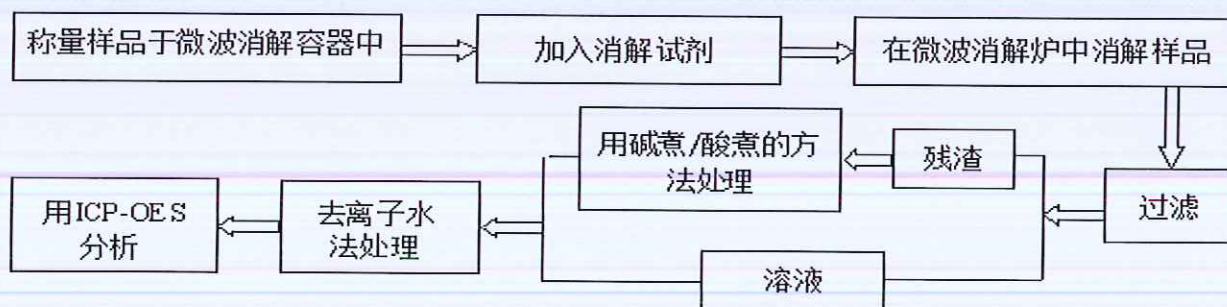
第 5 页 共 7 页

检测流程

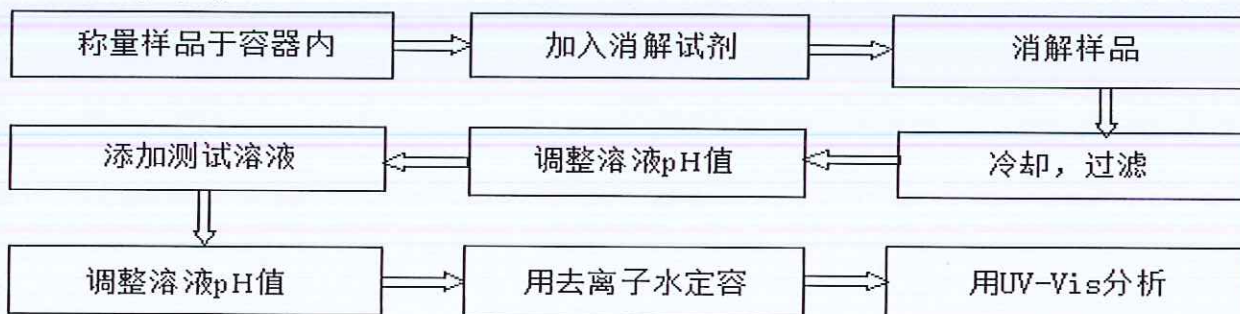
1. 铅(Pb), 镉(Cd), 铬(Cr)



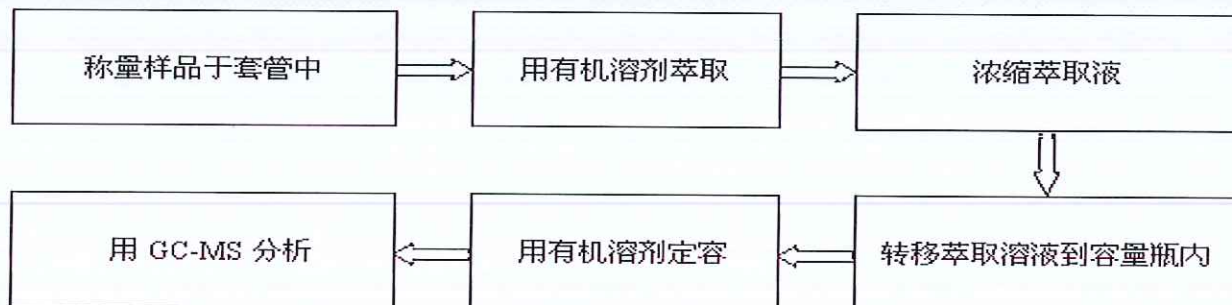
2. 汞(Hg)



3. 六价铬(Cr(VI))



4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)

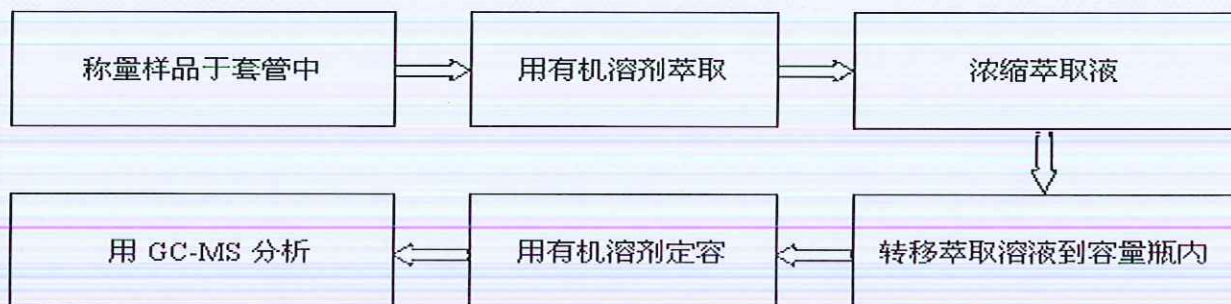


检测报告

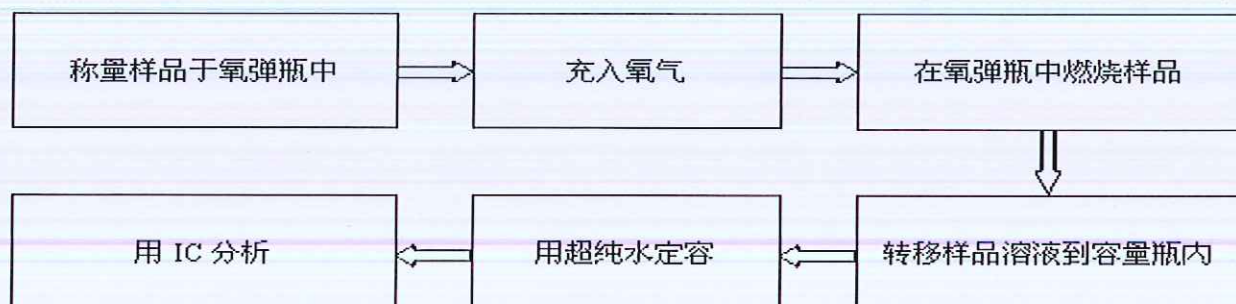
报告编号 A2190303302101001CR1

第 6 页 共 7 页

5. 邻苯二甲酸酯(DBP, BBP, DEHP, DIBP)



6. 氟(F), 氯(Cl), 溴(Br), 碘(I)

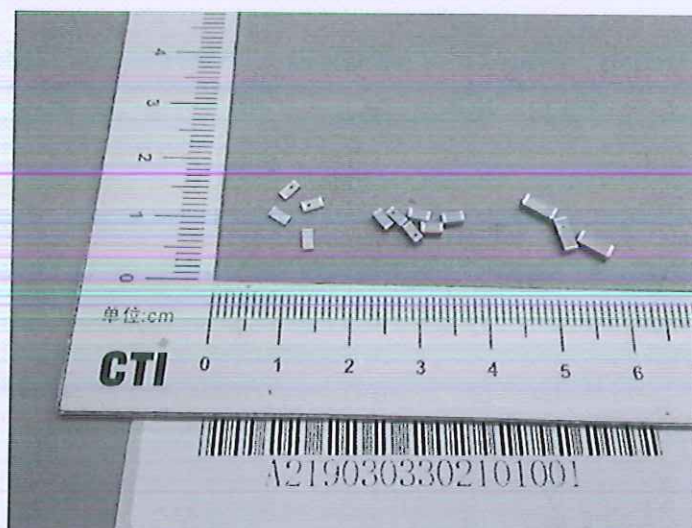


检测报告

报告编号 A2190303302101001CR1

第 7 页 共 7 页

样品图片



*** 报告结束 ***

声明:

1. 检测报告无批准人签字、“专用章”及报告骑缝章无效;
2. 样品及样品信息由申请者提供, 申请者应对其真实性负责, CTI未核实其真实性;
3. 本报告检测结果仅对受测样品负责;
4. 未经CTI书面同意, 不得部分复制本报告。