承認書

SPECIFICATION FOR APPROVAL

■樣品承認□新品承認□規格/材質變更承認

客戶名稱(Customer):	摩比麥斯移動科技股份有限公司 麗臺科技股份有限公司		
客戶料號(Customer P/N):	Q5001G00134A		
產品料號(Product No.):	A8-A006-00247		
產品品名(Product Name)：	FPC 824MHz~960MHz/1710MHz~1990MHz 1.27dBi/1.94dBi 31.87mm*24.4mm 0.2T		
文件編號(Approved No)：			
日期(Issued Date)：	2015 年 06 月 04 日		
客戶承認簽章 Customer Approval Signature	In Charge	Checked	Approval

TSKY™ 天凱科技股份有限公司 TSKY CO., LTD.
新竹縣竹北市自強南路8號15F-1 Tel:03-5502626 Fax:03-5503131
15F-1,No.8,Ziqiang S.Rd., Jhubei City, Hsinchu County 30264,Taiwan (R.O.C.)

天凱科技
2015.06.04
文件發行章

業務	核准	審核	主辦員

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Specification

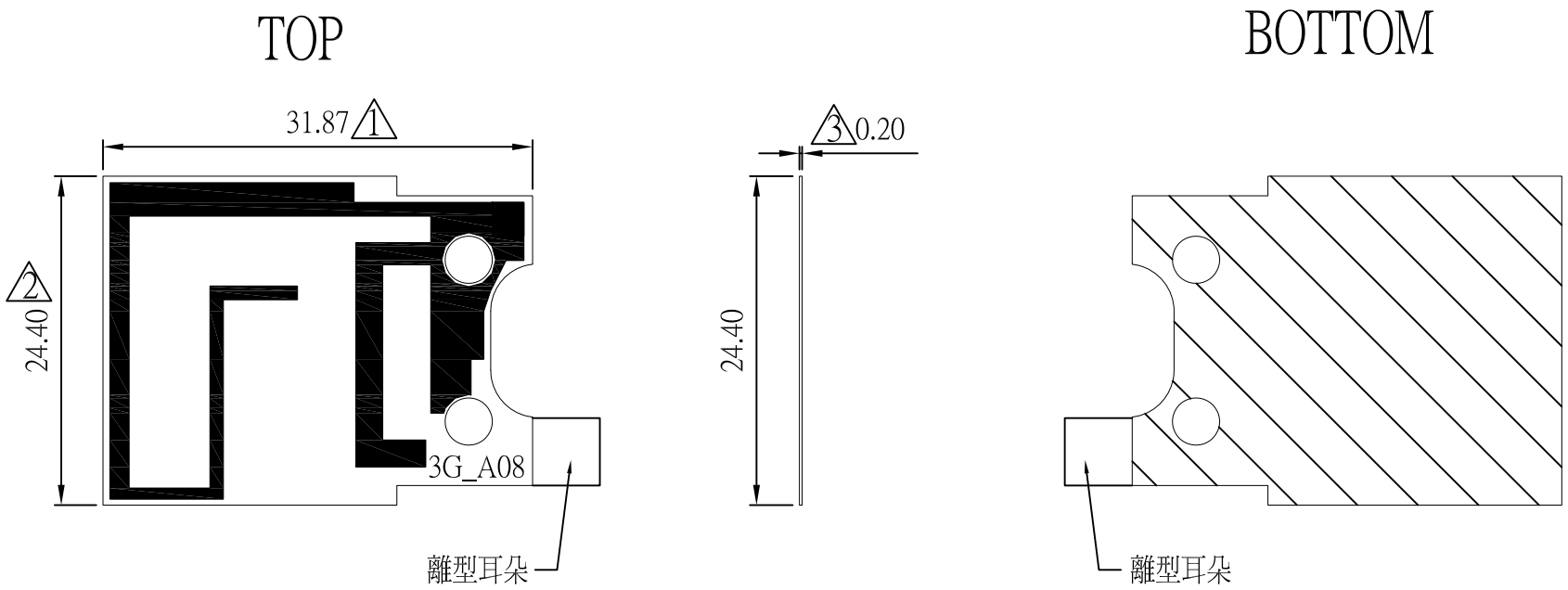
- **Electrical Properties :**

  1. Frequency : 824MHz ~ 960MHz/1710MHz~1990MHz
  2. Impedance : 50Ω
  3. Return Loss : ≦ -7dB
  4. Peak Gain : 1.27dBi/1.94dBi

- **Physical Properties :**

  1. Material : FPC T=0.2mm
  2. Operation temperature : -20℃~+65℃
  3. Storage temperature : -30℃~ +75℃

REV	ECN NO.	DRAWING	DESCRIPTION	APPROVED	DATE
A		Julice	初版發行	Jase	2015/05/28



ELECTRICAL:
- Frequency: 824MHz~960MHz /1710MHz~1990MHz
- Impedance: 50Ω
- Peak Gain: 1.27dBi/1.94dBi
- Return Loss: ≤−7dB

MECHANICAL:
- Material: FPC T=0.2mm
- Adhesive: 3M468
- Operating Temp: −20°C~+65°C
- Storage Temp: −30°C~+75°C

NOTE:
1. 1 ~ 3 爲重點尺寸量測
2. 雙面膠貼合偏差±0.5mm

TOLERANCE UNLESS OTHERWISE SPECIFIED			
DIMENSION		ANGLES	
.X±	0.2	X.°±	0.5
.XX±	0.15		
.XXX±	0.05		

TSKY CO., LTD.

CONFIDENTIAL	FINISH:		
	SIZE: A4	UNIT: mm	SCALE: 1 :1
DRAWING	DESIGNED	CONCURRED	APPROVED
Julice			Jase

INITIAL MODEL:

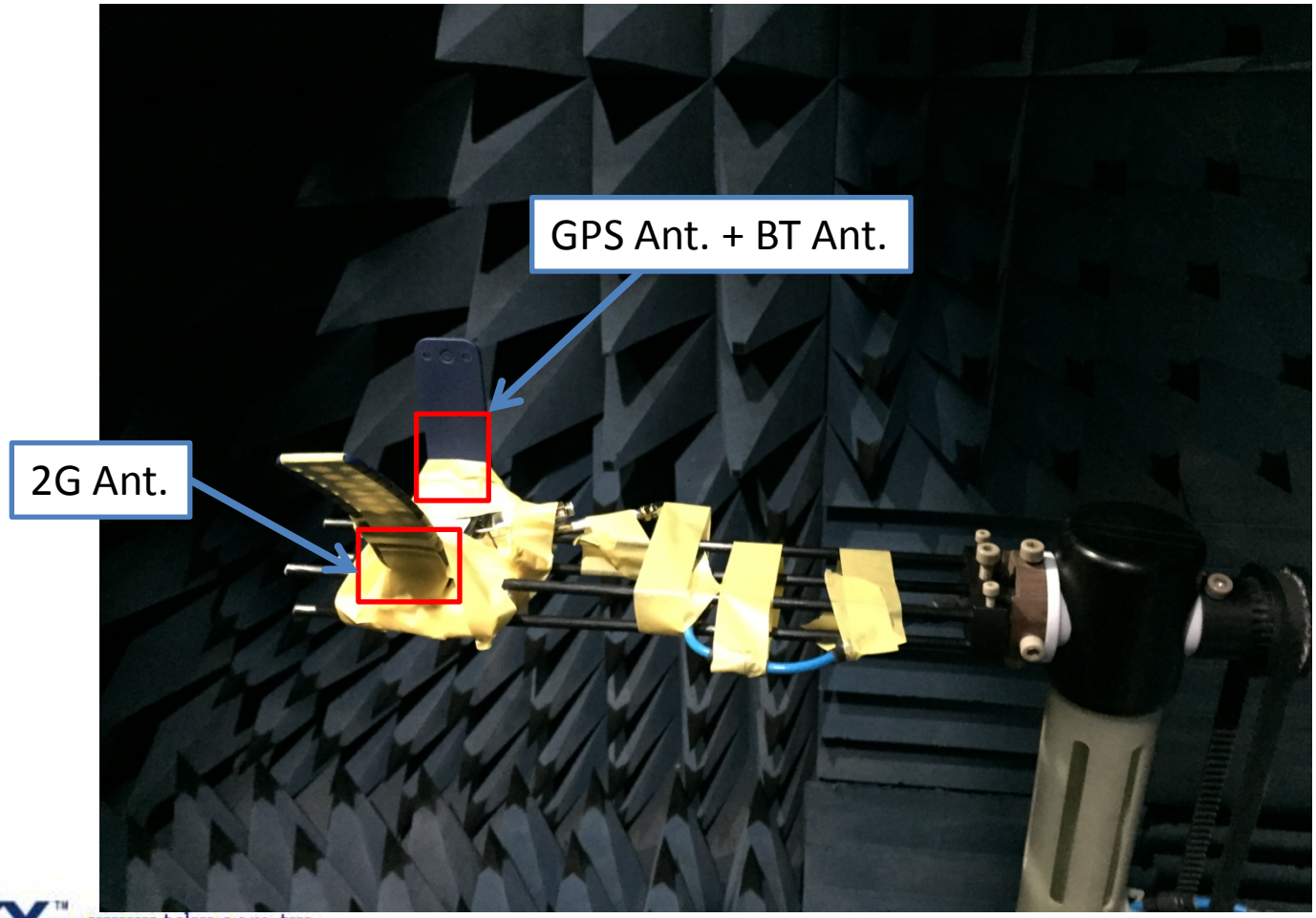
PART NAME: FPC 824MHz~960MHz/1710MHz~1990MHz 1.27dBi/1.94 dBi 31.87mm*24.4mm 0.2T

PART NO.	REV.	SHT.
A8-A006-00247	A	1/1

Bracelet Antenna Test Report

2015/05/22

Bracelet Antenna Set



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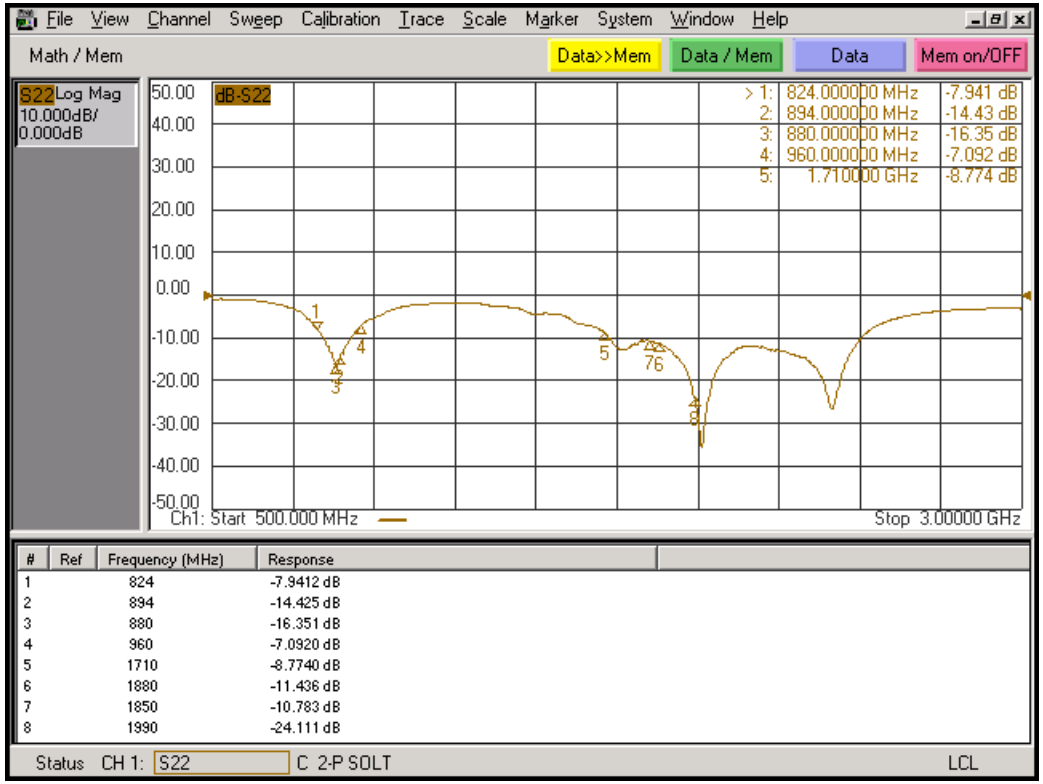
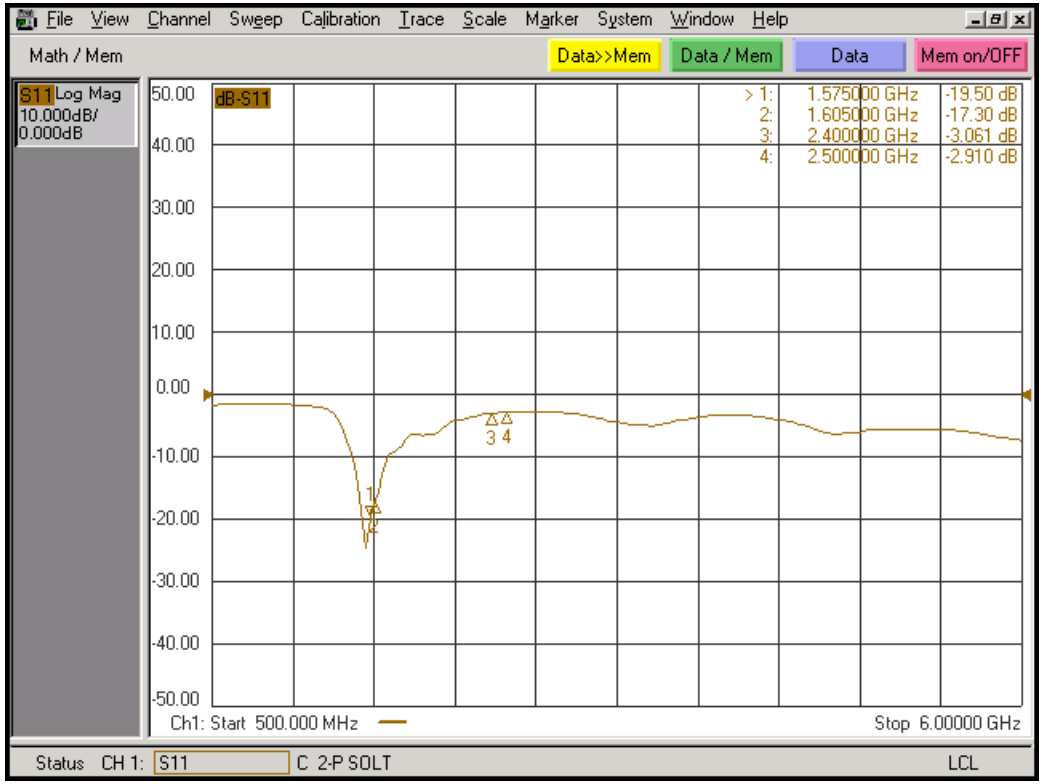
2G Antenna Return loss

- **2G LB: 824M~960M** , RL < -7.1dB
- **2G MB: 1710M~1990M**, RL < -8.7dB



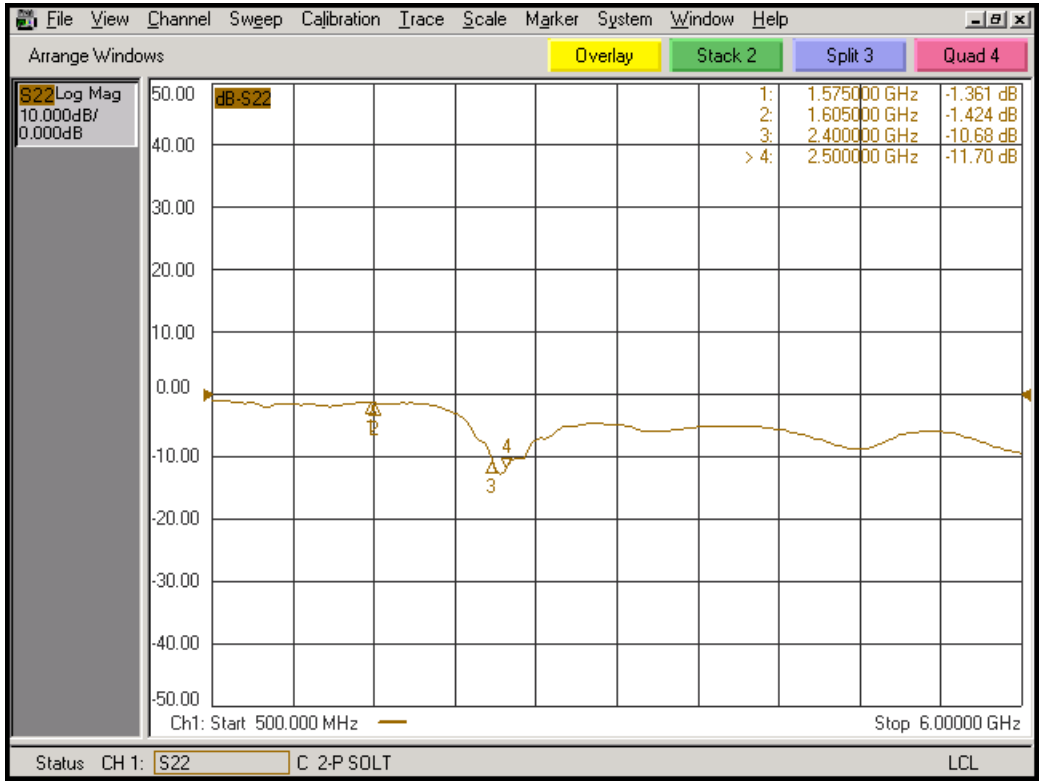
GPS Antenna Return loss

- **GPS + Glonass:** RL < -17dB



Bluetooth Antenna Return loss

- **Bluetooth:** RL < -10 dB



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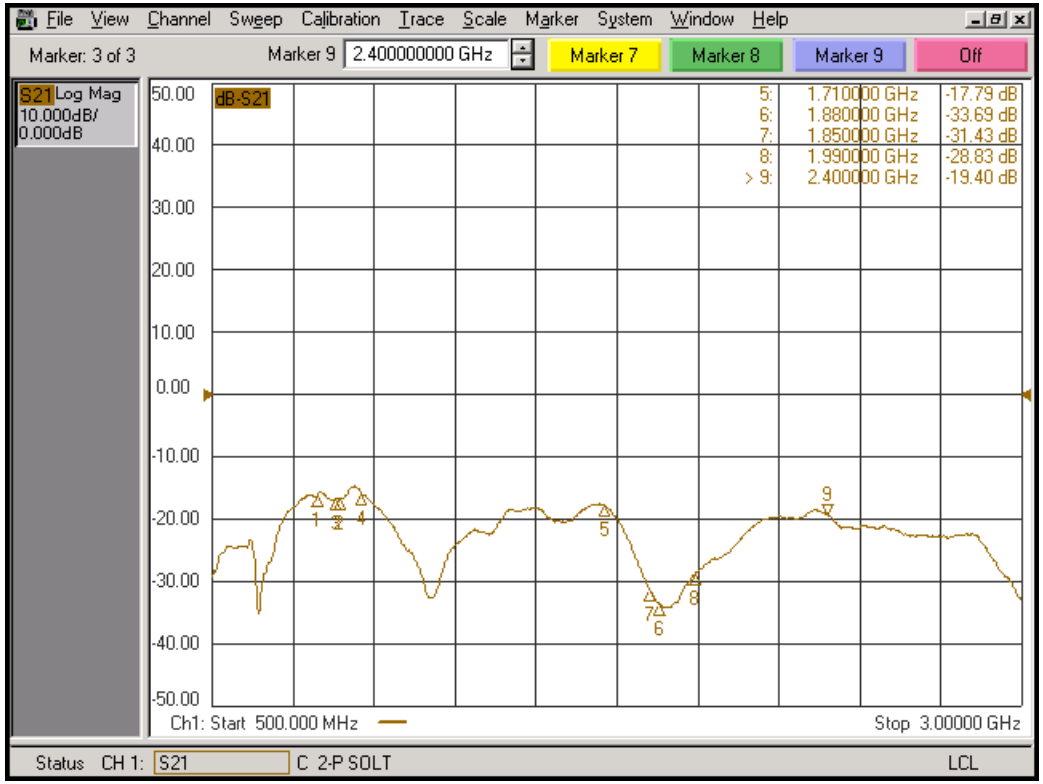
Bluetooth & 2G Antenna Isolation

- **BT & 2G:** IL < -17dB



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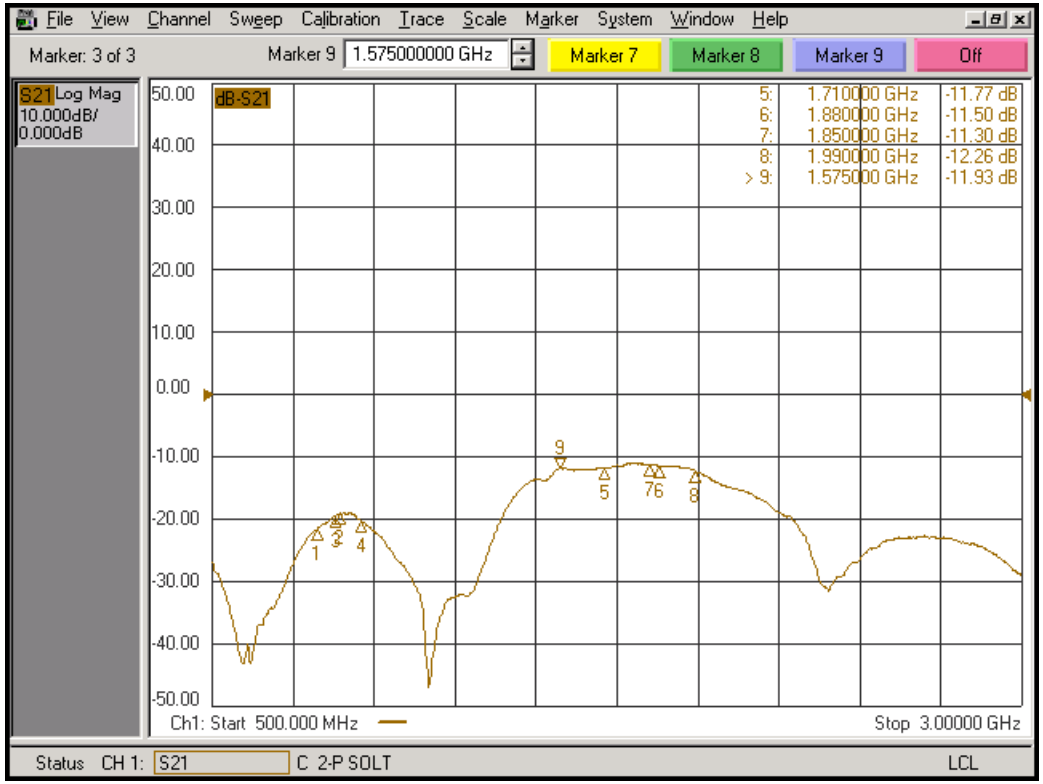
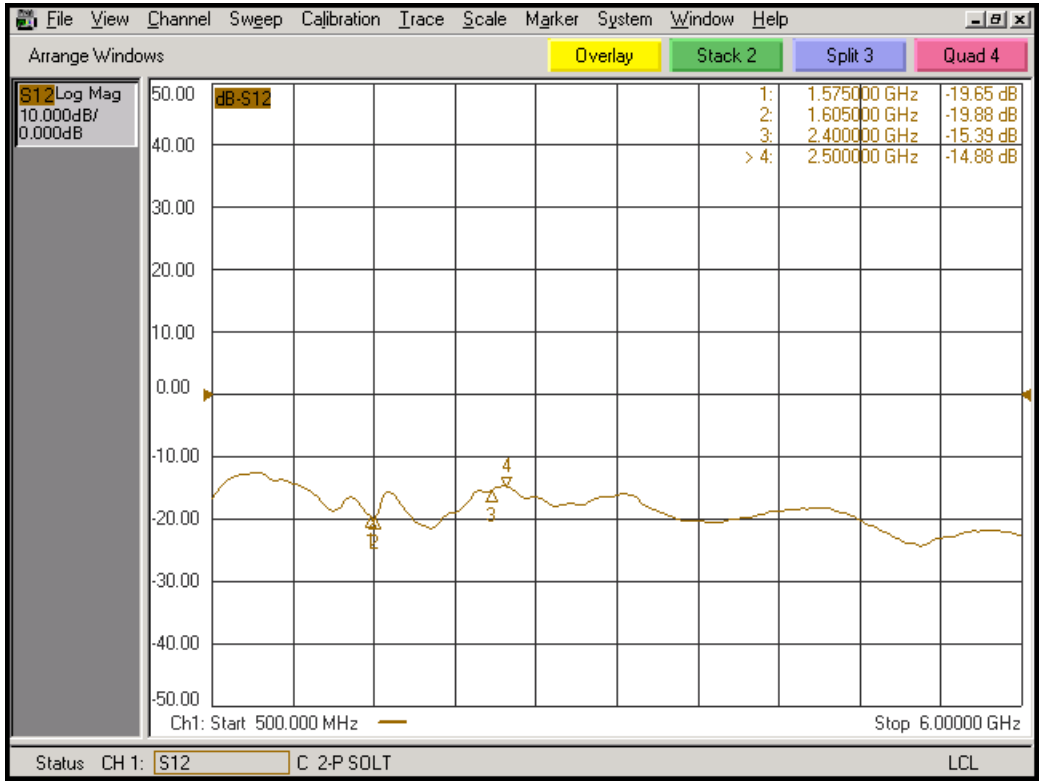
GPS & 2G Antenna Isolation

- **GPS & 2G:** IL < -11.5dB



GPS & BT Antenna Isolation

- **GPS & BT:** IL < -14.8dB



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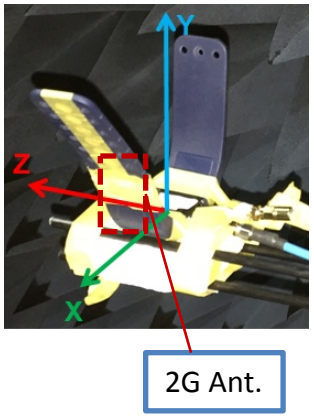
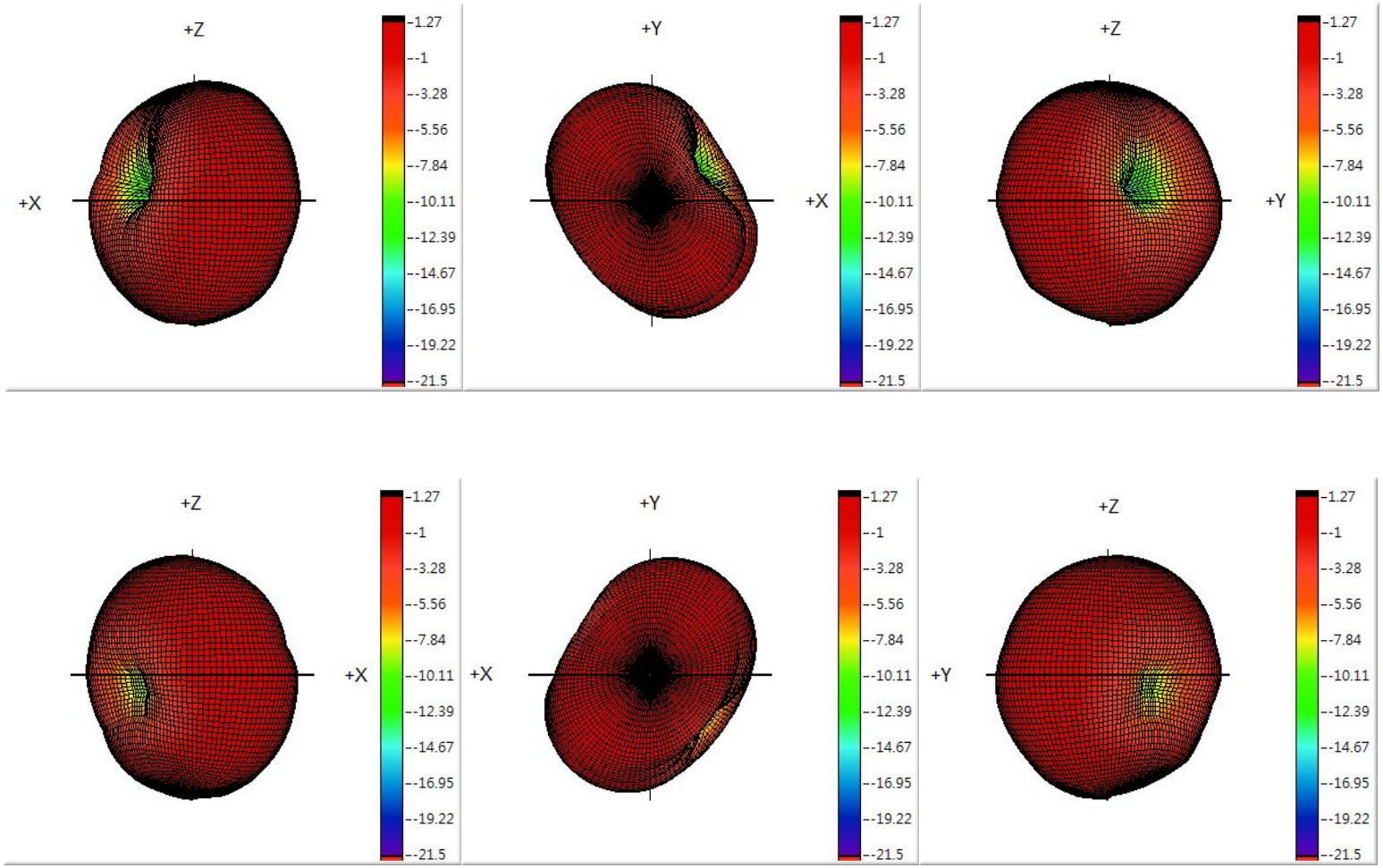
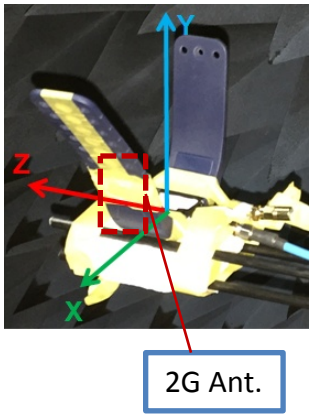
2G Ant. 3D Gain Pattern @824MHz

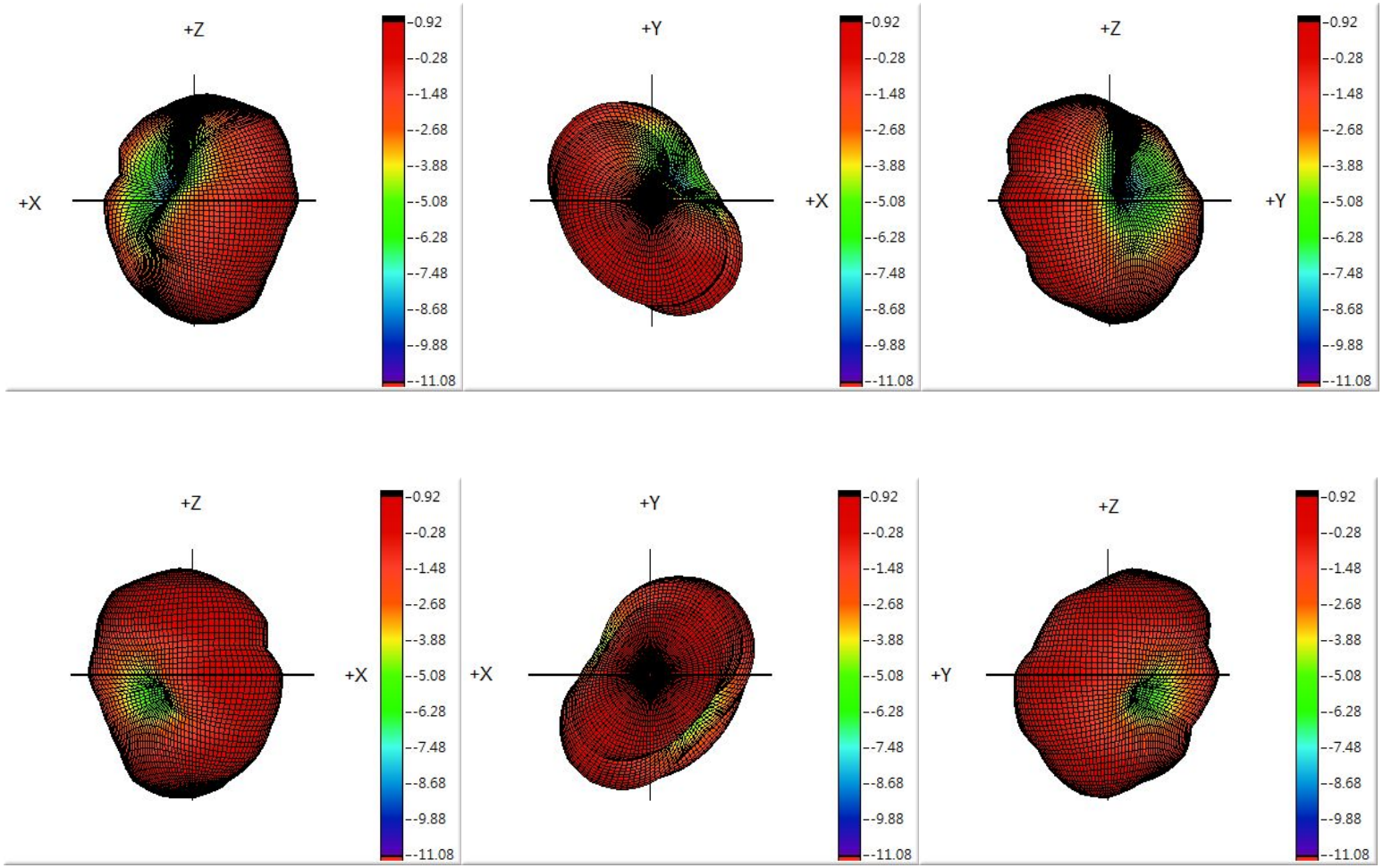




Frequency	824M
Efficiency Total (dB)	-1.02
Gain Total (dBi)	1.27

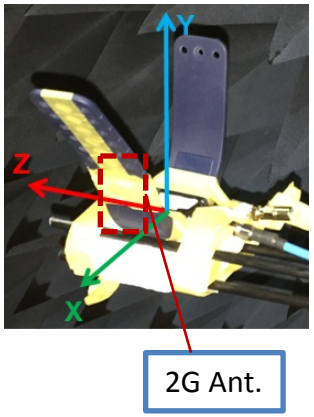
2G Ant. 3D Gain Pattern @880MHz

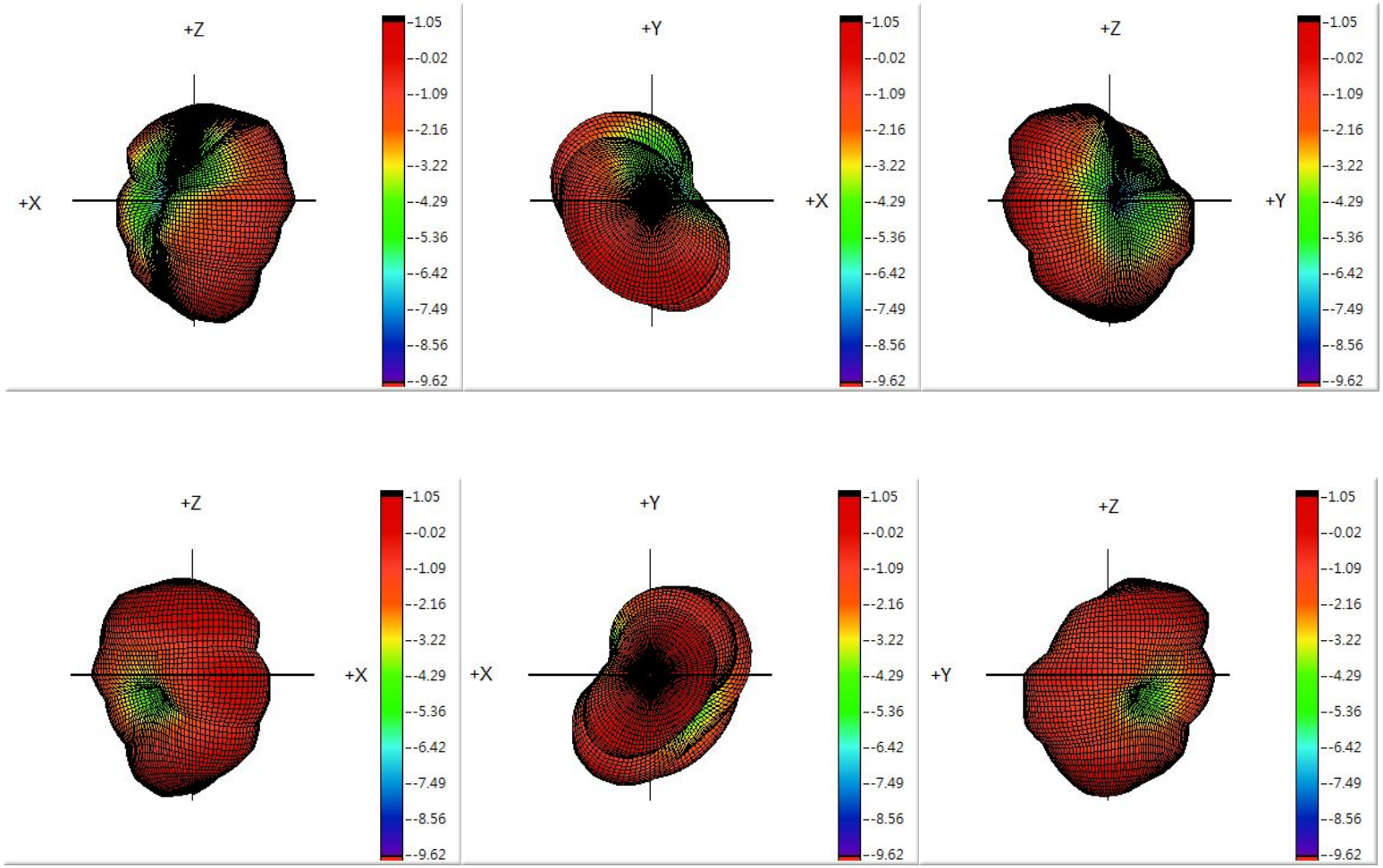




Frequency	880M
Efficiency Total (dB)	0.92
Gain Total (dBi)	-1.33

2G Ant. 3D Gain Pattern @894MHz





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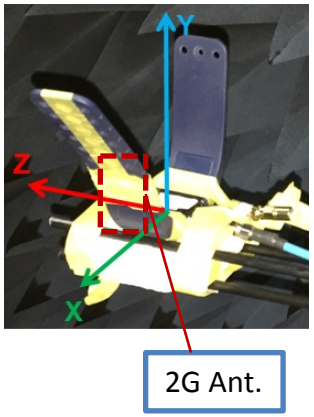
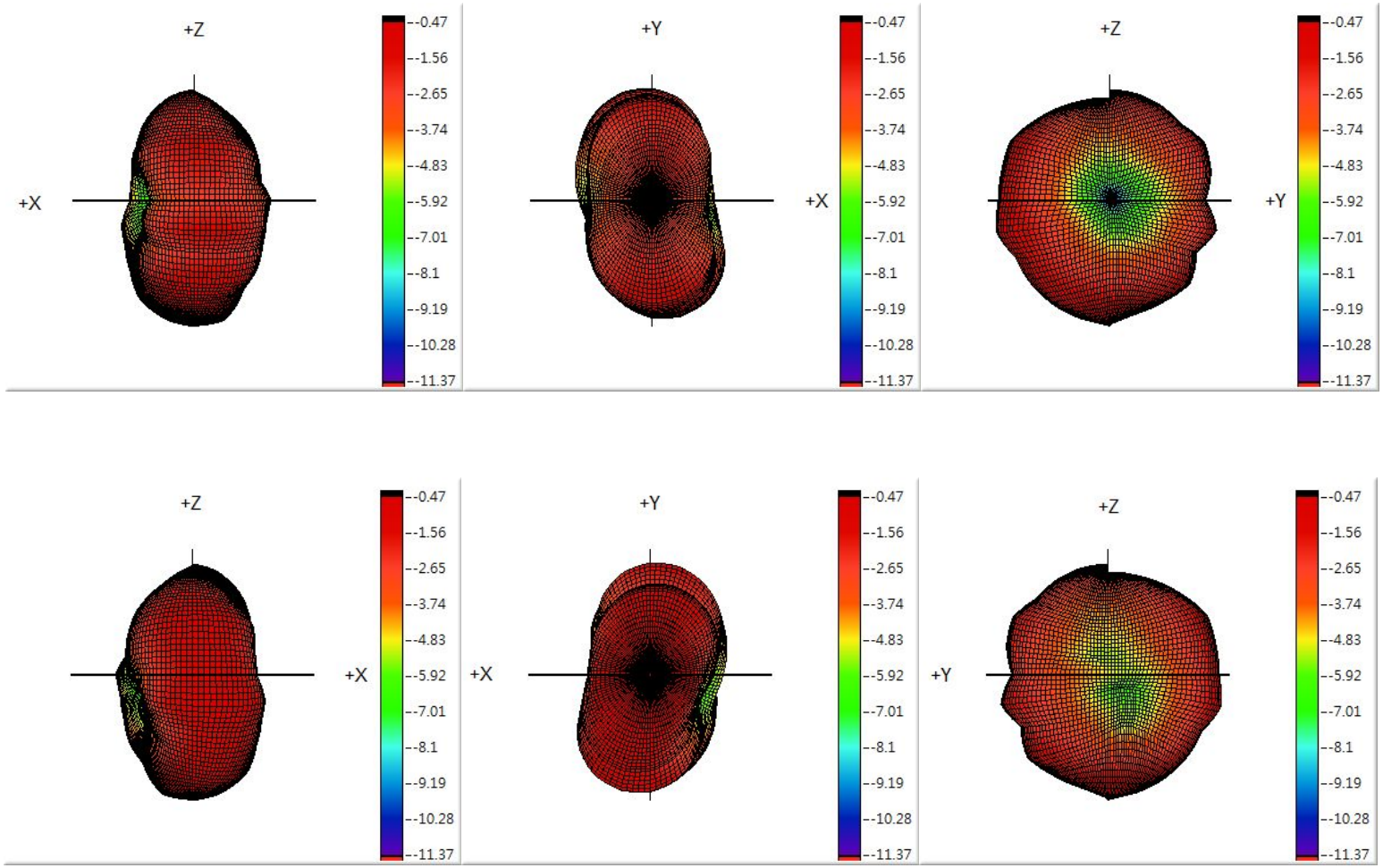
Frequency	894M
Efficiency Total (dB)	1.05
Gain Total (dBi)	-1.54

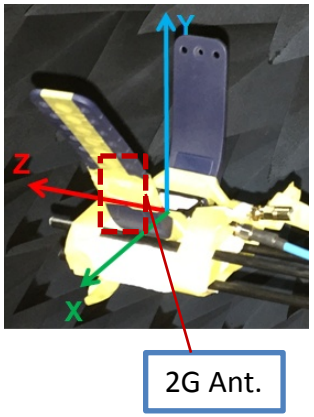
2G Ant. 3D Gain Pattern @960MHz

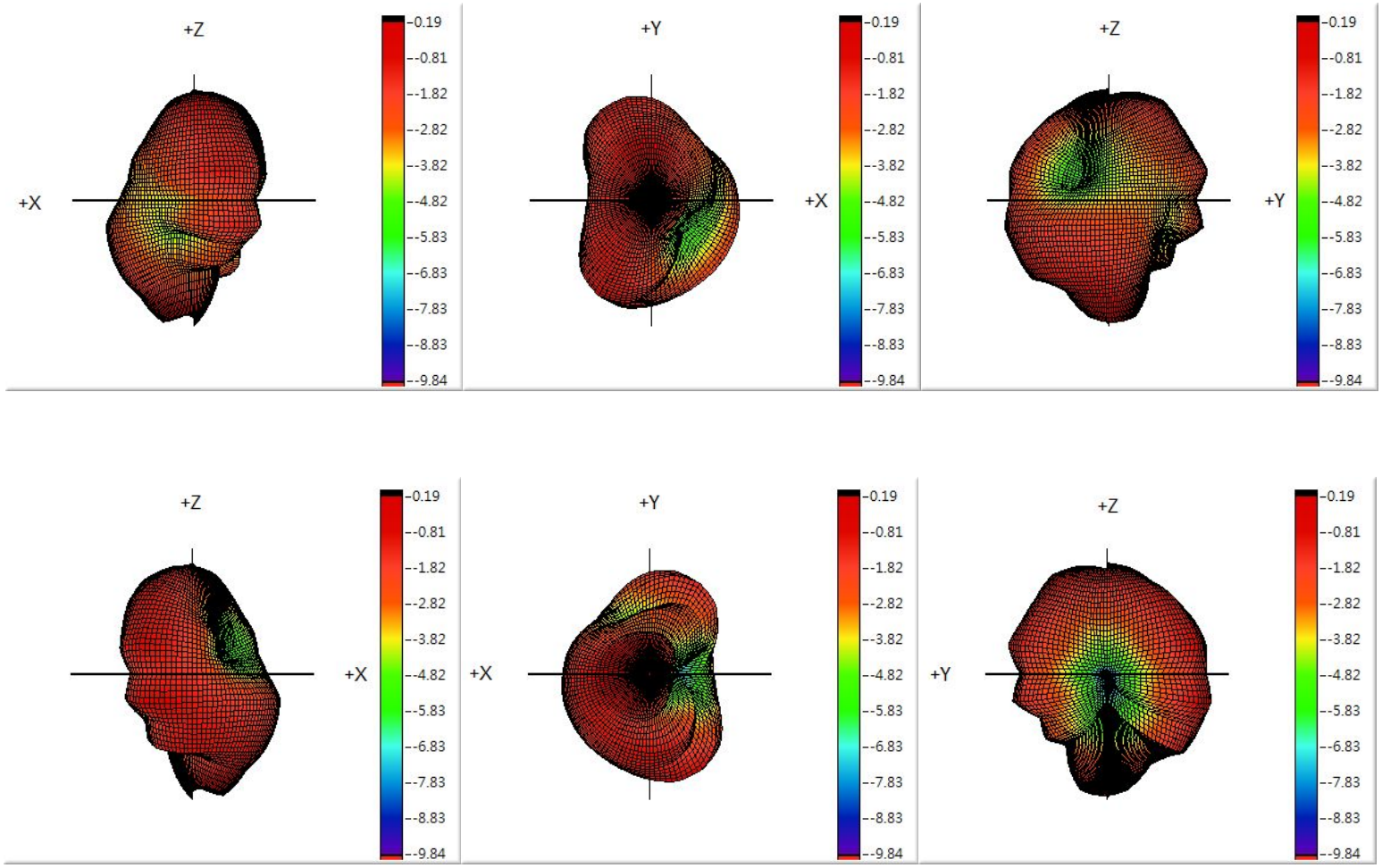




Frequency	960M
Efficiency Total (dB)	-0.47
Gain Total (dBi)	-2.49

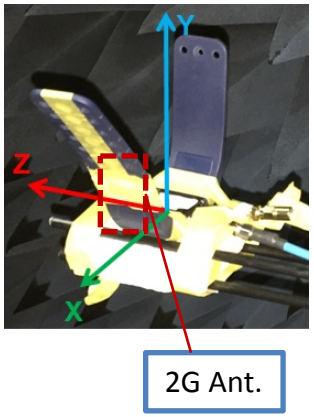
2G Ant. 3D Gain Pattern @1710MHz

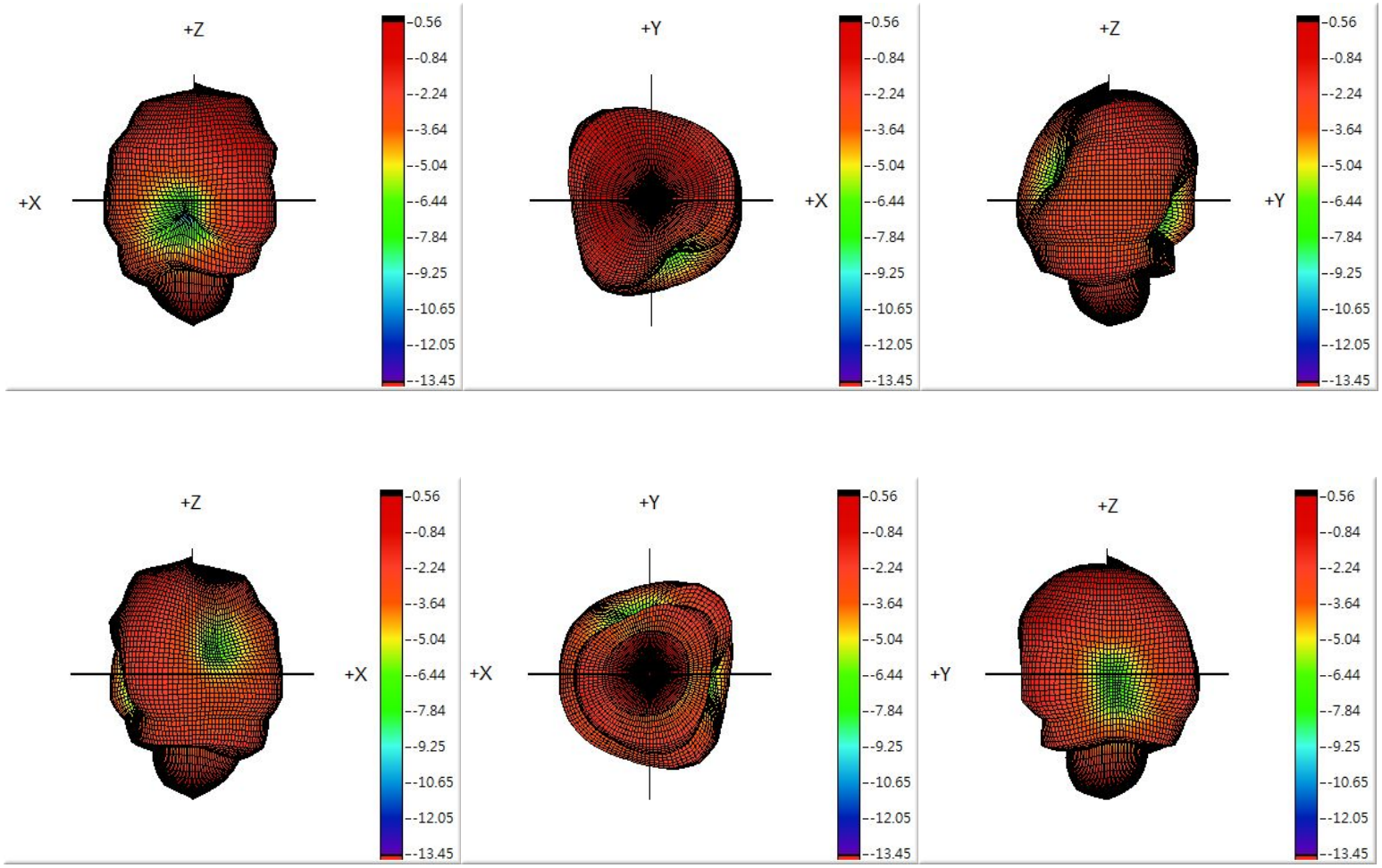




Frequency	1.71G
Efficiency Total (dB)	0.19
Gain Total (dBi)	-2.20

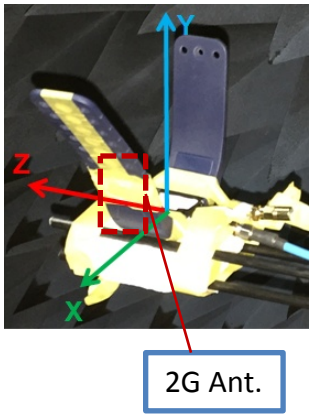
2G Ant. 3D Gain Pattern @1850MHz

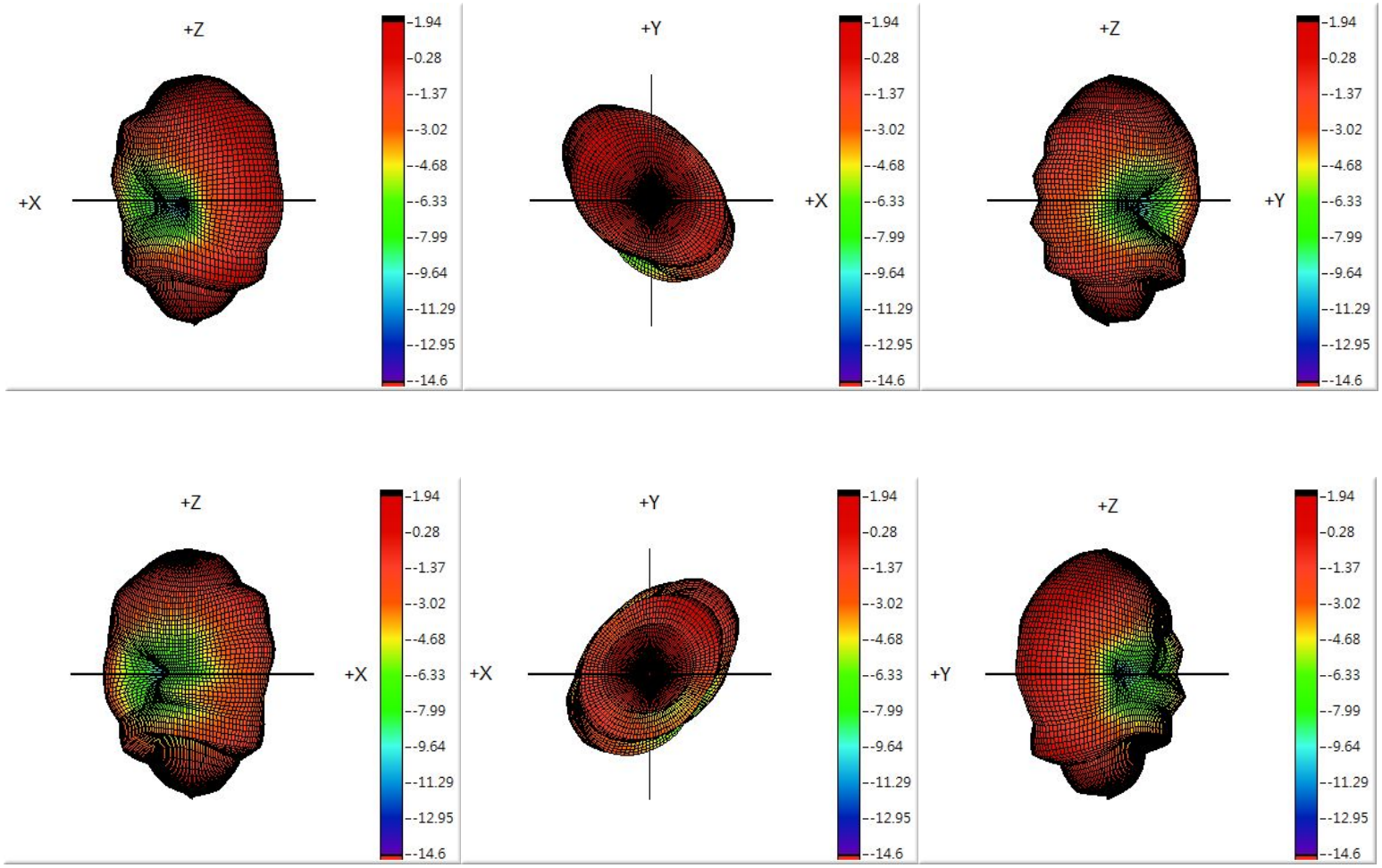




Frequency	1.85G
Efficiency Total (dB)	0.56
Gain Total (dBi)	-2.42

2G Ant. 3D Gain Pattern @1990MHz





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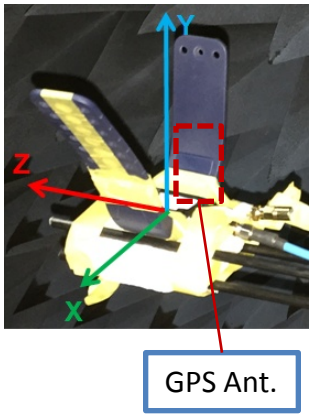
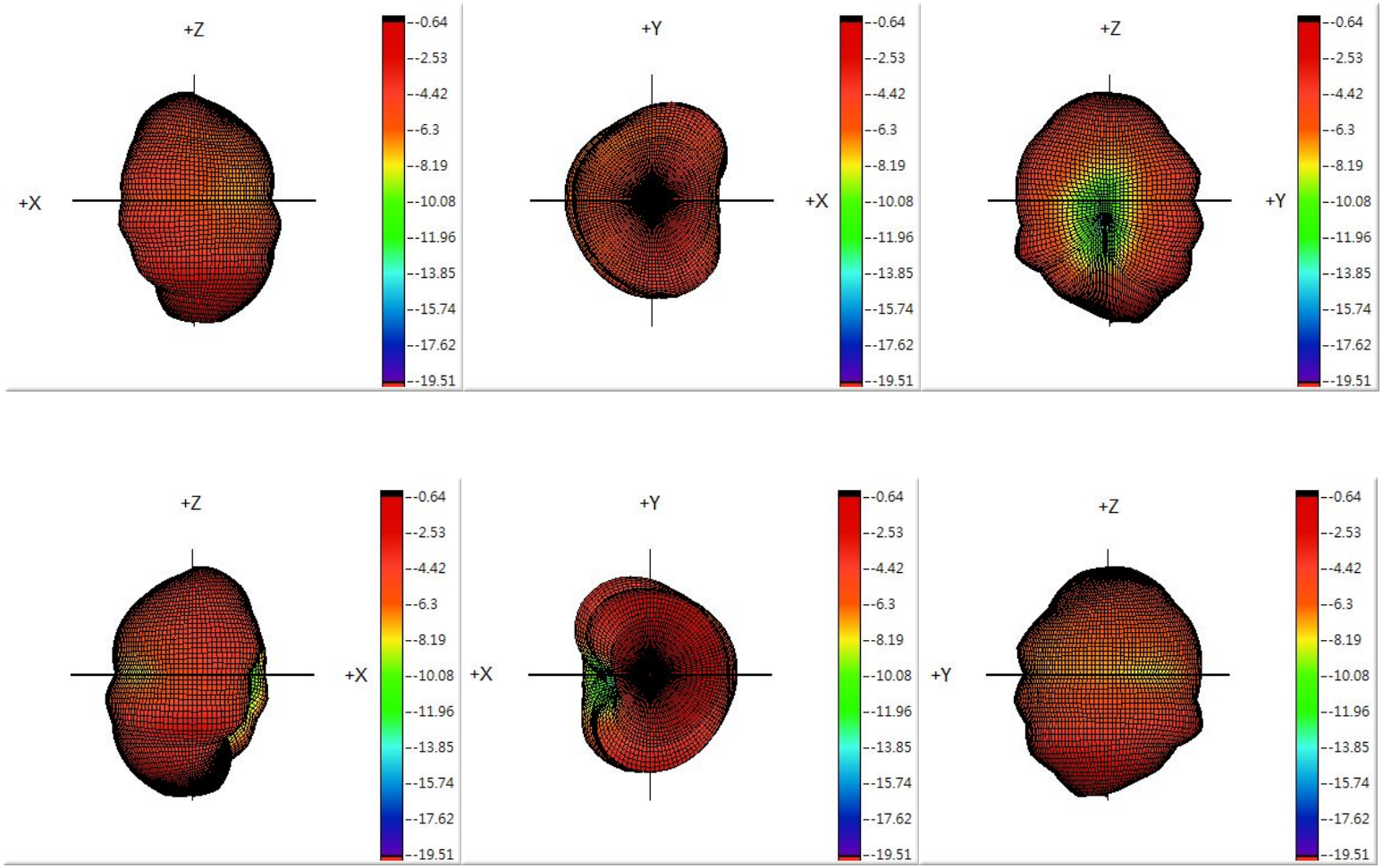
Frequency	1.99G
Efficiency Total (dB)	1.94
Gain Total (dBi)	-2.00

GPS Ant. 3D Gain Pattern @1575MHz





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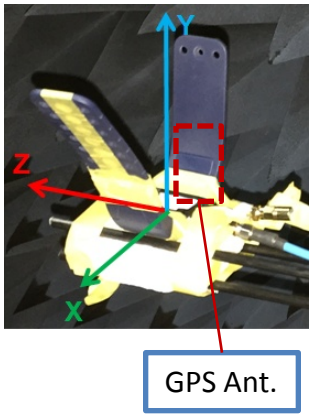
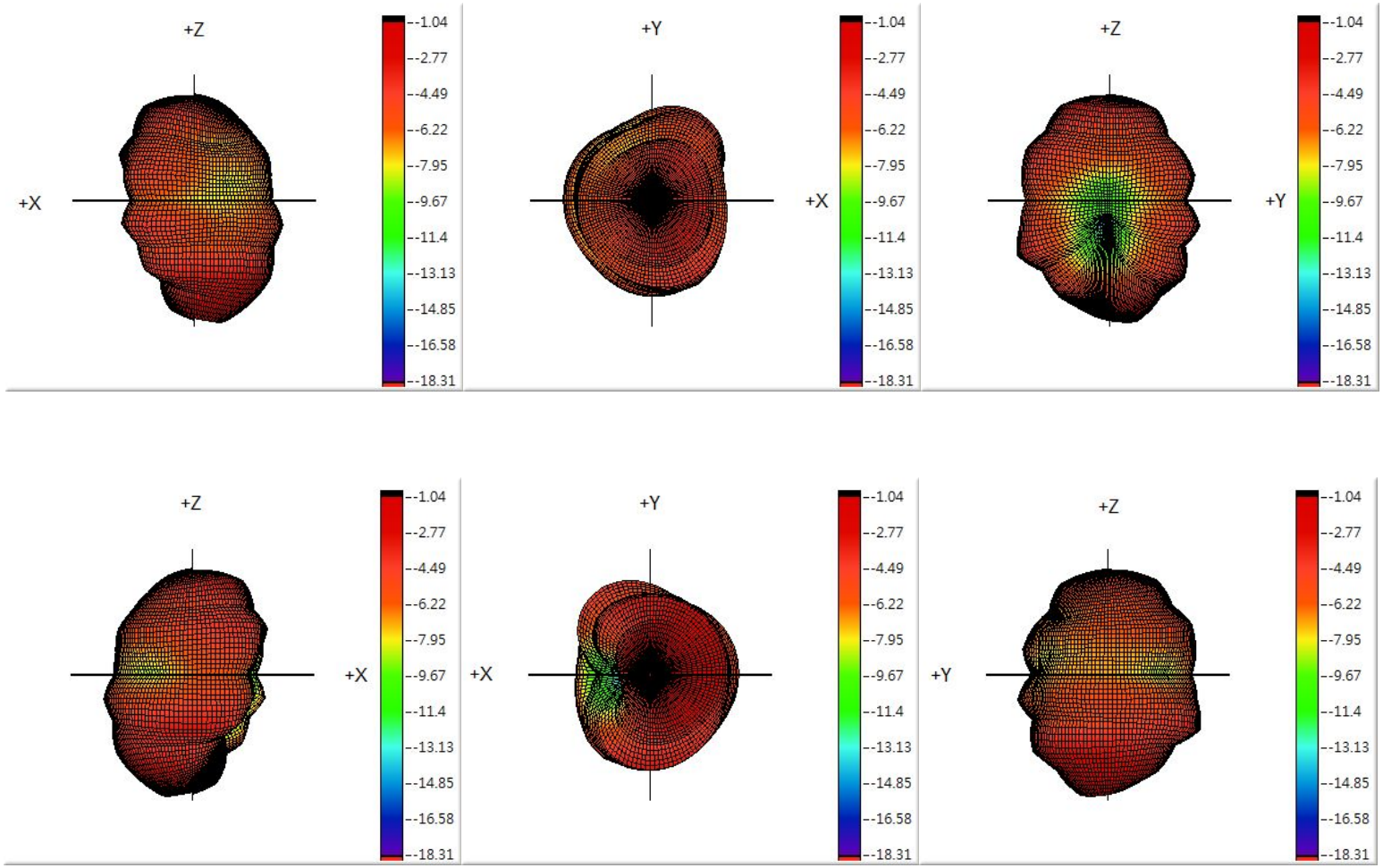
Frequency	1.575G
Efficiency Total (dB)	-0.64
Gain Total (dBi)	-4.71

GPS Ant. 3D Gain Pattern @1605MHz





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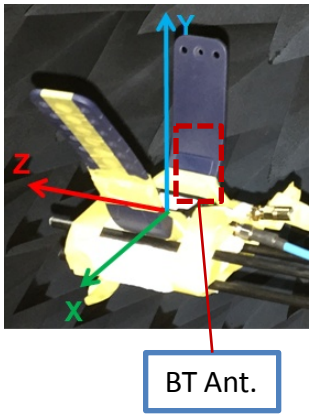
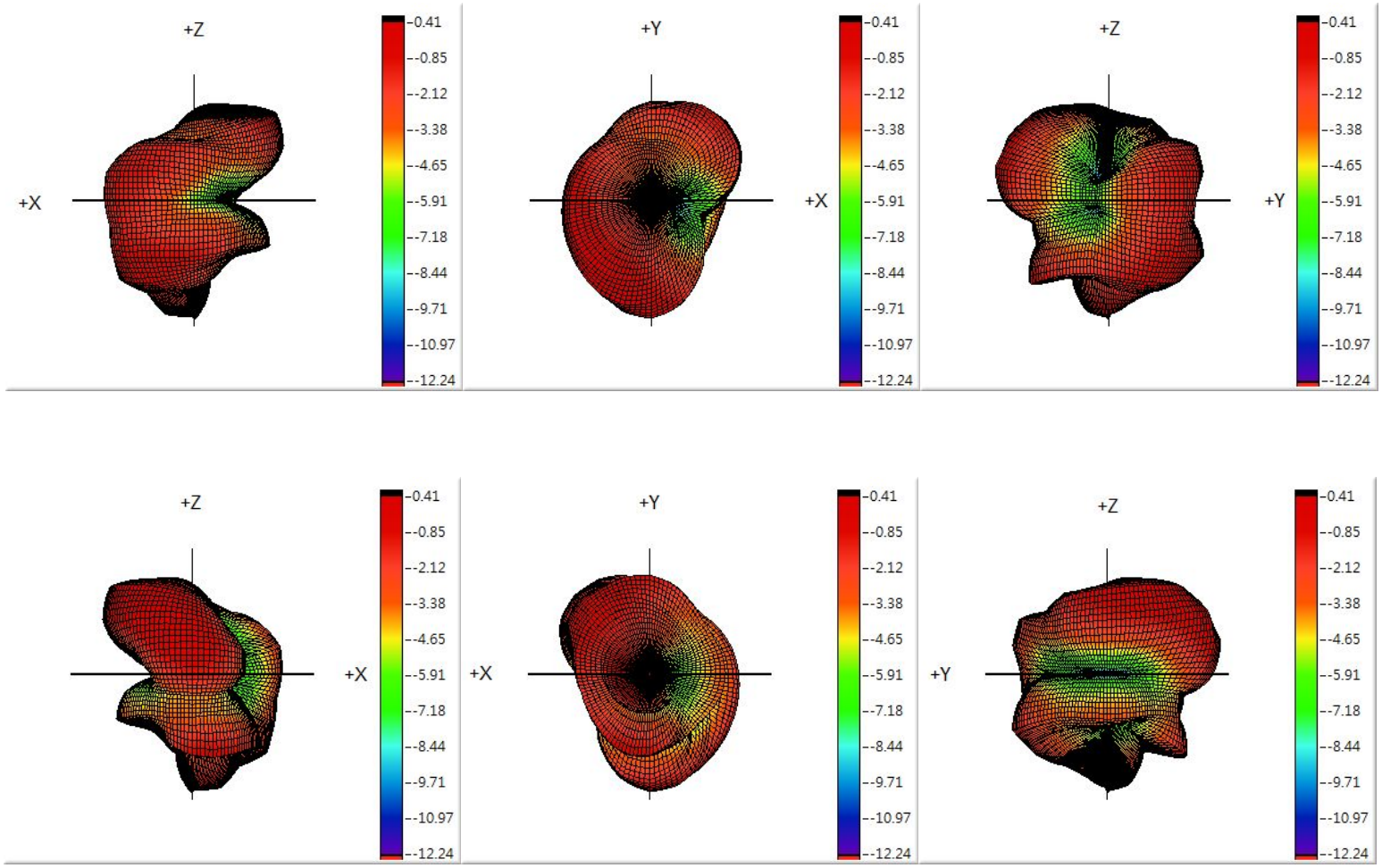
Frequency	1.605G
Efficiency Total (dB)	-1.04
Gain Total (dBi)	-5.03

Bluetooth Ant. 3D Gain Pattern @2450MHz





Frequency	2.45G
Efficiency Total (dB)	0.41
Gain Total (dBi)	-2.62

2G Antenna Gain & Efficiency

Frequency	824M	880M	894M	960M	1.71G	1.85G	1.88G	1.99G
Efficiency Total (dB)	-1.02	-1.33	-1.54	-2.49	-2.20	-2.42	-2.09	-2.00
Efficiency Total (%)	79.10	73.62	70.15	56.36	60.26	57.28	61.80	63.10
Gain Total (dBi)	1.27	0.92	1.05	-0.47	0.19	0.56	1.39	1.94

GPS + Glonass Antenna Gain & Efficiency

Frequency	1.565G	1.575G	1.585G	1.595G	1.605G	1.615G
Efficiency Total (dB)	-4.38	-4.71	-4.91	-5.01	-5.03	-5.22
Efficiency Total (%)	36.48	33.81	32.28	31.55	31.41	30.06
Gain Total (dBi)	-0.42	-0.64	-0.78	-0.96	-1.04	-1.38

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Bluetooth Antenna Gain & Efficiency

Frequency	2.4G	2.45G	2.5G
Efficiency Total (dB)	-2.81	-2.62	-2.64
Efficiency Total (%)	52.36	54.70	54.45
Gain Total (dBi)	0.51	0.41	0.21

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Bracelet GPRS TRP

Mobile Station OTA Radiated Power Information

Date: 2015/05/22
Operator: Linda
Project number: Bracelet
Test Condition: Free space

	GSM 850			EGSM			DCS			PCS		
Channel	128	190	251	975	38	124	512	700	885	512	661	810
Freqyency (MHz)	824.2	836.6	848.8	880.2	897.6	914.8	1710.2	1747.8	1784.8	1850.2	1880	1909.8
TRP (dBm)	28.61	28.75	29.01	28.98	29.47	29.09	26.32	26.32	27.11	28.06	28.07	27.86

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Bracelet Antenna Test Conclusion

- We've fine-tuned FPC antennas to achieve very good antenna performances.

- 2G antenna
  - 2G low band: 824M~960M, Eff = 56%~79%, Return loss < -7.1dB
  - 2G high band: 1710M~1990M, Eff = 57%~63%, Return loss < -8.7dB

- GPS and Glonass antenna
  - GPS: 1575M~1605M, Eff = 31%~33%
  - Return loss < -17dB

- BT antenna
  - BT: 2400M~2500M, Eff = 52%~55%,
  - Return loss < -10dB

零件本體說明

产品料号	A8-A006-00247	客户料号	Q5001G00134A
版本号	A	版本号	A
检测结果	■符合　　□不符合，《产品环境物质管理，限，禁用物质管理标准》、**ROHS**指令及相关的法律法规要求。		

产品组成及其相关信息

序号	部件名称	材质编号	供应商	检测报告	SGS Report			检测结果
				有/无	报告编号	出报告日期即生效日期	报告　截止日期	
1	铜箔基材	GHD101318BJB-1	金鼎	有	TSNEC1500252301	2015.3.13	2016.3.12	OK
3	文字油墨	NS-411/W	新韩	有	SHAEC1415074402	2014.8.12	2015.8.11	OK
4	胶纸	3M468	顺邦	有	SHAEC1423355509A01	2014.12.26	2015.12.26	OK
5	镀镍	Ni Plating	汇湖	有	ECL01H010211001C	2015.3.12	2016.3.11	OK
6	镀金	AU Plating	汇湖	有	ECL01H010211002C	2015.3.12	2016.3.11	OK
7	保护膜	FD12/15B	深泰虹	有	CANEC1408653601	2014.6.12	2015.6.11	OK

生产工艺：

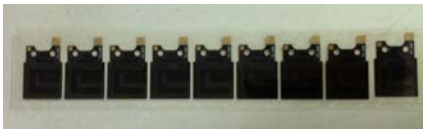
备注：

零件包装说明报告　　日期：15/5/28

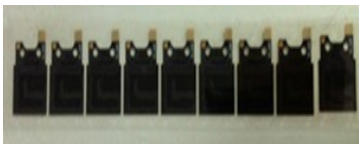
客户料号	Q5001G00134A	制造商	天凯科技
内部料号	A8-A006-00247	装箱数	10000CS
产品名称	FPC	外箱尺寸	L： 250 W：150 H： 55 mm
捆包数量	1000 PCS *1 ◆PE袋 □捲（捆） □盒 □层 □其		
防潮&缓行	□干燥剂 □真空包 □气泡袋 □泡棉 □纸材 ◆其		

内外包装标示

每9PCS为一条

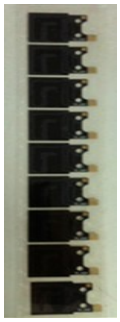


每1000PCS为一包



包装方式示意图

10包为一箱（10000PCS一箱）



Test Report

SHANDONG GOLDING ELECTRONIC MATERIAL CO., LTD

GANG CHENG HI-TECH DEVELOPMENT ZONE,LAIWU CITY IN SHANDONG
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : FLEXIBLE COPPER CLAD LAMINATE

SGS Job No. :	TP15-001105 - TJ
Model No. :	GHD
Client Ref. Info. :	OTHER MODEL NO.:GHS
Date of Sample Received :	10 Mar 2015
Testing Period :	10 Mar 2015 - 13 Mar 2015
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Tianjin) Co., Ltd.

Reabeca Zhou
Approved Signatory

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SGS Mansion, No.41, The 5th Avenue TEDA, Tianjin, China 300457 t (86-22) 65288000 f (86-22) 25295252 www.sgsgroup.com.cn
中国·天津市经济技术开发区第五大街41号SGS大厦 邮编: 300457 t (86-22) 65288000 f (86-22) 25295252 e sgs.china@sgs.com

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TSN15-002523.001	coppery metal sheet

Remarks :

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2011/65/EU

Test Method : (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
(2) With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
(3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
(4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.
(5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	-	-	◇	Negative
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

通标标准技术服务（天津）有限公司 SGS 检测专用章 Testing Service SGS-CSTC Standards Technical Services (Tianjin) Co.,Ltd. Chemical Laboratory

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Test Item(s)	Limit	Unit	MDL	*001*
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

(1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II.

(2) ◇Spot-test:

Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)

◇Boiling-water-extraction:

Negative = Absence of CrVI coating

Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Halogen

Test Method : With reference to EN 14582: 2007, analysis was performed by Ion Chromatograph (IC).

Test Item(s)	Unit	MDL	*001*
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	87
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

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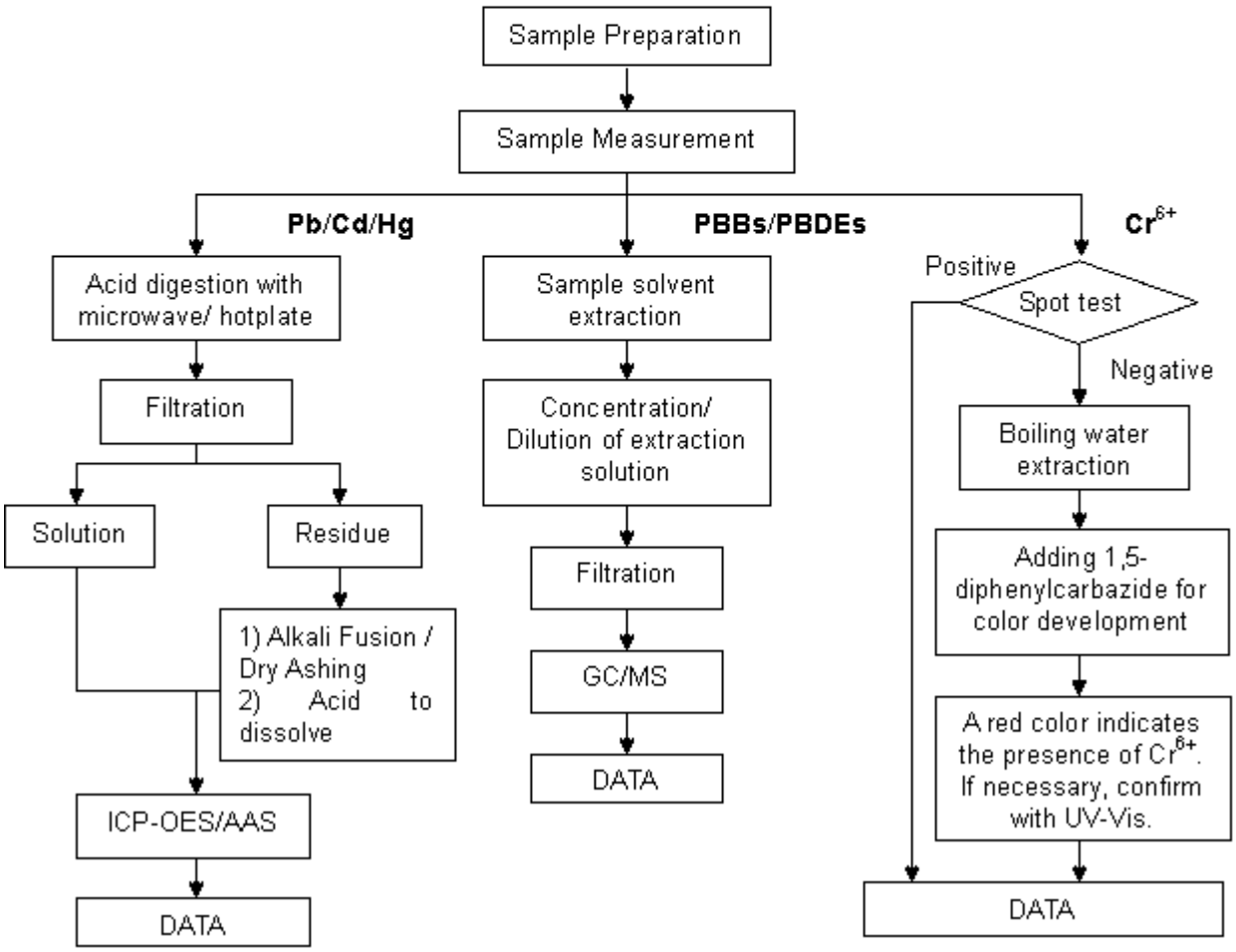
ATTACHMENTS

Cd/Pb/Hg/Cr^{6+}/PBBs&PBDEs Testing Flow Chart

1) Name of the person who made testing: Teresa Wei/Ivy Hou/Carry Yao
2) Name of the person in charge of testing: Aaron Wang/Angell Yao/Rex Zhu
3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded)



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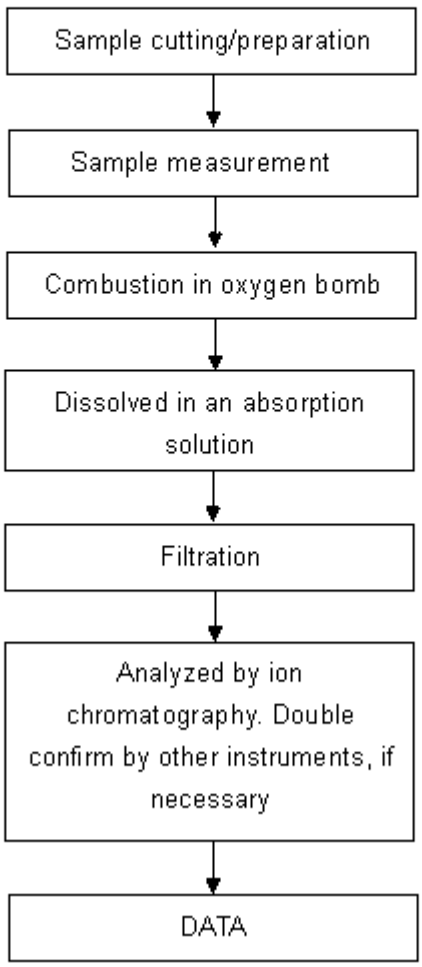
ATTACHMENTS

Halogen Testing Flow Chart

1) Name of the person who made testing: Wang Jin

2) Name of the person in charge of testing: Rex Zhu



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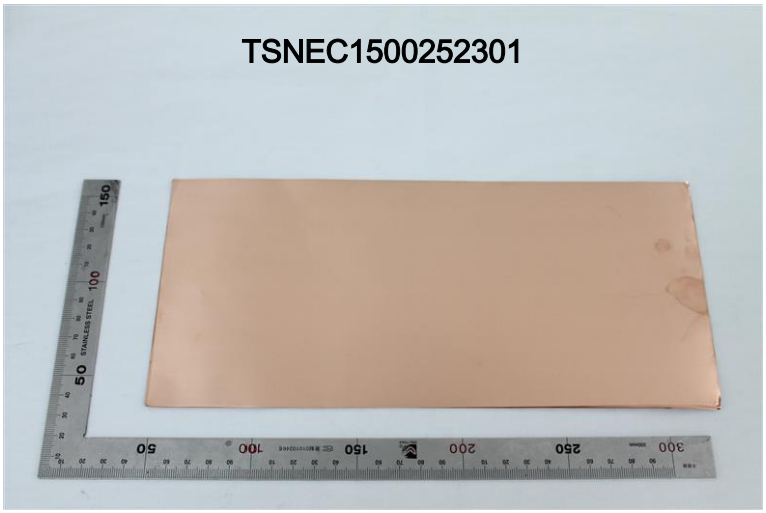
Sample photo:



TSN15-002523.001

SGS authenticate the photo on original report only

*** End of Report ***

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MATERIAL SAFETY DATA SHEET
物质安全资料表

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION 产品和公司资料

PRODUCT NAME: Flame-resistant type polyimide film based flexible copper clad laminates
产品名称：阻燃型聚酰亚胺薄膜挠性覆铜板
PRODUCT USE: Flexible printed circuit Boards.
用途：用于挠性印制电路板。
NAME of COMPANY and ADDRESS: LAIWU GOLDING ELECTRONIC MATERIAL CO.,LTD.
Hi tech Industrial Park,Gang Cheng District,
Laiwu City,Shandong Province,P.P.China
公司名称及地址：莱芜金鼎电子材料有限公司;
中国山东莱芜市钢城区钢城高新技术工业园

FOR MORE INFORMATION CALL:
紧急联络电话：(Monday-Friday, 8:00am-5:00pm)
(0634)6831876 **（莱芜）**

IN CASE OF EMERGENCY CALL:
(24 Hours/Day, 7 Days/Week)
(0634)6831876 **（莱芜）**

2. COMPOSITION/INFORMATION ON INGREDIENTS 组成成份资料

INGREDIENT NAME 成分名称	CAS # 化学文摘号	WEIGHT % 重量比
Polyimide film 聚酰亚胺薄膜	(25038-81-7)	9-25
Copper foil 铜箔	(7440-50-8)	68-83
Adhesive of epoxy resin 环氧树脂胶粘剂	Not applicable 不适用	6-10

3. HAZARDS IDENTIFICATION 危害性资料

EMERGENCY OVERVIEW:
紧急情况概述：
A nonflammable, sheet material. Dust, when machined or punched may cause skin or eye irritation. Fumes, if decomposed may irritate eyes, nose, and throat.
是一种难燃的层压板。当使用或打孔时可能产生粉末，可能使皮肤或眼睛感到刺激。当分解时产生的气体会刺激眼睛、鼻和咽喉。
POTENTIAL HEALTH HAZARDS:
潜在的危害健康的危险品：
SKIN: Dust may cause moderate skin irritation.
皮肤：粉末可能导致中等程度皮肤过敏。
EYES: Dust may cause moderate eye irritation. Fumes may irritate eyes.
眼睛：粉末可能导致中等程度眼睛过敏。
INHALATION: Trace of chemical solvents may be vapourized and diffused to air in the processes of varnish preparation and coating production.
吸入物：在涂覆生产过程时，会有很少量化学溶剂挥发出来。
INGESTION: Not determined.
摄食：没有参考值。

4. FIRST AID MEASURES 首要援助措施

SKIN: Wash in flowing water or shower. Remove contaminated clothing.
皮肤：脱下已污染衣服，用流动水冲洗。
EYE: Irrigate with flowing water for 15 minutes. If irritation persists, consult a physician.
眼睛：用流动水冲洗15分钟，如过敏现象持续发生，请求助于医生。

INHALATION: If overcome by dust or smoke, move to fresh air. If not breathing, give mouth-to-mouth resuscitation. Call physician.
吸入：如粉末烟尘太多请转移到有新鲜空气的地方，如没有呼吸，请进行人工呼吸。并致电医生。
INGESTION: If large amounts are ingested, consult physician.
摄食：如吸入大量，请致电医生。
ADVICE TO PHYSICIAN: Treat symptomatically
建议医生：处理出现的症状。

5. FIRE FIGHTING MEASURES 火灾测试

FLAMMABLE PROPERTIES: N/A
易燃烧性：不适用
FLASH POINT: N/A
闪点：不适用
FLASH POINT METHOD: N/A
闪点方式：不适用
AUTOIGNITION TEMPERATURE: Not determined
自燃点温度：无规定
UPPER FLAME LIMIT (Volume % in air): N/A
燃烧上限：不适用
LOWER FLAME LIMIT (Volume % in air): N/A
燃烧下限：不适用
FLAME PROPAGATION RATE (Solids): UL94 V-0
燃烧等级：UL94 V-0
OSHA FLAMMABILITY CLASS: N/A
OSHA 燃烧级别：不适用
EXTINGUISHING MEDIA: Water, CO_2 and dry chemical
灭火介质：水、CO_2及干化学品
SPECIAL FIREFIGHTING PRECAUTIONS/INSTRUCTIONS:
特别火灾指导：
Firemen should wear proper protective equipment and positive pressure self-contained breathing apparatus.
消防员须身穿保护装置及正压呼吸设施。

6. ACCIDENTAL RELEASE MEASURES 意外事故的应变措施

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protection equipment)
如有泄漏或其他释放：(通常身穿所推荐的保护设施)
Not applicable, material is an article.
不适用于固体材料。
Spills and releases may have to be reported to local authorities.
有关泄漏应报告当地政府。

7. HANDLING AND STORAGE 仓贮指南

NORMAL HANDLING: (Always wear recommended personal protective equipment.)
规范指南：(建议穿戴个人防护设施)
The primary exposure route is inhalation of dust when machine/punched or from fumes or vapors when heated.
主要是预防暴露部位吸入当机器打孔时或冒烟、气化液体受热时所产生的粉尘。
STORAGE RECOMMENDATIONS: N/A
贮存建议：不适用。

8. EXPOSURE CONTROLS/PERSONAL PROTECTION 泄漏控制/个人保护

ENGINEERING CONTROLS: Use local exhaust ventilation to control dust.
工程控制：使用当地除尘通风设施。

PERSONAL PROTECTIVE EQUIPMENT:
个人保护措施：
SKIN PROTECTION: For brief contact to dust, no precautions other than clean body-covering clothing should needed. Use gloves and aprons when prolonged or frequently repeated contact occurs.
皮肤保护：对于短暂性的接触粉尘，需要时清洗身体或衣服，无预防措施。对于长期性的接触，要配带手套和围裙
EYE PROTECTION: Use appropriate eye protection when machining material.
眼睛保护：当加工材料时使用眼睛保护装置。
RESPIRATORY PROTECTION: When respiratory protection is required for certain operations, use a NIOSH-approved dust respirator.
呼吸保护：当进行产生大量粉尘的操作时使用规范的粉尘防毒面罩。
ADDITIONAL RECOMMENDATIONS: N/A
其它建议：不适用

9. PHYSICAL AND CHEMICAL PROPERTIES 物理化学性能

APPEARANCE: Yellow to amber sheets
外观：黄色
PHYSICAL STATE: Solid
物理形态：固体
ODOR: None, unless heated
气味：无味，除非加热
SPECIFIC GRAVITY: (Water = 1.0) 4.5 +/- 1.5
比重：（水=1.0）4.5+/-1.5
SOLUBILITY IN WATER: (Weight %) Negligible in water
水溶性：（重量%）在水中可忽略

10. STABILITY AND REACTIVITY 稳定性及反应性

NORMALLY STABLE: (conditions to avoid) Stable
通常稳定：稳定
INCOMPATIBILITIES: Not determined
不兼容性：不确定
HAZARDOUS DECOMPOSITION PRODUCTS: CO, CO2, Oxides of nitrogen if heated in excess of 300 deg. C. Laser drilling or cutting may result in copper metal fume.
危险的腐化产品：CO, CO2, NO_X **（当加热超过**300**℃），激光打孔或切割时会产生铜金属烟尘。**
HAZARDOUS POLYMERIZATION? None
危险聚合物 ：无

11. TOXICOLOGICAL INFORMATION 毒物学的资料

IMMEDIATE (ACUTE) EFFECTS: Dust may cause moderate eye, skin and respiratory irritation.
敏感反应：灰尘将导致眼、皮肤中度过敏。

12. ECOLOGICAL INFORMATION 生态学资料

Not Biodegradable
非生物降解。

13. DISPOSAL CONSIDERATIONS 处置问题

Is the unused product a hazardous waste substances list of country hazardous waste if discarded?
No
列入国家危险废物名录的危险废物不能够再利用时是否被丢弃？ 不

OTHER DISPOSAL CONSIDERATIONS: Disposal must be made in accordance with all applicable Local regulations. Copper should be recycled.

其它处置问题：处置必须遵循当地的法律法规。铜箔是可以再利用的。

Suggestion method after products will be discarded:

1. Separate reuse method: crush products into powder then separate the valued copper, recycling left plastic powder as a filler.
2. Incineration method: incinerate the unused products, this method may produce some organic compound gas.
3. Bury into deep earth.

产品报废之后有以下几种处置方法：

1. **分离法，将产品粉碎，将铜箔回收利用，剩余物可作填充料；**
2. **焚烧法，焚烧过程中可能产生有机化合物气体；**
3. **填埋法。**

14. TRANSPORT INFORMATION 运输资料

For additional information on shipping regulations affecting this material, contact the information number found on the first page.

附带资料是当运输规则影响到物料时，请和第一页所提供的联系方式联系。

15. REGULATORY INFORMATION 法规资料

HAZARDOUS WASTE SUBSTANCES LIST OF COUNTRY: 国家危险废物名录

The resin system components listed in the hazardous waste substances list of country (HW13).

环氧化合物类被列入国家危险废物名录当中（HW13）。

ADDITIONAL REGULATORY INFORMATION:

附加法规资料:

Laiwu Golding Electronic Matertial co.,LTD does not use polybromide-polybromide-biphenyloxides as a fire retardant in any of our epoxy resin systems.

莱芜金鼎电子材料有限公司没有采用多溴联苯或多溴联苯醚作为阻燃剂在产品的环氧树脂体系当中。

16. OTHER INFORMATION 其它资料

CURRENT ISSUE DATE: 12/4 /2010

现在版本日期：12/4/2010

PREVIOUS ISSUE DATE: 12/4/2010

首次版本日期：12/4/2010

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

变更MSDS基于以下原因：

Reviewed and re-issued for other relatively requirements.

重新修订是由于相关的要求所使。

测试报告

No. SHAEC1415074402　　日期: 2014年08月12日　第1页,共9页

浙江新东方油墨股份有限公司/新东方油墨有限公司

浙江桐乡市梧桐街道崇福大道2320号

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型号：	NS-411/W
客户参考信息：	NS-411/(502)/W/ W2/WM/GY +HD70(HF)
样品接收日期：	2014年08月07日
测试周期：	2014年08月07日 - 2014年08月12日
测试要求：	根据客户要求测试
测试方法：	请参见下一页
测试结果：	请参见下一页
结论：	基于所送样品进行的测试，镉、铅、汞、六价铬、多溴联苯(PBBs)、多溴二苯醚(PBDEs)的测试结果符合欧盟RoHS指令2002/95/EC的重订指令2011/65/EU附录II的限值要求.

通标标准技术服务有限公司

授权签名

Marry Ma马广媛

批准签署人

本报告是编号为SHAEC1415074401 报告的中文版本.

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测试结果 :

测试样品描述 :

样品编号	SGS样品ID	描述
SN1	SHA14-150744.001	白色液体

备注 :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = 方法检测限

(3) ND = 未检出 (< MDL)

(4) "-" = 未规定

RoHS指令2011/65/EU

测试方法 :
(1) 参考IEC 62321-5:2013, 用ICP-OES测定镉的含量
(2) 参考IEC 62321-5:2013, 用ICP-OES测定铅的含量
(3) 参考IEC 62321-4:2013, 用ICP-OES测定汞的含量
(4) 参考IEC 62321:2008, 用紫外-可见分光光度计比色法测定六价铬的含量
(5) 参考IEC 62321:2008, 用GC-MS测定PBBs(多溴联苯)和PBDEs(多溴二苯醚) 的含量

测试项目	限值	单位	MDL	*001*
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	1000	mg/kg	2	ND
汞(Hg)	1000	mg/kg	2	ND
六价铬(CrVI)	1000	mg/kg	2	ND
多溴联苯之和(PBBs)	1000	mg/kg	-	ND
一溴联苯	-	mg/kg	5	ND
二溴联苯	-	mg/kg	5	ND
三溴联苯	-	mg/kg	5	ND
四溴联苯	-	mg/kg	5	ND
五溴联苯	-	mg/kg	5	ND
六溴联苯	-	mg/kg	5	ND
七溴联苯	-	mg/kg	5	ND
八溴联苯	-	mg/kg	5	ND
九溴联苯	-	mg/kg	5	ND
十溴联苯	-	mg/kg	5	ND
多溴二苯醚之和(PBDEs)	1000	mg/kg	-	ND
一溴二苯醚	-	mg/kg	5	ND
二溴二苯醚	-	mg/kg	5	ND

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测试项目	限值	单位	MDL	001
三溴二苯醚	-	mg/kg	5	ND
四溴二苯醚	-	mg/kg	5	ND
五溴二苯醚	-	mg/kg	5	ND
六溴二苯醚	-	mg/kg	5	ND
七溴二苯醚	-	mg/kg	5	ND
八溴二苯醚	-	mg/kg	5	ND
九溴二苯醚	-	mg/kg	5	ND
十溴二苯醚	-	mg/kg	5	ND

备注 :

(1) 最大允许极限值引用自指令2011/65/EU附录II.

卤素

测试方法 : 参照EN 14582:2007方法测定, 采用IC进行分析.

测试项目	单位	MDL	001
氟(F)	mg/kg	50	ND
氯(Cl)	mg/kg	50	348
溴(Br)	mg/kg	50	ND
碘(I)	mg/kg	50	ND

邻苯二甲酸盐(或酯)

测试方法 : 参考EN 14372: 2004的方法, 采用GC-MS分析邻苯二甲酸盐(或酯)含量.

测试项目	CAS NO.	单位	MDL	001
邻苯二甲酸二丁酯(DBP)	84-74-2	%	0.003	ND
邻苯二甲酸丁苄酯 (BBP)	85-68-7	%	0.003	ND
邻苯二甲酸二(2-乙基己基)酯 (DEHP)	117-81-7	%	0.003	ND

备注 :

(1) 参考信息: RoHS指令2002/95/EC的重订指令2011/65/EU:
邻苯二甲酸二(2-乙基己基)酯(DEHP), 邻苯二甲酸丁苄酯 (BBP)和邻苯二甲酸二丁酯(DBP) 被列为需优先进行风险评估和考虑进行限制的物质.

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六溴环十二烷(HBCDD)

测试方法： 参考IEC 62321:2008，采用GC-MS分析六溴环十二烷含量.

测试项目	单位	MDL	*001*
六溴环十二烷(HBCDD)	mg/kg	10	ND

备注：

(1) 参考信息: RoHS指令2002/95/EC的重订指令2011/65/EU:
六溴环十二烷(HBCDD) 被列为需优先进行风险评估和考虑进行限制的物质.

备注:所示结果为湿样品总重量中的含量

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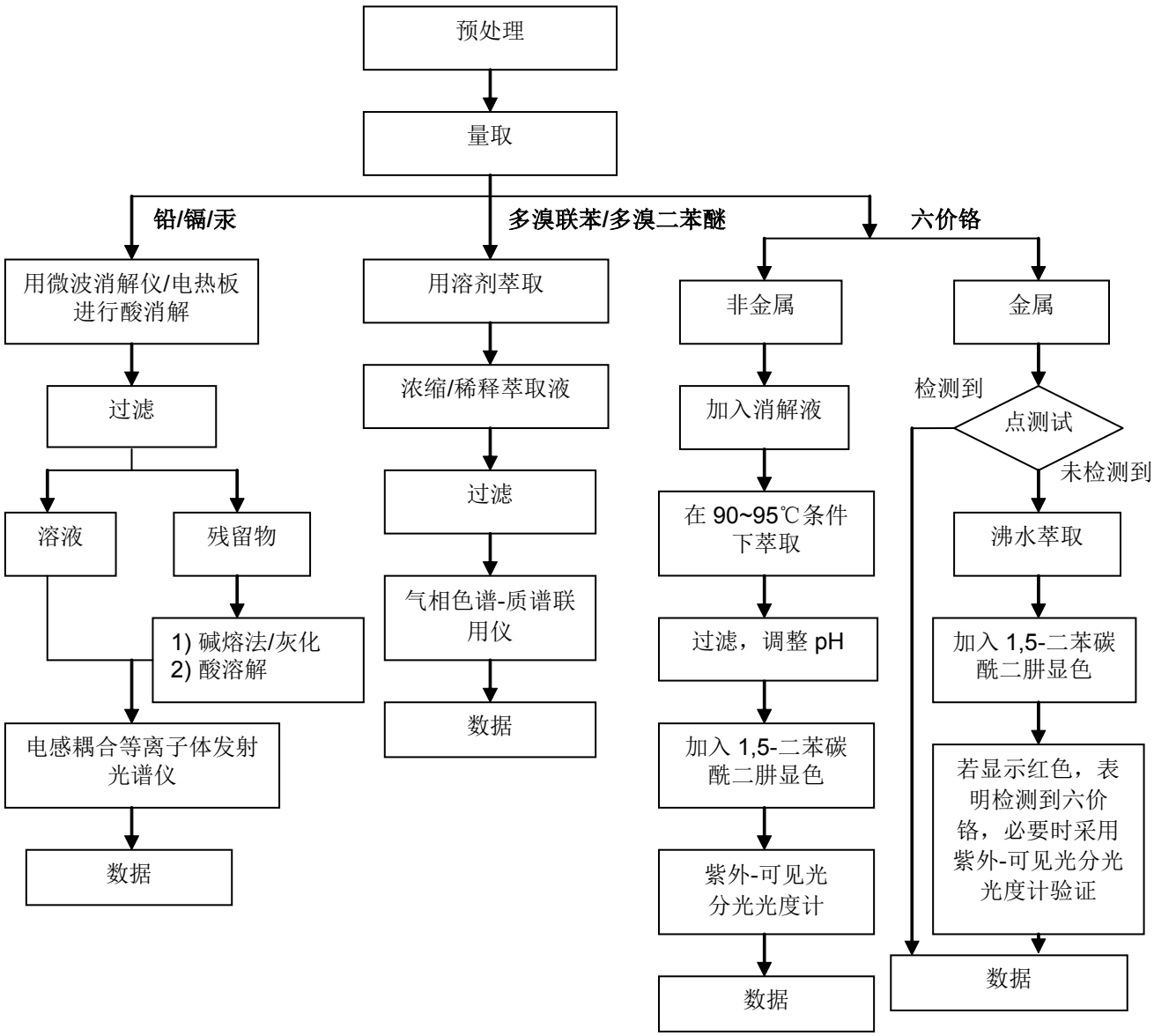
Member of the SGS Group (SGS SA)

附件

RoHS 测试流程图

1) 分析人员： 施青/汪红新/陈怀磊/徐刚
2) 项目负责人：张春华/黄婷
3) 样品按照下述流程被完全消解（六价铬和多溴联苯/多溴二苯醚测试除外）。



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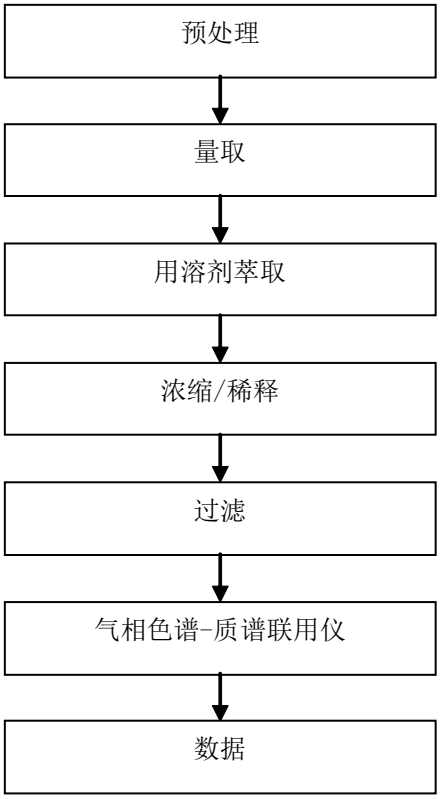
附件

Phthalates 测试流程图

1) 分析人员: 姚霞飞
2) 项目负责人: 马永存



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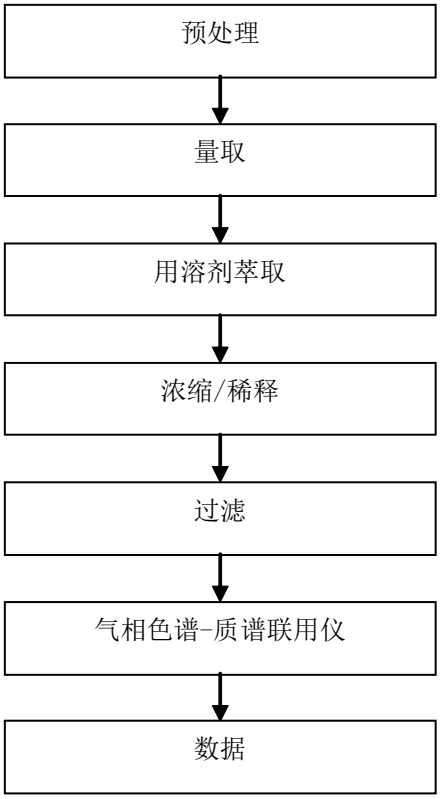
附件

HBCDD 测试流程图

1) 分析人员: 徐刚
2) 项目负责人: 黄婷



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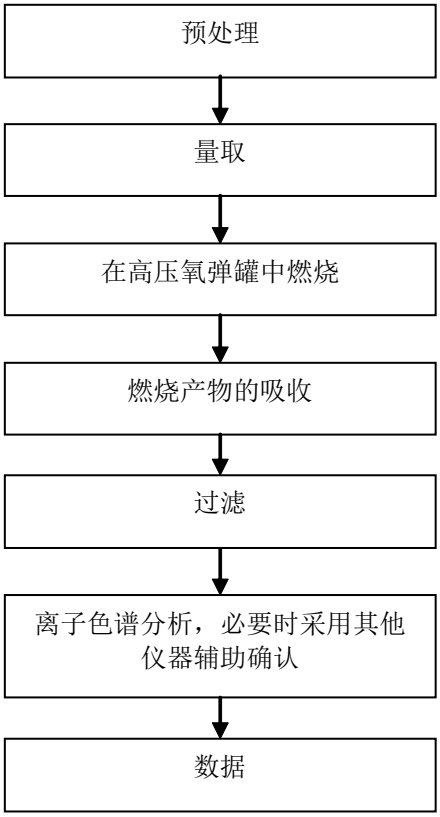
Halogen(氧弹法)测试流程图

1) 分析人员: 印宇
2) 项目负责人: 李丹



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浙江新东方油墨股份有限公司

物质资料安全表

一、 物品与厂商资料

化 学 品 中 文名称	热固型文字油墨
化学品俗名或商品名	NS-411/W
化学品英文名称	Thermal curable marking ink
企业（制造商）名称	浙江新东方油墨股份有限公司
地 址	浙江省台州市黄岩区黄椒路 101 号
邮 编	318020
传 真 号 码	0576-84275906
紧 急 联 系 电 话	0576-84275747
生 效 日 期	2013 年 8 月 1 日
有 效 日 期	2.5 年

二、 成分辨识资料

物质名称	化学文摘社登记号码	含量
溶剂石脑油（石油）重芳香族	64742-94-5	3%
二乙二醇乙醚醋酸酯	112-15-2	12%
硫酸钡	7727-43-7	5%
钛白粉	13463-67-7	25%
双酚 A 环氧树脂	25068-38-6	22%
酚醛环氧树脂	9003-36-5	31%
助剂		5%
总和		100%

三、 危害辨识资料

危险性类别：无
进入人体途径：吸入、食入、皮肤接触、眼睛接触
健康危害：吸入过量会引起眩晕、对皮肤、眼睛有发生红肿等过敏现象
环境危害：有机溶剂挥发会造成空气污染
燃暴危险：遇高热、名、明火及强氧化剂易引起燃烧

四、急救措施

1、吸入蒸气后,须立即将患者移至新鲜空气处. 2、呼吸停止,应立即由受训过的人施以人工呼吸. 3、眼睛接触时,立即撑开眼皮,以大量水冲洗. 4、皮肤接触时,以肥皂和水冲洗患部. 5、如患者即将丧失意志或失去意志或痉挛,勿经口喂食任何东西,切勿催食,给予患者喝 300 毫升的水以稀释胃中之物,若患者自然呕吐,让患者身体向前,以避免吸入呕吐物. 6、经过处理,立即就医.

五、灭火措施

火灾	灭火材料: 二氧化碳化学干粉泡沫
	特殊灭火程序: 无

六、泄露处理方法

泄漏紧急应变	a) 提供适当防护设备及通风设备. b) 移开热源,火源. c) 用沙,泥土或其它惰性物质来围堵泄漏物. d) 避免流入下水道或其它密闭空间. e) 用最便利及安全的方法收集泄漏物.
废弃处理方法	焚化安全卫生掩埋,依现行法规处理.

七、安全处置及储存方法

安全处置与储存注意事项	1. 容器保持密闭. 2. 储存于阴凉处,远离热源,火源. 3. 储存及使用区为禁烟区.

八、暴露预防措施

个人防护设备	眼睛: 化学安全防护目镜,洗眼设备. 呼吸: 有机蒸气滤罐或滤毒罐呼吸防护器. 手套: 一般橡胶手套. 其它: 上述橡胶材质工作鞋
通风设备	一般通风
个人卫生	1. 工作时须戴防护目镜,手套,防护衣服及安全鞋等. 2. 工作后尽快脱掉受污染衣物,洗干净再穿或丢弃. 3. 工作场所严禁吸烟或饮食. 4. 处理后应立即洗手. 5. 维持良好之物管.

九、物质及理化性质

物质状况: ■ 糊 状 物 □ 粉 末 □固体 ■液体 □气体	PH 值: - 外观: 粘稠状液体 气味: -
沸点: 180-220℃ 溶点: -	蒸气压力: 0.4mmHg
蒸气密度: (空气=1) >5	比重(水=1): 1.3±0.2
挥发速度:(乙酸丁酯=1) <1	水中溶解性: 微溶

十、安定性与反应性

安定性	安定	√	应避免之状况:避免储存于高温场所
	不安定		危害分解物: 无
危害之聚 合	可能发生		应避免之状况:避免储存于高温场所
	不会发生	√	危害分解物: 无
不兼容性	应避免之物质: 氧化剂		

十一、毒性资料

进入人体之途径: ■吸入 ■皮肤接触 ■吞食
健康危害效应: 急性: 吸入: 蒸气会刺激呼吸道,会造成呕吐,食欲不振. 接触: 造成轻微的刺激. 眼睛: 造成轻微的刺激. 慢性: 长期处于高浓度环境将有害身体健康

十二、生态资料

生态毒性	无
生物降解性	无
非生物降解性	无
其它有害作用	无

十三、废弃处置方法

泄漏紧急应变	1) 提供适当防护设备及通风设备. 2) 移开热源,火源. 3) 用沙,泥土或其它惰性物质来围堵泄漏物. 4)避免流入下水道或其它密闭空间. 5)用最便利及安全的方法收集泄漏物.
废弃处理方法	焚化安全卫生掩埋,依现行法规处理.

十四、运送资料

联合国编号 (UN NO)	-	危害性 分类	NA	所须图标种类 (Hazard labels)	NA
包装类别	无	包装方式	塑料桶	运输注意事项	防止日光暴晒

十五、法规资料

法规资料	化学品安全技术说明书 GB16483-2000

十六、其它资料

制表单位	名称: 浙江新东方油墨股份有限公司
	地址: 中国浙江省台州市黄岩区黄椒路 101 号
	电话: 0576-84275712　　传真:0576-84275906
制表人	胡仕锬
制表日期	2002 年 1 月 10 日
修订日期	2013 年 8 月 1 日

HUNAN SCIENTHOER SCIENCE AND TECHNOLOGY CO.,LTD

HUI HUANG ZONGHE BUILDING 6,606 ROOM,SANHE HUAQIAO VILLAGE 2,LONGHUA TOWN,SHENZHEN CITY
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : Black cover film

SGS Job No. :	CP14-029391 - SZ
Date of Sample Received :	05 Jun 2014
Testing Period :	05 Jun 2014 - 12 Jun 2014
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.

Trophy Zhang
Approved Signatory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN14-086536.001	Black sheet

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2011/65/EU

Test Method : (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
(2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
(3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
(4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
(5)With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit	MDL	001
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

(1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II

Halogen

Test Method : With reference to EN 14582: 2007, analysis was performed by Ion Chromatograph (IC).

Test Item(s)	Unit	MDL	001
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

Red Phosphorus as Phosphorus

Test Method : With reference to US EPA Method 3052:1996, analysis was performed by ICP-OES.

Test Item(s)	Unit	MDL	001
Red Phosphorus as Phosphorus(P)	mg/kg	20	114

Elementary Analysis

Test Method : With reference to US EPA Method 3052:1996, analysis was performed by ICP-OES.

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Test Item(s)	Unit	MDL	001
Sb_2O_3	mg/kg	12	ND

Notes :

(1) Calculated concentration of Sb_2O_3 is based on the identified Sb

Tetrabromobisphenol A (TBBP-A)

Test Method : With reference to US EPA Method 3540C:1996, analysis was performed by GC-MS&HPLC-MS.

Test Item(s)	Unit	MDL	001
Tetrabromobisphenol A (TBBP-A)	mg/kg	10	ND

PVC (Polyvinyl chloride)

Test Method : SGS in house method(GZTC CHEM-TOP-066), analysis was performed by FTIR.

Test Item(s)	CAS NO.	Unit	MDL	001
PVC	9002-86-2	-	-	Negative

Notes :

(1) Negative=Undetectable,Positive=Detectable

Hexabromocyclododecane (HBCDD)

Test Method : With reference to IEC 62321:2008, analysis was performed by GC-MS.

Test Item(s)	Unit	MDL	001
Hexabromocyclododecane (HBCDD)	mg/kg	10	ND

PFOS (Perfluorooctane Sulfonates) and PFOA (Perfluorooctanoic Acid)

Test Method : With reference to US EPA Method 3550C: 2007, analysis was performed by HPLC-MS.

Test Item(s)	Unit	MDL	001

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Test Item(s)	Unit	MDL	001
Perfluorooctane Sulfonates (PFOS) and related Acid,Metal Salt and Amide	mg/kg	10	ND
Perfluorooctanoic Acid (PFOA)	mg/kg	10	ND

Notes :

For reference: commission regulation (EU) No 757/2010 amending regulation (EC) No 850/2004:
(1) For the purposes of this entry, Article 4(1) (b) shall apply to concentrations of PFOS equal to or below 10 mg/kg (0,001 % by weight) when it occurs in substances or in preparations.
(2) For the purposes of this entry, Article 4(1) (b) shall apply to concentrations of PFOS in semi-finished products or articles, or parts thereof, if the concentration of PFOS is lower than 0,1 % by weight calculated with reference to the mass of structurally or micro-structurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is lower than 1μg /m2 of the coated material.

Phthalate

Test Method : With reference to EN14372: 2004. Analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	*001*
Dibutyl Phthalate (DBP)	84-74-2	%(w/w)	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%(w/w)	0.003	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%(w/w)	0.003	ND
Diisononyl Phthalate (DINP)	28553-12-0 / 68515-48-0	%(w/w)	0.010	ND
Di-n-octyl Phthalate (DNOP)	117-84-0	%(w/w)	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 / 68515-49-1	%(w/w)	0.010	ND

Notes :

(1)DBP,BBP,DEHP Reference information: Entry 51 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC):

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i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles.
ii) Toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.
Please refer to Regulation (EC) No 552/2009 to get more detail information
(2)DINP, DNOP, DIDP Reference information: Entry 52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC).
i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.
ii) Such toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.
Please refer to Regulation (EC) No 552/2009 to get more detail information

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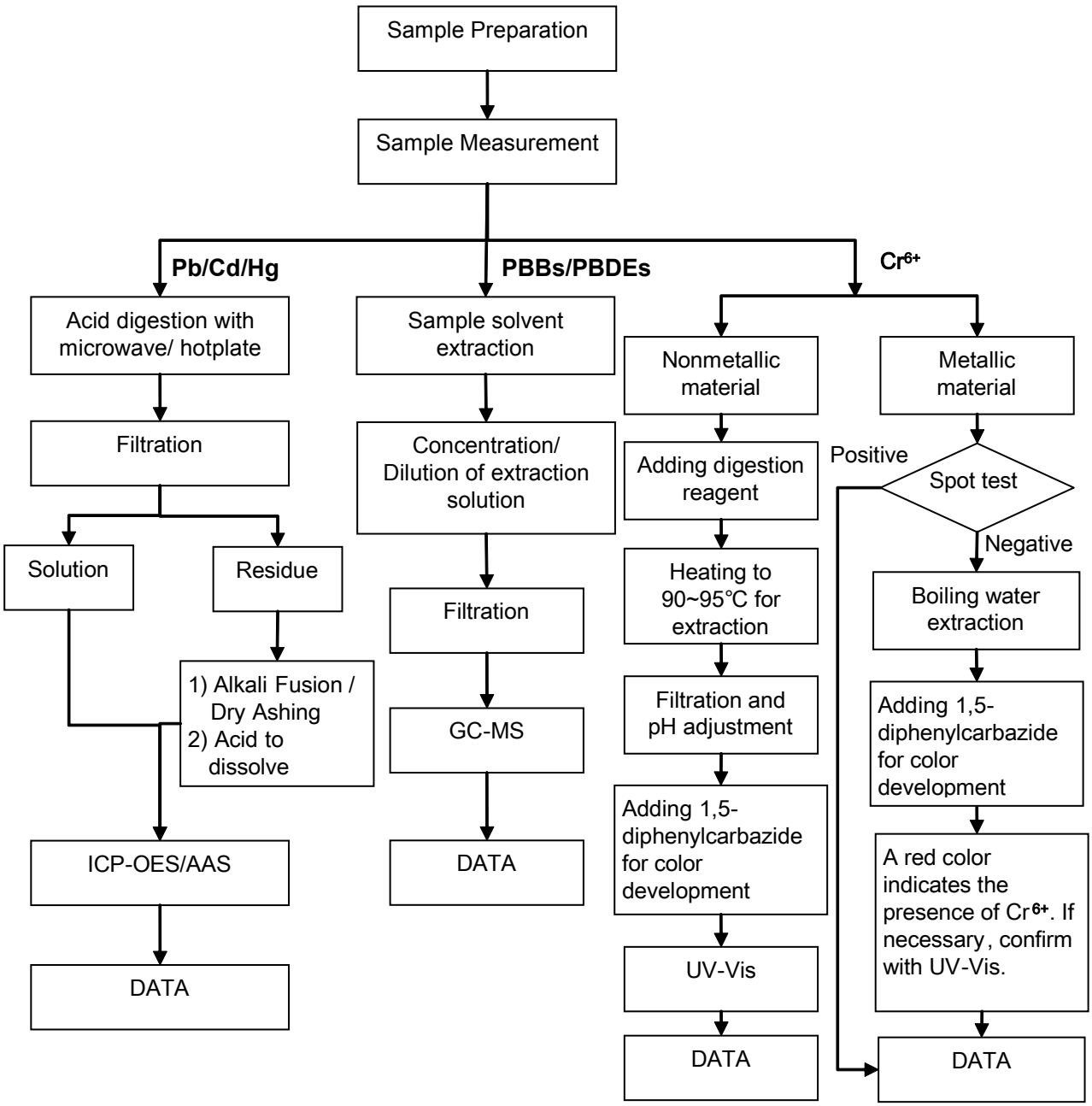
RoHS Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart (Cr^{6+} and PBBs/PBDEs test method excluded).



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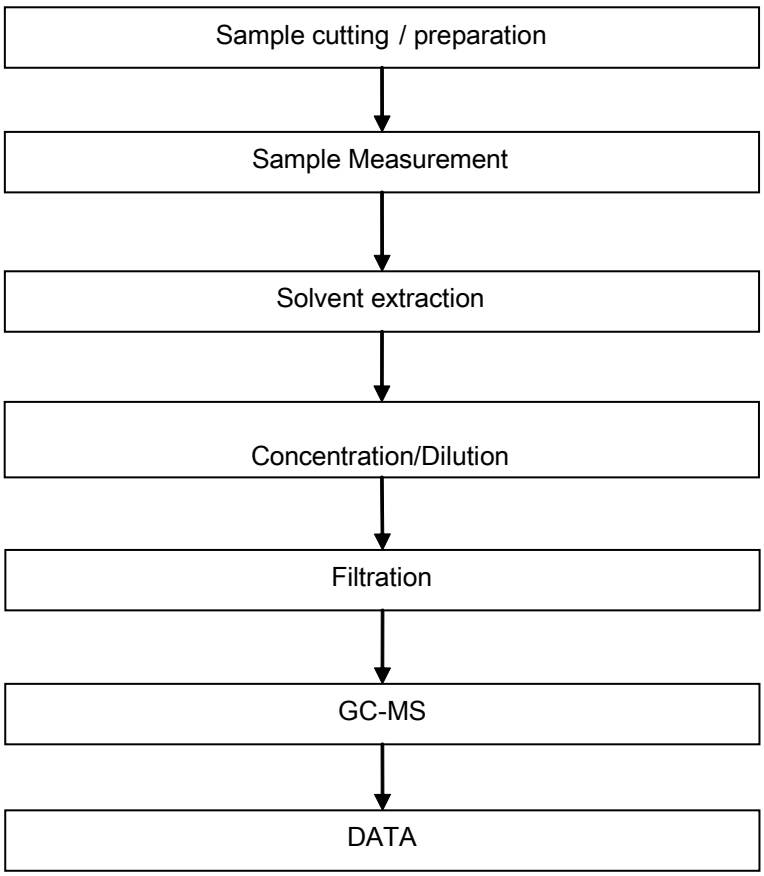
Phthalates Testing Flow Chart



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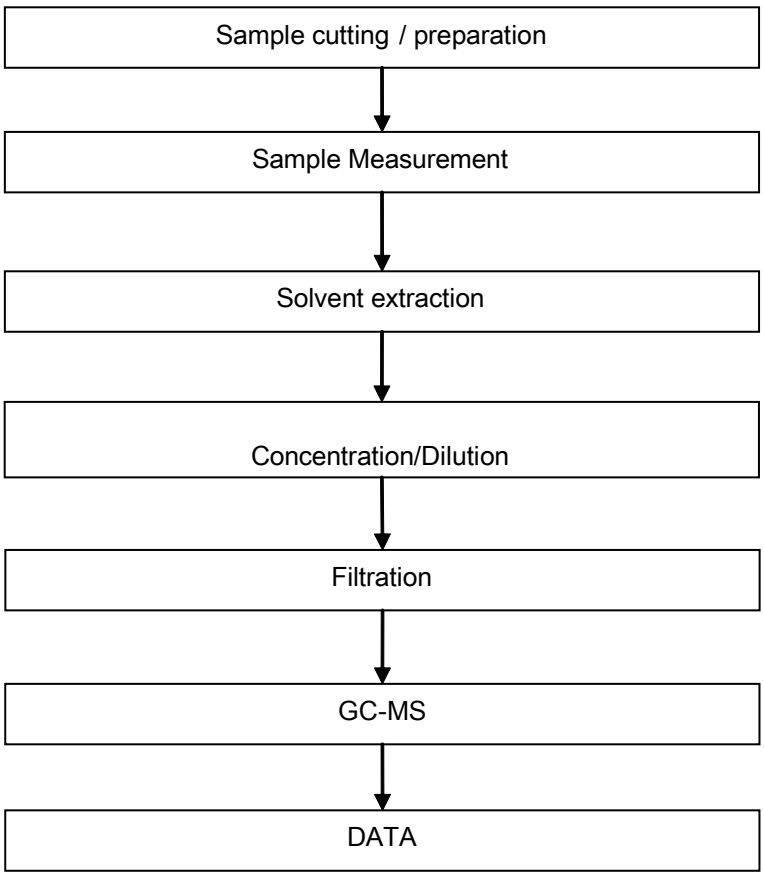
HBCDD Testing Flow Chart



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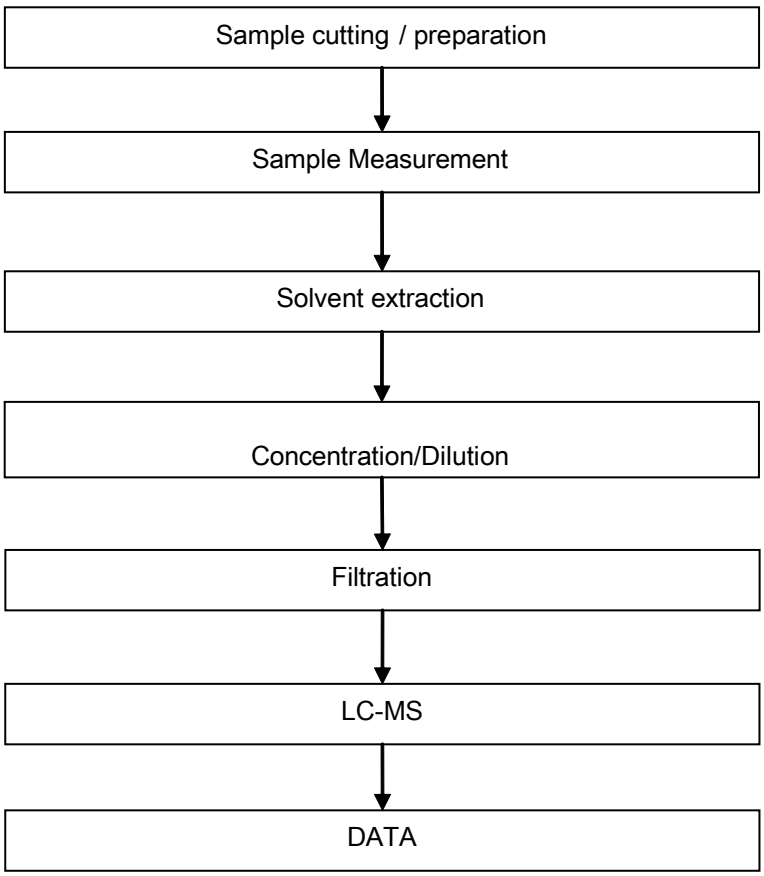
PFOA / PFOS Testing Flow Chart



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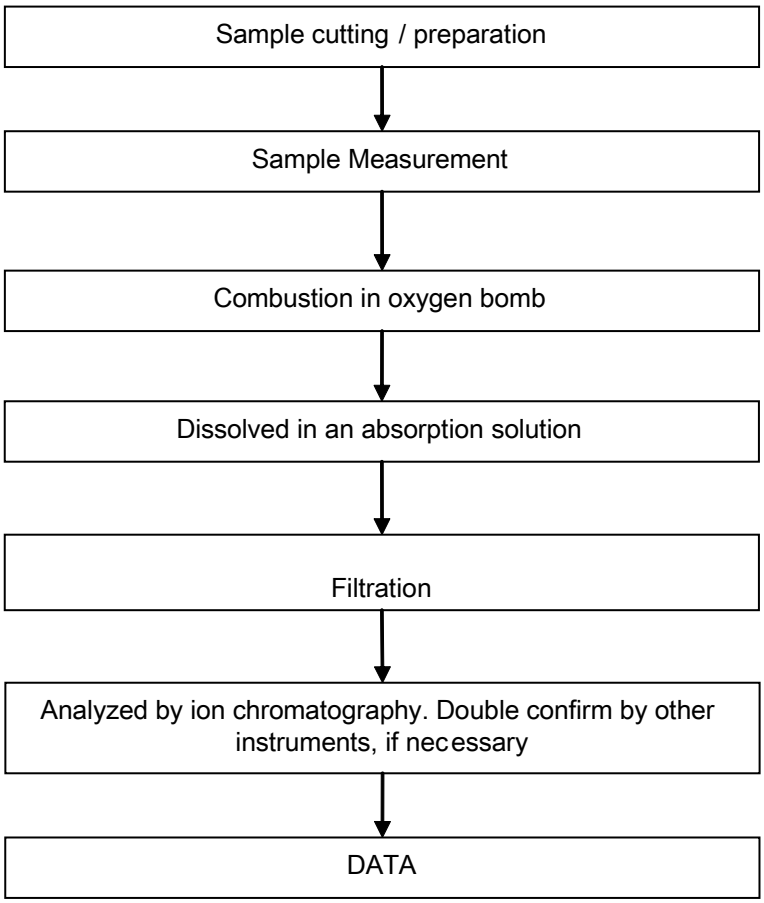
Halogen Testing Flow Chart



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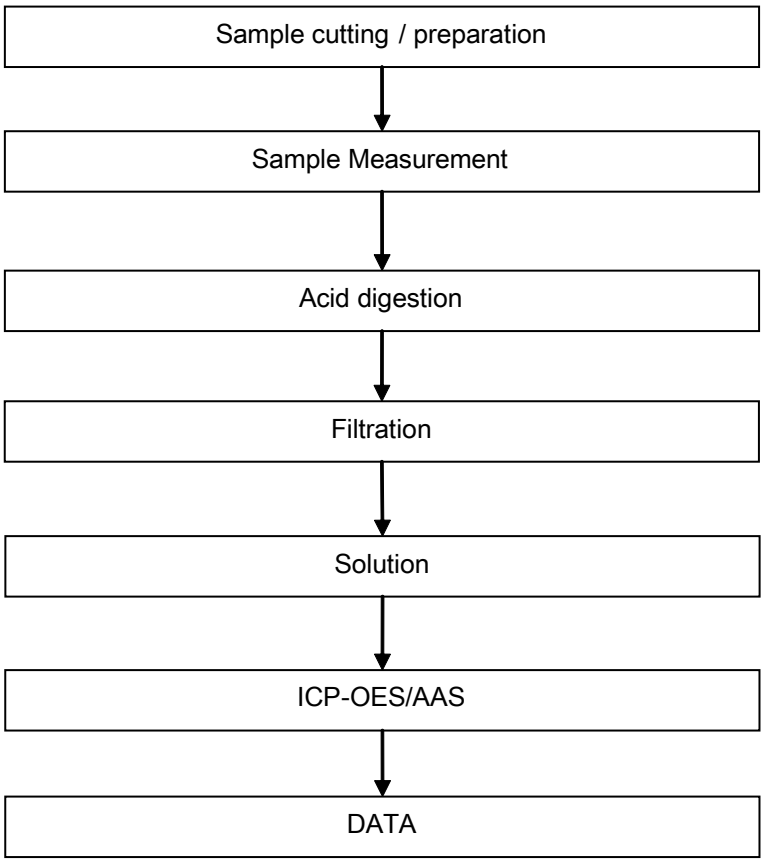
Elementary Testing Flow Chart



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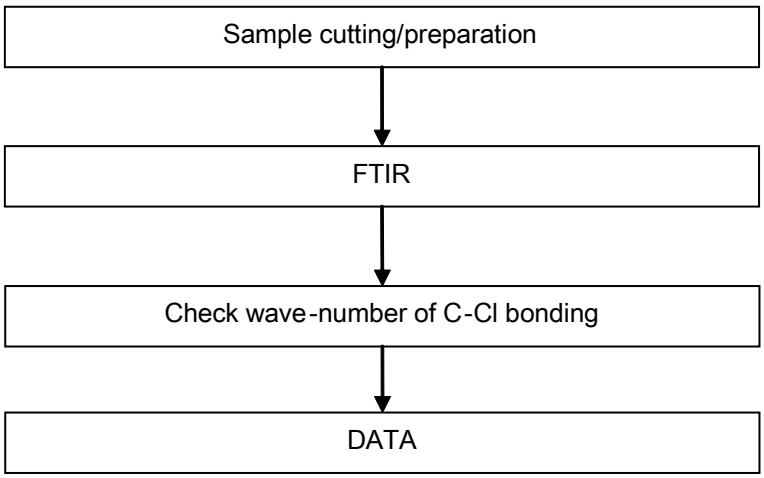
PVC Testing Flow Chart



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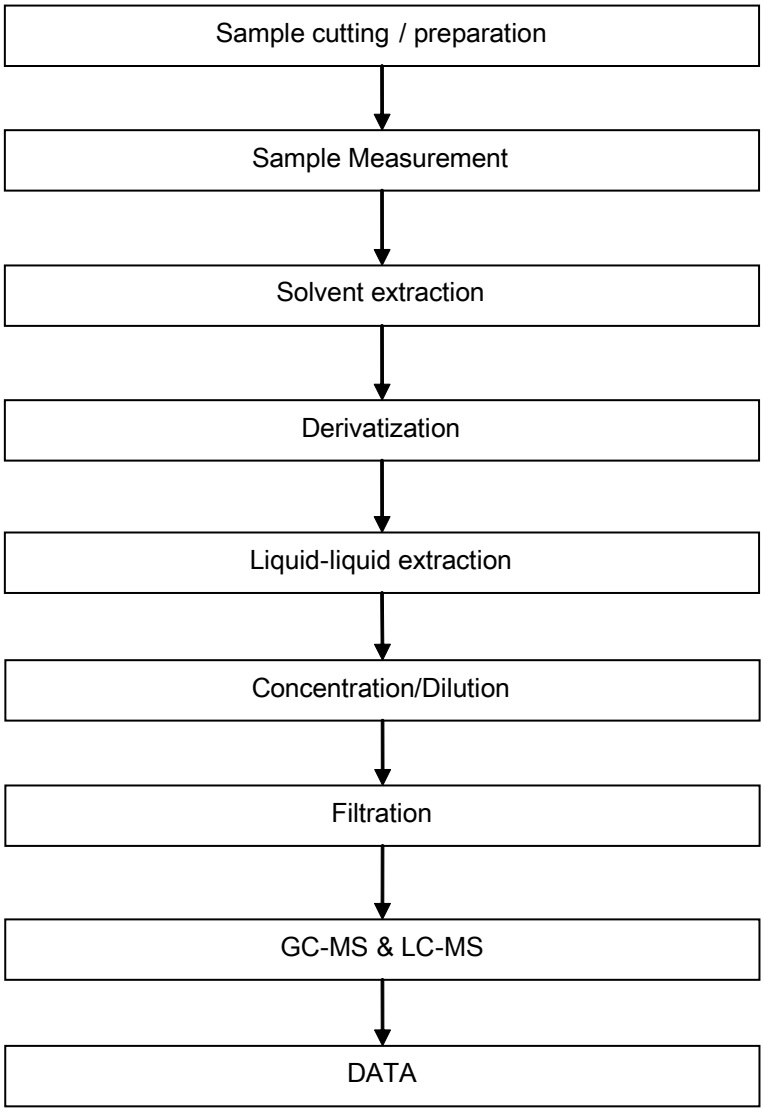
TBBP-A Testing Flow Chart



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Sample photo:

CAN14-086536.001

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深圳市深泰虹科技有限公司

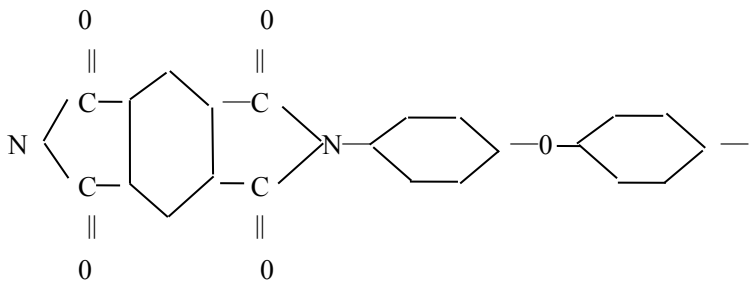
PI 聚酰亚胺薄膜安全资料表

MSDS

一、制造商或供应商资料

制造商或供应商名称：	深圳市深泰虹科技有限公司
地　　址：	深圳市宝安区龙华镇东环一路东华明珠园 5 栋 24A
咨 询 者 姓 名：	陆先淼
紧 急 连 络 电 话 ：	0755—83849396　　13602576410

二、成分辨识资料（若该物品属纯物质，则填写“纯物质”，若该物质属“混合物”则填写混合物一栏纯物质：

化学成分	结构式
聚酰亚胺	

成分名称	CAS 号码	重量%
PI 薄膜	17629-02-3	50-70%
聚丙烯酸酯乳	29372-11-5	30-50%

三、危害辨识资料：

最重要危害效应	健康危害效应：（分别描述该物品被人体吸入、溅入眼睛、皮肤接触、吞入后对人体的健康影响）	一、吸入： 二、眼睛： 三、皮肤： 四、食入：
	环境影响：	
	物理性及化学性危害：	
	特殊危害：	
主要症状：		
物品危害分类：		

四：急救措施

不同暴露途径之急救方法：（描述发生以下状况以后的急救程序）

一、吸入	二、皮肤接触	三、眼睛接触	四、食入
最重要症状及危害效应：			
对急救人员之防护：			
对医师之提示：			

五、灭火措施：

适用灭火剂：所有类型的灭火剂（包括水）
灭火时可能遭遇之特殊危害：
消防人员之特殊防护设备：

六：泄漏处理方法：

个人应注意事项：	
环境注意事项：	
清理方法：	

七、安全处置与储存方法：

处置	常温、干燥、阴凉
储存	大批量贮存，可远离可燃性材料，强氧化剂、强酸、强碱

八、暴露预防措施：

工程控制		
控制参数	八小时日时量平均容许浓度： 短时间时量平均容许浓度： 最佳容许浓度： 生物指针：	
个人防护设备（接触该物质之人员应采取的防护措施）	呼吸防护：	通风
	手部防护：	防护手套
	眼部防护：	
	皮肤及身体防护：	防护服
防护措施	工作时不得进食、饮水、吸烟	

九、物理及化学性质（基本资料应填写清楚）：

物质状态：固体	形状：布形
颜色：黄色	气味：特殊气味基本无
分解温度：450^0C	燃烧性：V—0
使用温度：H 级以上	水中溶解度：不溶
密度：$1.42g/cm^3$	危险副产品：无

十、安定性及反应性：

安定性	除强酸碱外，基本不与其它物质产生反应
特殊情况下可能之危害反应	
应避免之状况	在加工时防止静电危害

应避免之物质	
危害分解物	

十一、毒性资料（如该物品属毒性物质，则应填写）：

毒性	一、吸入： 二、眼睛：
慢毒性成长期毒性	
特殊效应	

十二、生态资料：

可能之环境影响/环境流布： SGS 检测报告：环保。 参考资料 NO：CANEC0904471601 SH9144277/CHEM

十三、废弃处置方法：

废弃处置方法：少量碎片可以与一般植物性垃圾一起焚烧处理。因其燃烧困难，故经常将废料土埋处理。废料回收可利用化学分解处理。

十四、运送资料：

国际运送规定	
联合国编号	
国内运送规定	按普通塑料制品进行运输
运送方法及注意事项	防止产品外来损伤

十五、法规资料：

适用法规： 按普通塑料制品条件办理运输

十六、其他资料

参考文献	无	
制表单位元	名称：品管部	
	地址/电话：深圳市深泰虹科技有限公司 深圳市宝安区龙华镇东环一路东华明珠园 5 栋 24A 0755—83849396	
制表人	曾秀文	姓名（盖章）
制表日期	2011-5-30	

Test Report

3M CHINA LIMITED

222# TIAN LIN ROAD, SHANGHAI (200233)

THIS REPORT IS TO SUPERSEDE TEST REPORT NO.SHAEC1423355501 DATE: 2014/12/16

The following sample(s) was/were submitted and identified on behalf of the clients as : 3M 467MP

SGS Job No. :	SP14-037047 - SH
Model No. :	3M 467MP
Client Ref. Information :	467MPF, 467MPR, 468MPF, 468MPR, 7952MP, 7955MP, 7962MP, 7965MP, 9172MP, 9172PT, 9185MP, 9188, 9667MP, 9668MP, 9676, 7953MP, 7945MP, 7956MP, 7993MP, 7995MP, 7997MP, 9492MP, 7957MP, 7959MP, 7961MP, 9045MP, 9056MP, 9057MP, 9059MP, 9061MP, 9492MPF 3M 468MP
Date of Sample Received :	08 Dec 2014
Testing Period :	08 Dec 2014 - 16 Dec 2014
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.

JJ Fan
Approved Signatory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA14-233555.001	Transparent adhesive part

Remarks :

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2011/65/EU

Test Method : (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
(2) With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
(3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
(4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
(5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	2	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit	MDL	*001*
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

(1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II

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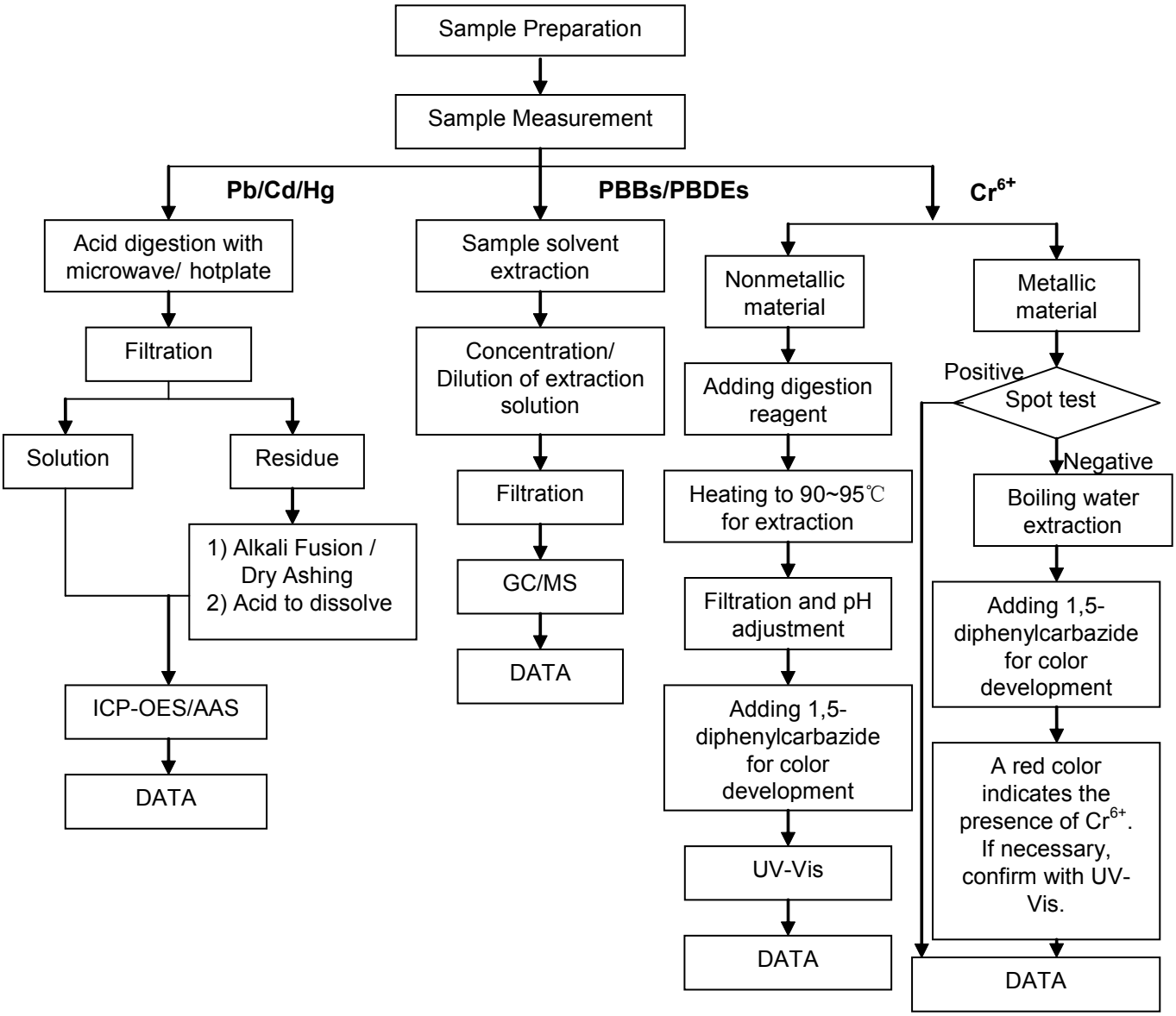
RoHS Testing Flow Chart

1) Name of the person who made testing: Bob Zhang/Gary Xu/Stone Chen/Sunny Qin
2) Name of the person in charge of testing: Jan Shi/Summer Jin/Jessy Huang
3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded)



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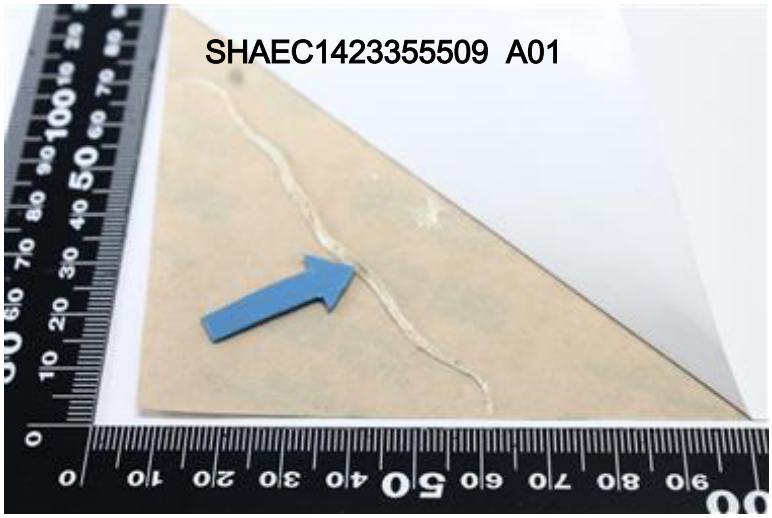
Sample photo:



SHA14-233555.001

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3M Taiwan Ltd.
6F,95,Section 2,DunHua South Rd.,Taipei,Taiwan,R.O.C.
886-2-27049011
886-2-27071250

==========

Taiwanese Material Safety Data Sheet (Finished goods)

==========

Document ID	: 10-8406-0	Issue date	: 2007/05/15
Version	: 1.00	Supersedes date	: ---

This MSDS has been prepared by Toxicology Services ...

Section 1.Product and company information

Tradename

3M(TM) ADHESIVE TRANSFER TAPE 467MP, 467MPF, 468MP, 468MPF, 9667MP, 9668MP AND 9668MPL

3M Product ID

70-0000-4383-9, 70-0000-4384-7, 70-0000-4385-4, 70-0060-6844-2, 70-0060-7299-8, 70-0060-7300-4, 70-0060-7301-2, 70-0060-7348-3, 70-0060-7375-6, 70-0060-7402-8, 70-0060-7463-0, 70-0060-7487-9, 70-0060-7488-7, 70-0060-7493-7, 70-0060-7494-5, 70-0060-7527-2, 70-0060-7539-7, 70-0060-7540-5, 70-0060-7547-0, 70-0060-7548-8, 70-0060-7549-6, 70-0060-7550-4, 70-0060-7551-2, 70-0060-7711-2, 70-0060-7779-9, 70-0060-7802-9, 70-0060-7812-8, 70-0060-7813-6, 70-0060-7814-4, 70-0060-7962-1, 70-0060-7995-1, 70-0060-7996-9, 70-0060-8074-4, 70-0060-8106-4, 70-0060-8797-0, 70-0061-0370-2, 70-0061-0371-0, 70-0061-0379-3, 70-0061-0380-1, 70-0061-0381-9, 70-0061-0382-7, 70-0061-0383-5, 70-0061-0922-0, 70-0061-0982-4, 70-0160-3101-8, 70-0160-3102-6, 70-0160-3122-4, 70-0160-3123-2, 70-0160-3124-0, 70-0160-3125-7, XT-0614-6364-9, 70-0000-2226-2, 70-0000-2262-7, 70-0000-4144-5, 70-0000-4145-2, 70-0000-4154-4, 70-0000-4160-1, 70-0000-4244-3

Manufacturer / Supplier	3M Taiwan LTD
Supplier Address	6F,No.95,Tun Hwa South Road,Section 2,Taipei 10682,Taiwan, R.O.C.
Consultor's name and phone number	Vicky Chang (03) 478-3600
Emergency telephone No.a	(03) 478-3600
Fax No.	(03) 475-0924,475-0904

Section 2.Ingredients identification information

2.1 Specific Ingredients Data

Tradename

3M(TM) ADHESIVE TRANSFER TAPE 467MP, 467MPF, 468MP, 468MPF, 9667MP, 9668MP AND 9668MPL

Synonym -

Chemical Composition

Ingredient name	CAS number	Percentage
ACRYLATE COPOLYMER ADHESIVE	Non CAS Number	EXACT VALUE 100

Section 3.Hazards identification information

Main symptoms	-
Effects from Eye Contact	No health effects are expected.
Effects from Skin Contact	No health effects are expected.
Effects from Inhalation	No health effects are expected.
Effects from Ingestion	No health effects are expected.
hazard classfication	none

Section 4.First-aid Measure

The first-aid measures for different exposure routes

Instructions for Eye Contact No need for first aid is anticipated.
Instructions for Skin Contact No need for first aid is anticipated.
Instructions for Inhalation No need for first aid is anticipated.
Instructions for Ingestion No need for first aid is anticipated.

The most important symptoms and hazardous effects:	-
The protection of first-aiders	Take Class C Pretective Equipment to carry out first aid at satety areas.
Notes to physicians	-

Section 5.Fire-fighting measures

Suitable Extinguishing Media	Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).
Special Instructions for Fire Fighting	Not applicable
Specific fire-fighting methods	-
Fire Fighting Procedures	Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Section 6.Accidental release measures

Personal Precautions	-
Environmental precautions	-
Spill Response	-

Section 7.Sefe handling and storage measures

Handling

Incompatible Materials	-
Storage Requirements	-

Section 8.Exposure controls measures

Recommended Ventilation	Not applicable.
Control parameters	8 hours time weighted average exposure limits/Short-term exposure limits/maximum exposure limits:
Personal protective equipment	
Eye Protection	Keep out of eyes.
Hand Protection	-
Skin Protection	Gloves not normally required. Avoid prolonged or repeated skin contact.
Respiratory Protection	Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.
Ingestion	Not applicable.

Section 9.Physical and chemical properties

Physical state:	
Physical form,Color,Odor	Solid Roll of Tape Tan tape. Acrylate odor when unrolled.
pH	N/A
Boiling point/boiling range	N/A
Flash point	N/A
Autoflammability	?
Explosive properties	-
Vapour pressure	N/A
Water Solubility	NIL
Specific gravity	CA. 0.85 g/ml
Vapour density	N/A

Section 10.Stability and reactivity

Stability and Reactivity	Hazardous polymerization will not occur. Stable
Possible hazardous reactions occurring under specific	-

conditions	
Conditions to Avoid	-
Materials to Avoid	None known
Hazardous Decomposition	Hydrocarbons - During Combustion Carbon monoxide During Combustion Carbon dioxide - During Combustion Under recommended usage conditions, hazardous decomposition products are not expected. Hazardous decomposition products may occur as a result of oxidation, heating, or reaction with another material.

Section 11.Toxicological information

Acute toxicity	-
Local effects	-
Sensitization Information	-
Other Toxicological Information	This product may have a characteristic odor; however, no adverse health effects are anticipated. This product, when used under reasonable conditions and in accordance with the 3M directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards.

Section 12.Ecological information

Possible environmental effects/environmental mobility	-
Other Ecotoxicity Information	-

Section 13.Waste disposal measures

Methods for Disposal	-

Section 14.Transport information

International regulations for transport	Non-regulated article (non-dangerous)
IMO Class	-
ICAO Class	-
UN Number	-
Domestic regulations for transport	Roadway Traffic Safety Regulations
Specific transport measures and precautionary conditions	-

Section 15.Regulatory information

Applicable regulations	Labor safety and hygiene installation regulations.

Section 16.Other information

MSDS PREPARING DEPARTMENT	3M TAIWAN TECHNICAL DEPARTMENT
ADDRESS	66 Lane 800 Chung Shan S.RD.Yangmei Taoyuan Taiwan R.O.C.
TEL No.	(03)478-3600
MSDS PREPARED BY	PRODUCT ENGINEER Vicky Chang
ISSUED DATE	see revise date
Note	The above-mentioned "-" mark means no information available currently or not applicable to the material. The above-mentioned "?" mark means the subjected information of the material is not determinded.

The information on this data sheet represents our current data and best opinion as to the proper use in handling of this product under normal conditions. Any use of the product which is not in conformance with this data sheet or which involves using the product in combination with any other product or any other process is the responsibility of the user.

检测报告

报告编号 ECL01H010211002C

申请单位 太仓市汇湖电镀有限公司

地　　址 太仓市双凤镇黄桥村8组

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 镀镍

样品接收日期 2015.03.09

样品检测日期 2015.03.09—2015.03.12

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)，氟(F)，氯(Cl)，溴(Br)，碘(I)，四溴双酚A(TBBP-A)，全氟辛烷磺酸盐(PFOS)，全氟辛烷酸(PFOA)进行测试。

检测依据 请参见下页。

检测结果 请参见下页。

主　检 王亨二　　审　核 徐静

准 苏红伟　　日　期 2015.03.12

苏红伟

实验室高级经理

深圳市华测检测技术股份有限公司上海分公司 SH03 报告专用章

No. R187775787

深圳市华测检测技术股份有限公司上海分公司　　上海市浦东新区新金桥路1996号

检测报告

检测依据

测试项目	测试方法	测试仪器
铅(Pb)	参考IEC 62321-5:2013 Ed.1.0	ICP-OES
镉(Cd)	参考IEC 62321-5:2013 Ed.1.0	ICP-OES
汞(Hg)	参考IEC 62321-4:2013 Ed.1.0	ICP-OES
六价铬(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis
多溴联苯(PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS
多溴二苯醚(PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS
氟(F)	参考BS EN 14582:2007*[1]	IC
氯(Cl)	参考BS EN 14582:2007*[1]	IC
溴(Br)	参考BS EN 14582:2007*[1]	IC
碘(I)	参考BS EN 14582:2007*[1]	IC
四溴双酚A(TBBP-A)	参考US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
全氟辛烷磺酸盐(PFOS)	参考US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
全氟辛烷酸(PFOA)	参考US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS

检测结果

测试项目	结果	方法检出限
铅(Pb)	192 mg/kg	2 mg/kg
镉(Cd)	N.D.	2 mg/kg
汞(Hg)	N.D.	2 mg/kg
六价铬(Cr(VI))	阴性	/

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

检测报告

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

测试项目	结果	方法检出限
卤素		
氟(F)	N.D. *2	50 mg/kg
氯(Cl)	N.D. *2	50 mg/kg
溴(Br)	N.D. *2	50 mg/kg
碘(I)	N.D. *2	50 mg/kg

测试项目	结果	方法检出限
四溴双酚A(TBBP-A)	N.D.	5 mg/kg
全氟辛烷磺酸盐(PFOS)	N.D.	0.5 μg/m²
全氟辛烷酸(PFOA)	N.D.	0.5 μg/m²

测试样品/部位描述 银色镀层

备注: **对于检测铅，镉，汞之样品已完全溶解。**

-N.D. = 未检出 (小于方法检出限)

-mg/kg = ppm = 百万分之一

-阴性表示不含有六价铬，即由表面积为50cm2的样品所萃取出来的溶液中的六价铬的浓度小于0.02mg/kg

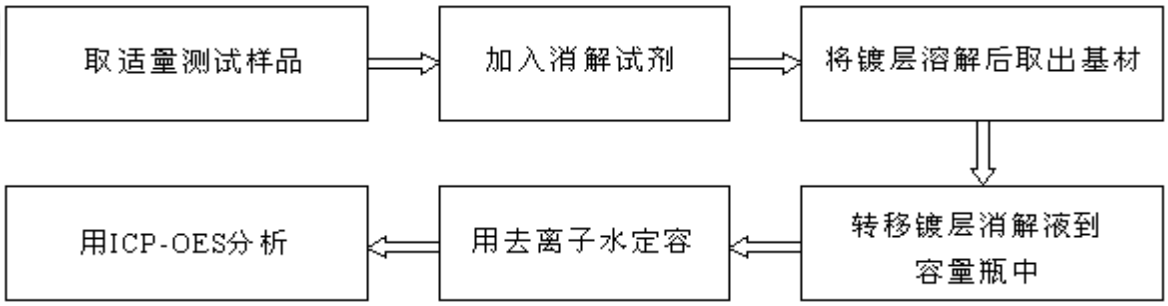
-*1=取一定面积的样品加入超纯水超声萃取，取萃取液经 IC 测试。

-*2=此数据根据客户所提供的密度与厚度换算而得。密度=8.9g/cm^3 厚度=7μm。

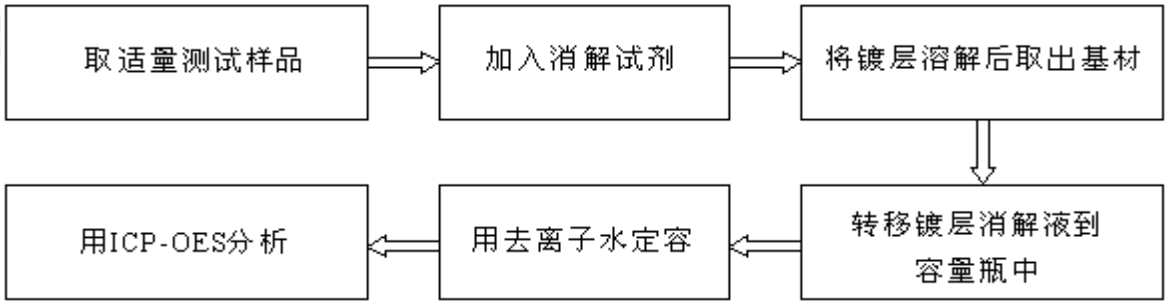
检测报告

检测流程

1. 铅(Pb)，镉(Cd)

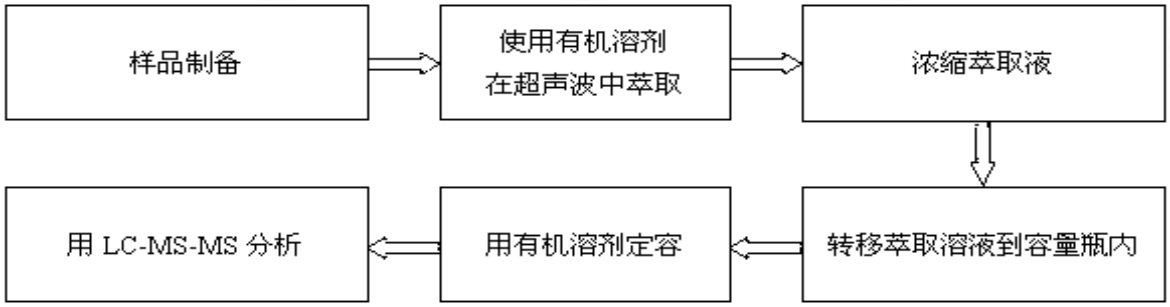


2. 汞(Hg)



3. 溴(Br)，氯(Cl)，氟(F)，碘(I)

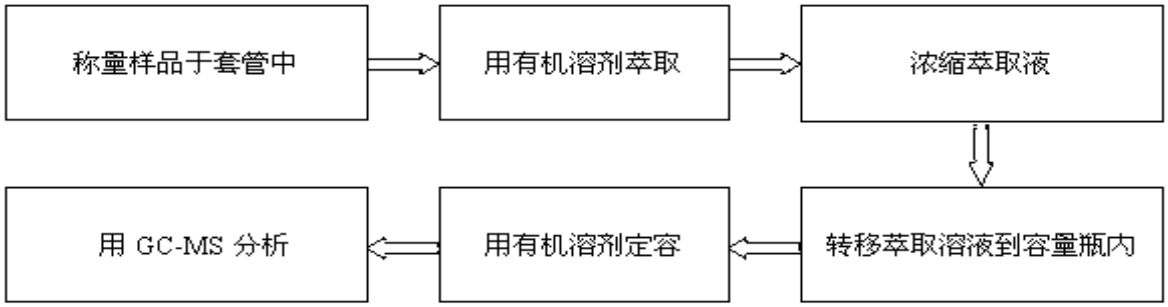
4. 全氟辛烷磺酸盐(PFOS)，全氟辛烷酸(PFOA)，四溴双酚A(TBBP-A)



检测报告

5. 六价铬(Cr(VI))

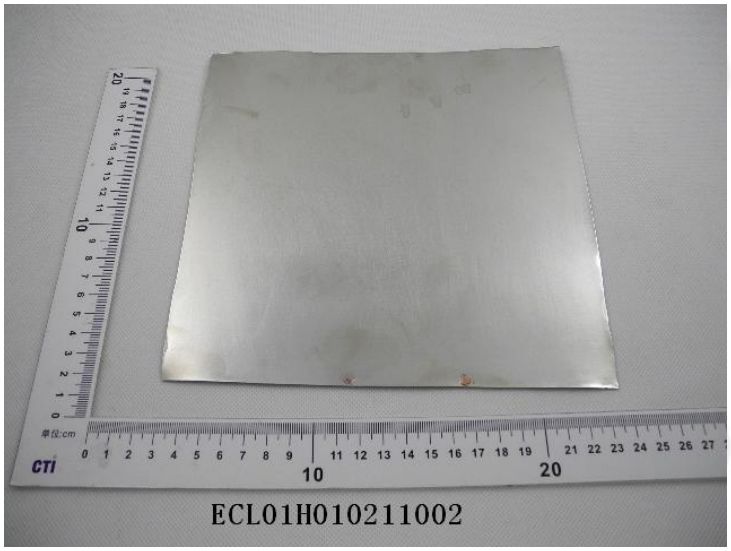
6. 多溴联苯(PBBs)，多溴二苯醚(PBDEs)



检测报告

报告编号 ECL01H010211002C

样品图片



报告结束

检测报告无批准人签字及“报告专用章”无效，本报告检测结果仅对受测样品负责。未经CTI书面同意，不得部分复制本报告。

物質安全資料表

序號:

一.物品與廠商資料：

物品名稱：氨基磺酸鎳	
物品編號：NICKEL	
製造商或供應商名稱,地址,電話：歐美加電子材料有限公司 北門路 2211 號 0512-57778218/ 0512-57798582	
緊急聯絡電話：(0512)57796450	傳真：(0512)57798582

二.成份識別資料：

中（英）文名稱	化學式	含量	化學文摘社登記號碼（CASNO）
NICKEL	NI(NH2SO3)2	763~784g/l	13770-89-3
同義名稱：			

三.危害辨識資料：

最重要危害效應	無評估資料可參考。此物質之危害性依 67/548/EEC 之管理標準作分類，但此管理標準有關規定爲德國政府取消，故在此位作記載。但在此情形下，并非表示此物之危害特性不予考慮。
	健康危害效應：.強腐蝕性
	環境影響：爲高度水污染物質
	物理性及化學性危害:強腐蝕性
	特殊危害：---無
主要症狀：---灼傷	
危害物質成份： 76%	圖示：液體

四.急救措施：

不同暴露途徑之急救措施：

- 吸入：將患者搬離至空氣清新處。
- 皮膚接觸：1. 以大量水沖洗。
  2. 立即脫除沾染污染之衣物。
- 眼睛接觸：1. 撐開眼睛并以大量水沖洗受污染眼睛。
- 食入：喝大量的清水或牛奶.如有昏迷狀況時.立即送醫。.

最重要症狀及危害效應：---

對急救人員之防護：1. 未著全身式化學防護衣及空氣呼吸器之人員，不得進入災區搬運傷患。
2. 應穿著適當防護裝備在安全區實施急救。

對醫師之提示：對患者施以催吐

五.滅火措施：

適用滅火劑：化學乾粉、酒精泡沫、.二氧化碳滅火器。

滅火時可能遭遇之特殊危害：

特殊滅火程式：---.

消防人員之特殊防護設備：消防人員必須佩帶全身式化學防護衣及自携式空氣呼吸器。(必要時外加

抗閃火鋁質被覆外衣) 其他資訊：避免消防水用後直接進入地表或地下，以防二次污染。

六.洩露處理方法：

個人應注意事項： 1. 在污染區尚未完全清理乾淨前，限制人員進入該污染區。 2. 確定清理工作是由受過訓練的人員負責。 3. 在污染區之清理人員應穿戴適當之個人防護設備。 4. 詢問供應商，清理該外泄污染源之適當吸收劑或除污液。 5. 勿吸入此物質。 6. 在密閉空間中應確認此區有足夠之新鮮空氣提供。
環境注意事項： 1. 對該區進行通風換氣。 2. 撲滅或移開該區所有引燃源。 3. 若物質釋放到週遭環境，則應通知當地環保相關單位或勞工檢查單位。 4. 避免與此物質直接進入下水道系統。
清理方法： 1. 不要碰觸外洩物。 2. 避免外洩物進入下水道，水溝或密閉空間內。 3. 可以液態吸收劑 (如 Chemizirb®)吸收外洩物。 4. 如安全狀況許可，將易漏之容器移至戶外或隔離的通風場所中，將其中物質換裝到其他適當之容器內，並加以標示。 5. 使用蒸氣抑制泡沫劑，以減少蒸氣量。 6. 清理廢棄物。 其他注意事項：已污染之吸收劑，與外泄物具有同等之危害性。

七.安全處置與儲存方法：

處置：無特殊要求。
儲存： 1. 儲存於密閉容器內，至於陰涼乾燥的地方，並遠離一般作業場所及不相容物。 2. 儲存區應有獨立通風系統，且無熱源、明火及火花。 3. 最好儲存于合格之安全器內。 4. 容器不使用時應加蓋緊閉。 5. 儲存於陰涼、乾燥、通風良好及陽光無法直射之地方。 6. 空的儲存容器內可能仍有具危險性之殘留物。 7. 儲存區內與其附近應有足夠且適當可用之滅火器。 8. 儲存溫度：此物質應除放在 15℃-25℃之環境中。

八.曝露預防措施：

工程控制：通風設備				
控制參數：---				
容許濃度			生物指標	
時間平均容許濃度（TWA）	短時間量平均容許濃度（STEL）	容許最高濃度（Ceiling）	LD_{50}（測試動物、吸收途徑）	LC_{50}（測試動物、吸收途徑）

個人防護設備： • 呼吸防護：當蒸氣/氣懸膠產生時需配戴。. • 眼睛防護：安全眼鏡 • 皮膚及身體防護： 1. 應依環境中有害物之濃度與量來選擇此作業場所適用之防護衣。 2. 應穿著經供應商確認可防護此化合物之防護衣。 • 其他防護注意事項：---
衛生措施： 1. 工作後儘速脫掉污染之衣物，洗淨後才可在穿戴或丟弃，且須告知洗衣人員污染物之危害性。 2. 依所建議之皮膚防護軟膏來使用。 3. 處理此物後，需徹底洗手。

九.物理及化學資料:

物資狀態：☐液態☐液化氣體☐壓縮氣體	顏色：綠色
形狀：一般液體	水中溶解度: 完全溶解

十.安全性及反應性：

安定性：	安定	V	特殊狀況下可能之危害反應	无
	不安定			
危害分解物：----				
應避免之狀況：---				
應避免之物質：---				

十一.毒性資料：

急毒性：---
局部效應：---
致敏感性：---
慢毒性或長期性毒性：---
特殊效應： 在結構---效應考量下，此特性不能不予考慮。 可能之症狀有頭痛、暈眩、抽筋、反胃及發酣病。 通常塗上硫醇後會產生令人不愉快的氣味。

十二.生態資料：

生態毒物效應：此物質大部分之生態影響數據均無可用之資料。 生態降解性：--- 可能之環境影響/環境流佈：--- 其他生態資料：勿使其進入水源、廢水或土壤中

十三.廢棄物處理方法：

廢棄處理方法： 產品：

1. EC 之法令對此物質或此物之殘留物幷不統一之規定。
2. 化學殘留物一般可視爲特殊廢弃物。
3. 有關產品之廢棄處置是依據 EC 成員之國家所定相關法令準則及規範來執行。
4. 建議與政府環保單位聯繫或是由經認可之合格代行廢弃物處理公司 代爲處理。

包裝：

1. 廢棄處置應依法令之規定。
2. 污染物之包裝應與原化合物之包裝要求相同。
3. 若無法規上特別要求說明，則爲函污染物之包裝可采用與家庭廢弃物相同之處理方式或是回收。

十四.運送資料：

國際運送法規定：

陸地運輸：---

海洋運輸：---

航空運輸：---

1. ICAO/IATA 將之列爲第九類其他危險物。

聯合國編號：3334

國內運送規定：

1. 道路交通安全規則第 84 條。
2. 船舶危險品裝載規則。
3. 台灣鐵路局危險品裝卸運輸實施細則。

十五.適用法規：

1. 勞工安全衛生設施規則
2. 道路交通安全規則

十六.其他資料：

參考文獻：

危害等級分類	NFPA	HMIS	等級：0：最少 1：輕微 2：中等 3：高等 4 嚴重 NFPA：美國防火協會定義火災應變之危害等級 HMIS：危害物質系統應用于產品危害等級
健康	1	1	
著火性	0	0	
反應性	1	1	

製表單位	名稱：歐美加電子材料有限公司	
	地址：江蘇省昆山市北門路 2211 號	
	電話：(0512)57778218	傳真：(0512)5779-8582

製表人:费芳	職稱：副理	

(上述資料由合程實業股份有限公司參照原廠之 MSDS 資料來填寫，已力求正確，但錯誤恐難免，各項數據與資料僅供參考。使用者請依應用需求，自行判斷其可用性，本公司不負任何法律責任。)

检测报告

报告编号 ECL01H010211001C

申请单位 太仓市汇湖电镀有限公司

地　　址 太仓市双凤镇黄桥村8组

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 镀金

样品接收日期 2015.03.09

样品检测日期 2015.03.09—2015.03.12

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)，氟(F)，氯(Cl)，溴(Br)，碘(I)，四溴双酚A(TBBP-A)，全氟辛烷磺酸盐(PFOS)，全氟辛烷酸(PFOA)进行测试。

检测依据 请参见下页。

检测结果 请参见下页。

主　检 王亨二　　审　核 徐静

准 苏红伟　　日　期 2015.03.12

苏红伟

实验室高级经理

深圳市华测检测技术股份有限公司上海分公司 SH03 报告专用章

No. R187775787

检测报告

检测依据

测试项目	测试方法	测试仪器
铅(Pb)	参考IEC 62321-5:2013 Ed.1.0	ICP-OES
镉(Cd)	参考IEC 62321-5:2013 Ed.1.0	ICP-OES
汞(Hg)	参考IEC 62321-4:2013 Ed.1.0	ICP-OES
六价铬(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis
多溴联苯(PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS
多溴二苯醚(PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS
氟(F)	参考BS EN 14582:2007*[1]	IC
氯(Cl)	参考BS EN 14582:2007*[1]	IC
溴(Br)	参考BS EN 14582:2007*[1]	IC
碘(I)	参考BS EN 14582:2007*[1]	IC
四溴双酚A(TBBP-A)	参考US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
全氟辛烷磺酸盐(PFOS)	参考US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
全氟辛烷酸(PFOA)	参考US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS

检测结果

测试项目	结果	方法检出限
铅(Pb)	110 mg/kg	2 mg/kg
镉(Cd)	N.D.	2 mg/kg
汞(Hg)	N.D.	2 mg/kg
六价铬(Cr(VI))	阴性	/

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

检测报告

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

测试项目	结果	方法检出限
卤素		
氟(F)	N.D. *2	50 mg/kg
氯(Cl)	N.D. *2	50 mg/kg
溴(Br)	N.D. *2	50 mg/kg
碘(I)	N.D. *2	50 mg/kg

测试项目	结果	方法检出限
四溴双酚A(TBBP-A)	N.D.	5 mg/kg
全氟辛烷磺酸盐(PFOS)	N.D.	0.5 μg/m²
全氟辛烷酸(PFOA)	N.D.	0.5 μg/m²

测试样品/部位描述 金色镀层

备注: **对于检测铅，镉，汞之样品已完全溶解。**

-N.D. = 未检出 (小于方法检出限)

-mg/kg = ppm = 百万分之一

-阴性表示不含有六价铬，即由表面积为50cm2的样品所萃取出来的溶液中的六价铬的浓度小于0.02mg/kg

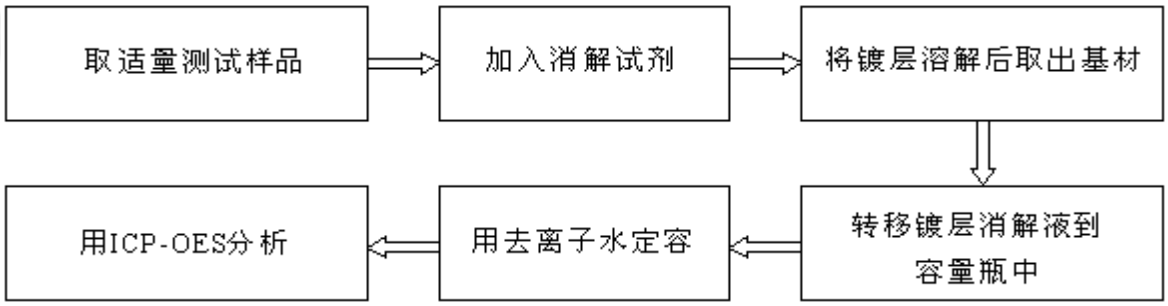
-*1=取一定面积的样品加入超纯水超声萃取，取萃取液经 IC 测试。

-*2=此数据根据客户所提供的密度与厚度换算而得。密度=19.26g/cm^3 厚度=2μm。

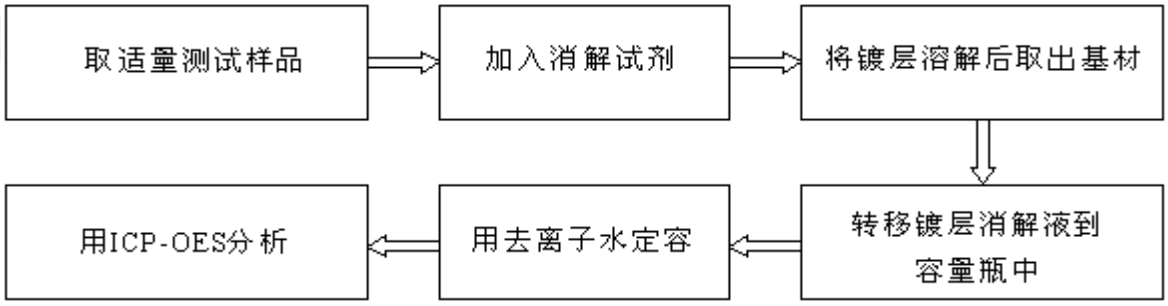
检测报告

检测流程

1. 铅(Pb)，镉(Cd)

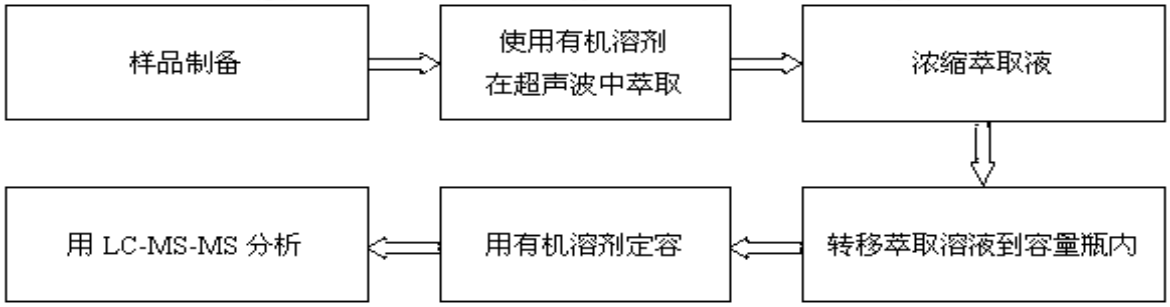


2. 汞(Hg)



3. 溴(Br)，氯(Cl)，氟(F)，碘(I)

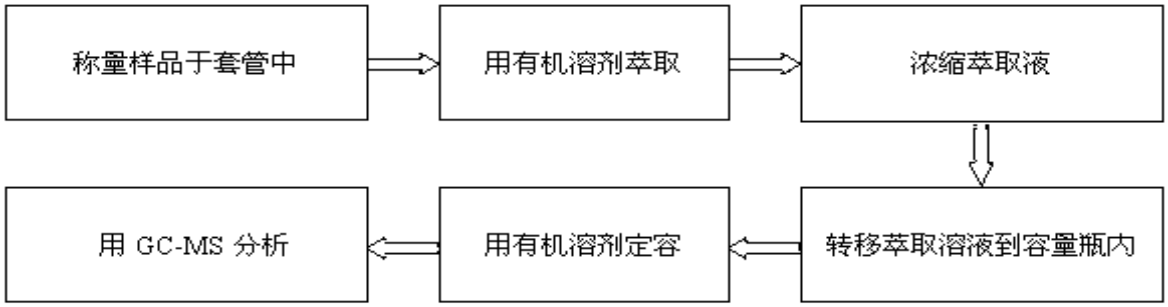
4. 全氟辛烷磺酸盐(PFOS)，全氟辛烷酸(PFOA)，四溴双酚A(TBBP-A)



检测报告

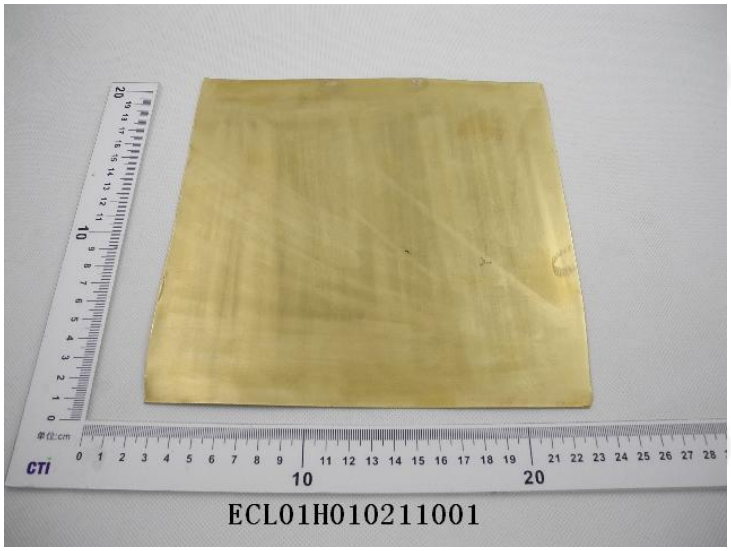
5. 六价铬(Cr(VI))

6. 多溴联苯(PBBs)，多溴二苯醚(PBDEs)



检测报告

样品图片



报告结束

检测报告无批准人签字及“报告专用章”无效，本报告检测结果仅对受测样品负责。未经CTI书面同意，不得部分复制本报告。

化学品安全技术说明书

第一部分　　化学品及企业标识

化学品中文名称：氰化亚金钾 化学品

英文名称：potassium gold cyanide

企业名称：太仓市汇湖电镀有限公司

地址：太仓市双凤镇黄桥 8 组

传真号码：0512-86653943

企业应急电话：0512-86648391

第二部分　　成分/组成信息

纯品 ☑　　混合物 ▭

化学品名称：氰化亚金钾

有害物成分：氰化亚金钾

含量：99.83%

CAS No.：13967-50-5

第三部分　　危险性概述

危险性类别：第 6.1 类 毒害品

侵入途径：吸入、食入、经皮吸收 健康危害：吸入、摄入或经皮肤吸收均有毒。对眼睛、皮肤有刺激作用。口服剧毒，非骤死 者，先出现感觉无力、头痛、眩晕、恶心、呕吐、四肢沉重以及呼吸困难等症状，随后面色 苍白、失去知觉、甚至呼吸停止而死亡。

燃爆危险：无。

第四部分　　急救措施

皮肤接触：用肥皂水及清水彻底冲洗。就医。 眼睛接触：

拉开眼睑，用流动清水冲洗 15min。就医。

吸入：脱离现场至空气新鲜处。呼吸停止时，立即进行人工呼吸。吸入亚硝酸异戊酯，肌肉

注射 10% 4-二甲基氨基苯酚。
食入：误服者，饮适量温水，催吐。洗胃。就医。

第五部分 消防措施

危险特性：遇酸或吸收空气中的二氧化碳、水分可分解出剧毒的氰化氢气体。受高热分解， 放出高毒的烟气。
有害燃烧产物：不燃。 灭火方法及
灭火剂：干粉、砂土。

第六部分 泄漏应急处理

应急处理：隔离泄漏污染区，周围设警告标志，建议应急处理人员戴正压自给式呼吸器 ,穿 厂商特别推荐的化学防护服（完全隔离）。合理通风，不要直接接触泄漏物。 消除方法：小心扫起泄漏物，用洁净的铲子移至大量水中，加过量次氯酸钠，静置 24h，稀 释后入废水系统。

第七部分 操作处置与储存

操作注意事项：操作人员必须经过专门培训，严格遵守操作规程。建议操作人员佩戴防毒面 具，戴化学安全防护眼镜，穿相应的防护服，戴防化学品手套。生产场地应配备足量的水冲 洗设施，车间应通风良好，定期检测空气中有毒物质。操作现场不得吸烟、饮水、进食。搬 运时轻装轻卸，保持包装完整，防止泄漏。 储存注意事项：储存于阴凉、干燥、通风良好的库房。宜专库专储。库房应由双人双锁加强 保管。远离火种、热源。包装密封，防止受潮。

第八部分 接触控制/个体防护

最高容许浓度：中国 MAC（mg/m^3）：0.3〔HCN〕〔皮〕
前苏联 MAC（mg/m^3）：0.5
监测方法：化学法 工程控制：严加密闭，提供充分的局部排风或全面排风。尽可能机械化、自动化。 呼吸系统防护：可能接触毒物时，应该佩戴防毒面具。紧急事态抢救或逃生时，建议佩戴正 压式自给式呼吸器。
眼睛防护：戴化学安全防护眼镜。
身体防护：穿相应的防护服。
手防护：戴防化学品手套。
其他防护：工作现场禁止吸烟、进食和饮水。工作后，淋浴更衣。单独存放被毒物污染的衣

服，洗后再用。车间应配备急救设备及药品。有关人员应学会自救互救。

第九部分　　理化特性

外观与性状：白色结晶性粉末。

相对密度（水=1）：3.45

溶解性：溶于水，微溶于醇，几乎不溶于醚。

主要用途：用于电镀金。

第十部分　　稳定性和反应活性

稳定性：稳定

禁配物：强酸

聚合危害：不能出现

分解产物：氰化氢、氰化物。

第十一部分　毒理学资料

急性毒性：轻者头痛、恶心、呕吐。重者发生昏迷，血压下降，以致呼吸和循环衰竭死亡。 经口 LD50≤50mg/kg 经皮 LD50≤200mg/kg，吸入 LC50≤500ppm（气体）或 2.omg/L（蒸 气）或 o.5mg/L（尘、雾）。

第十二部分　生态学资料

该物质对环境有污染，特别是雾雨、酸雨天气。要注意其逸散的气体对大气的污染。

第十三部分　　废弃处置

废弃物性质：☑危险废物　　▭工业固体废物

废弃处置方法：用次氯酸钠破氰处理。

第十四部分　　运输信息

危险货物编号：61001

包装标志：毒害品 包

装类别：Ⅰ类包装

包装方法：内包装为带一次性盖子的塑料瓶，外包装为聚乙烯自封袋。 运输注意事项：忌与酸类、氯酸盐、亚硝酸钠（钾）或粮食、食物、种子、饲料、各种日用 品混装、混运，不可受潮，保证容器密封。

危险化学品安全管理条例（2002 年 1 月 26 日国务院发布），针对危险化学品的生产、储存、使用、经营、运输等方面均作了相应规定。

《常用危险化学品的分类标志》（GB13690-1992），将其划为 3.6 第 6 类有毒品。