

**泰博科技股份有限公司**  
**TaiDoc Technology Corporation.**

26971

**COMPONENT APPROVAL SHEET 零件承認書**

【TDQR-002-01-A2】

承認書文號: 124-4311712-001-A01

RoHS 證明報告:   
REACH 證明報告:   
均質組成分析表:   
承認書版本: \_\_\_\_\_

SIR01

PART NO 泰博料號	124-4311712-001	MANUFACTURER/AGENCY 製造商(廠)/代理商	維捷電子
PART NAME 零件名稱	晶片型 Buletooth antenna/SMD	MATERIAL 材質	如規格書
SUPPLIER'S TYPE 供應商型號	CAN4311712002453K/2.45GHz/3.2*1.6*1.2mm	Doc. No 圖面編號	N/A
STEPS 承認階段	<input checked="" type="checkbox"/> NEW 新品 <input type="checkbox"/> REVISED 設計變更:變更單號 <input type="checkbox"/> 其他		<input type="checkbox"/> 2nd SOURCE 第二來源

ITEM 項目	SPECIFICATION / REQUIREMENT / TEST ITEM (零件規格 / 特殊要求 / 測試項目)	INSPECTION CONDITION AND STATUS 檢驗條件與狀態	
		RANGE 規格/標準介政範圍	NOTE 備註
1	料號與廠商型號是否正確	正確	
2	進貨包裝方式是否與承認書相符	符合	
3	外觀尺寸	如規格書	

檢驗項目以上述測試項目為主，並參照檢驗規範/檢驗作業指導書

ENGINEERING COMMENTS 工程評論或指示注意事項	

PERFORMANCE TEST RESULT 檢驗結果							
OK 確認	VISUAL 目視	DIMENSION 尺寸	ACTING 零件動作	ELECTRICAL 電子	PRINT 印刷	PACKING 包裝方式	ANOTHER 其他
OK	✓	✓	✓	✓	✓	✓	✓
SKIP 免驗							
DCC CONFIRMED 文管中心		APPROVAL 核准		CHECK 審核		PREPARE 製表	
Sunm-1 2011.12.19		Tuy 2011.12.07		YK 2011.12.5		yingde 2011.12.5	



# 了 維捷電子有限公司

Action Power Electronics Co.,Ltd.

台北市內湖區成功路二段 514 號 4F-2

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TEL : +886-2-8792-2631

FAX: +886-2-8792-5204

## 承 認 書

### SPECIFICATION & APPROVAL SHEET

送樣廠商 / VENDER : 維捷電子

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廠 牌 / BRAND : YAGEO

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系 列 / SERIES : Bluetooth Antenna *Ant 1*

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料 號 / PART NO. : CAN4311712002453K

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客 戶 料 號 / Parts Number : 2.45GHz ,Bluetooth Antenna  
SIZE(3.2\*1.6\*1.2mm),

日 期 : 2011/08/12

SALES : 陳柏嘉 / 0928-605-883  
: Sunny Chen

*陳柏嘉 2011.08.12*

承認廠商: 維捷電子

承認單位: 泰博科技股份有限公司



研究開發部 R & D	品保工程師 QA

**ANTENNA PRODUCTS**

# DATA SHEET

## 3216 Ceramic Chip Antenna for Bluetooth/WLAN Application

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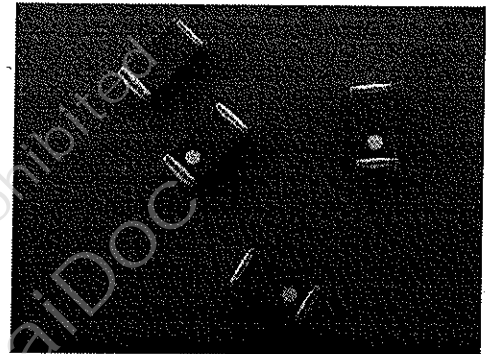
July, 2009 V6

R&D	Print date 09/07/21					March, 2007 v4
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					July, 2009 v6	
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### 3216 Ceramic Chip Antenna for Bluetooth/WLAN Application

#### Quick Reference Data

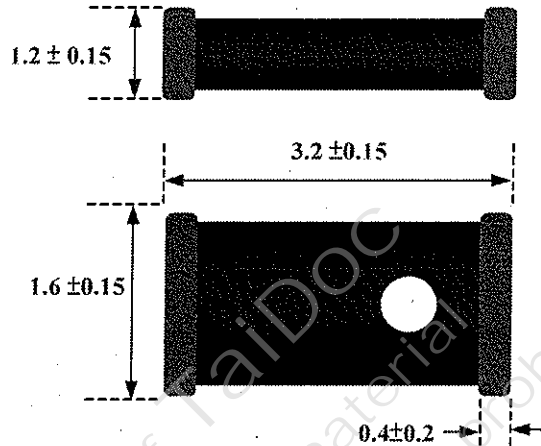
Centre Frequency	2.45 GHz* <sup>1</sup>
Bandwidth	at least 100 MHz* <sup>2</sup>
VSWR	2.5 (Max.)* <sup>2</sup>
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Peak Gain	5 dBi* <sup>2</sup>
Impedance	50Ω
Operating Temperature	-25~85 °C
Termination	Ni / Sn (Environmentally-Friendly Leadless)
Resistance to soldering heats	260°C , 10sec.
Maximum Power	1W



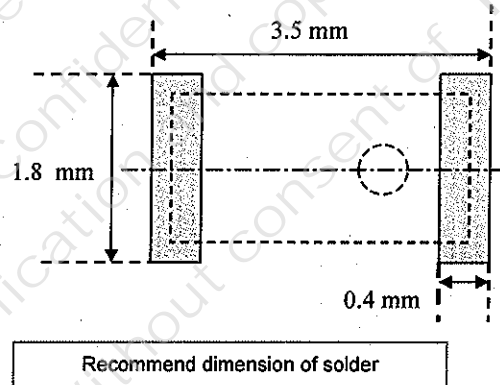
<sup>1</sup> All the technical data and information contained herein are subject to change without prior notice  
<sup>2</sup> Testing under evaluation board of page2

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**1. Mechanical Data (3.2 x 1.6 x 1.2 mm<sup>3</sup>)**

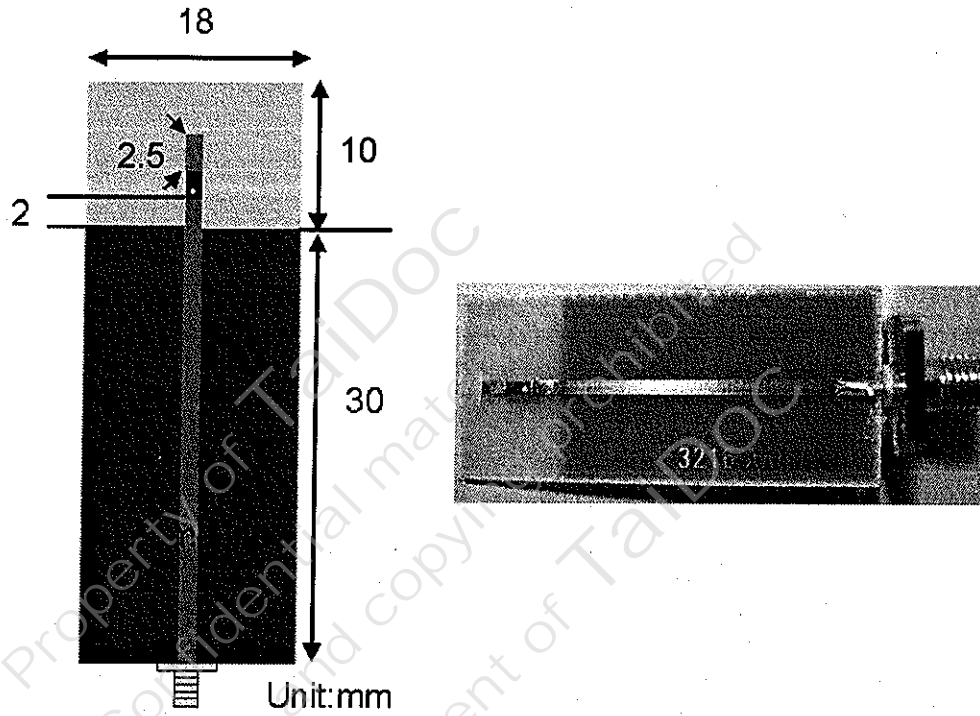


**2. Dimension of Footprint**



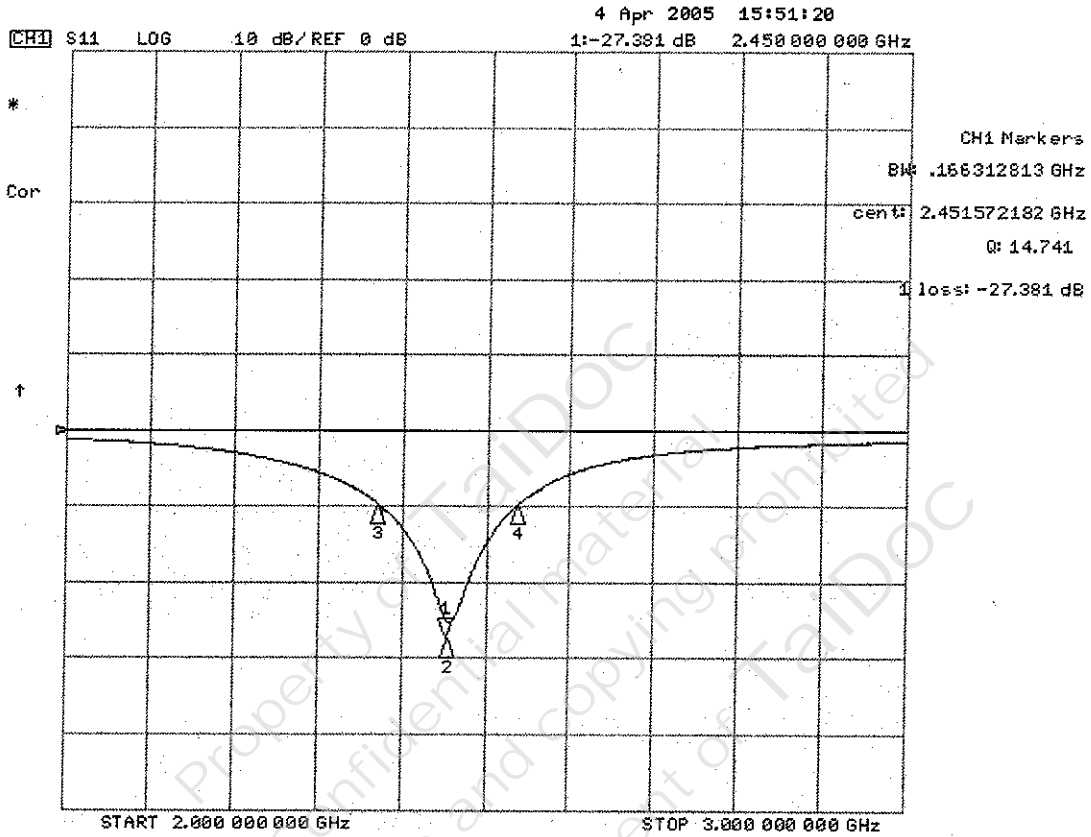
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### 3. Dimension and Outlook of Evaluation Board



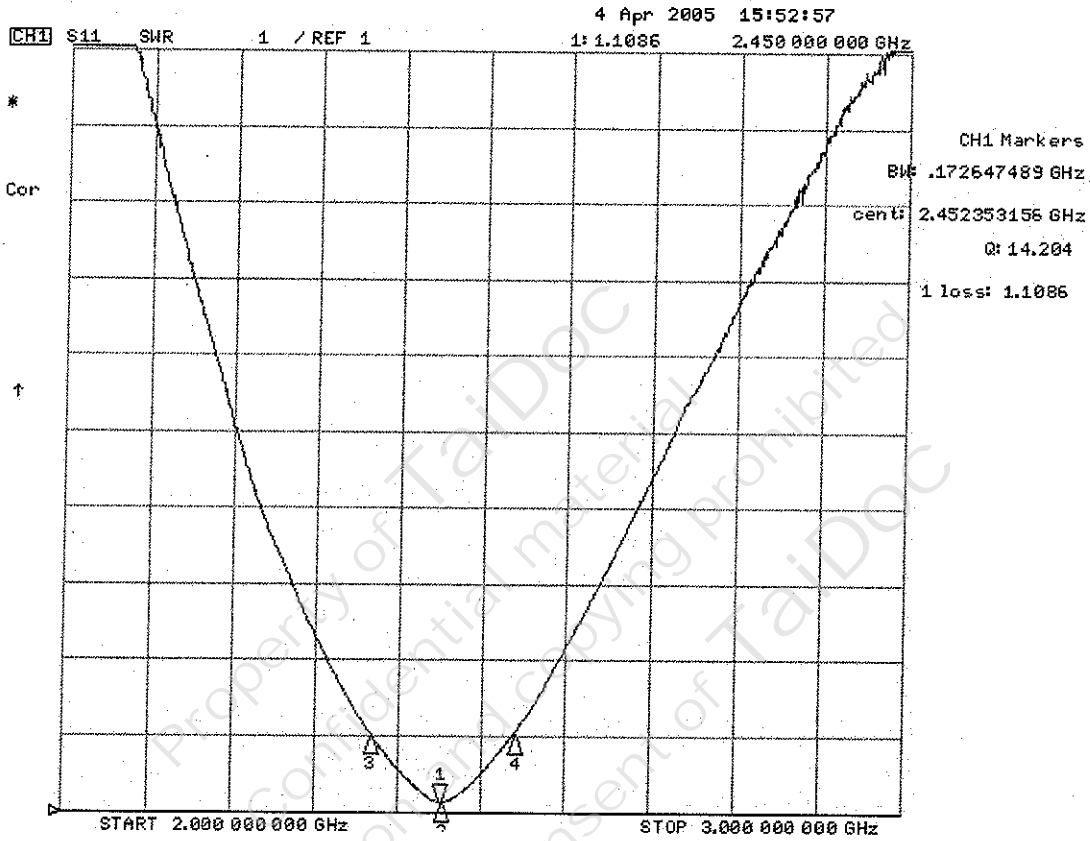
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### 4. Return Loss



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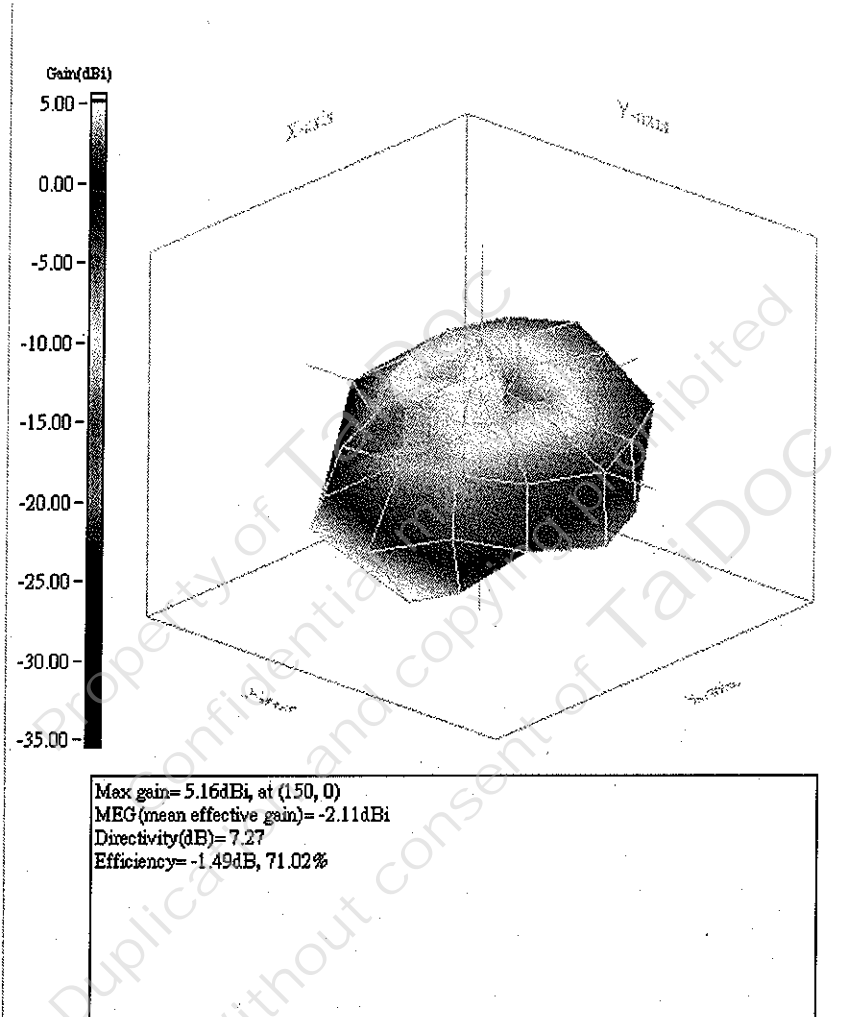
### 5. VSWR



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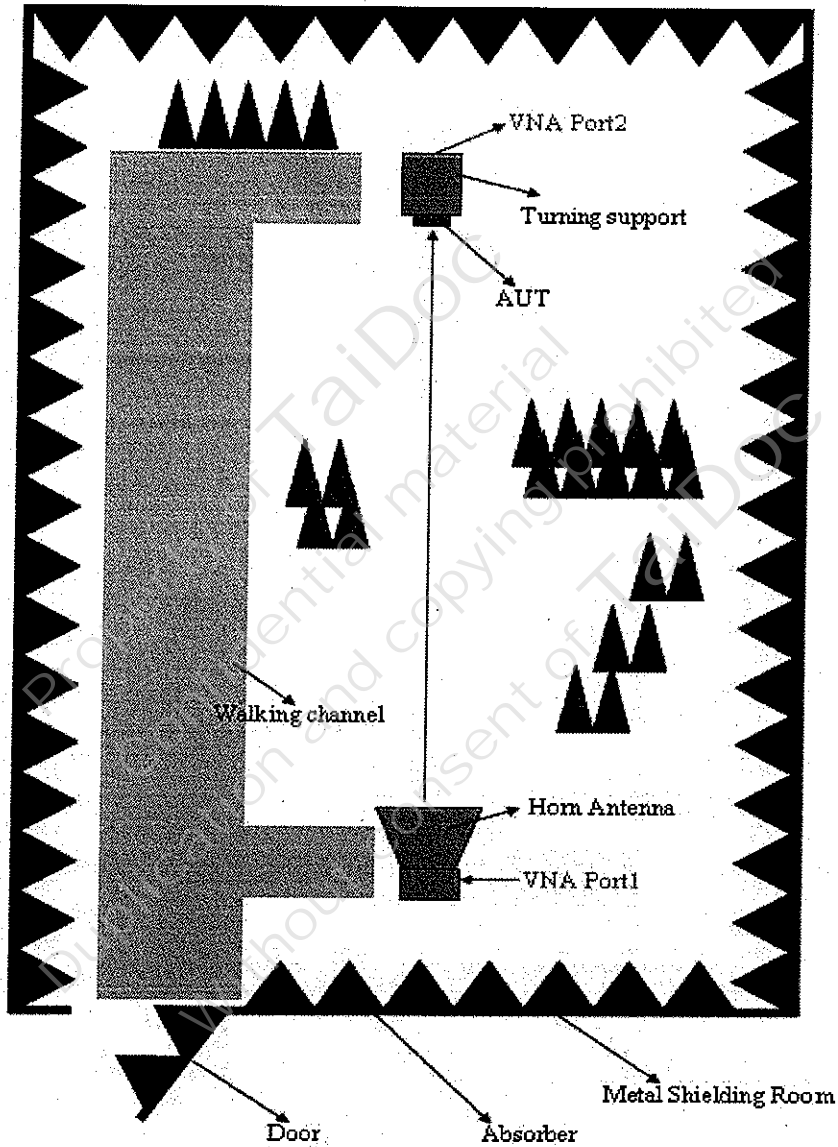


6. 3D Radiation Pattern (base on 40x18 mm demo board)



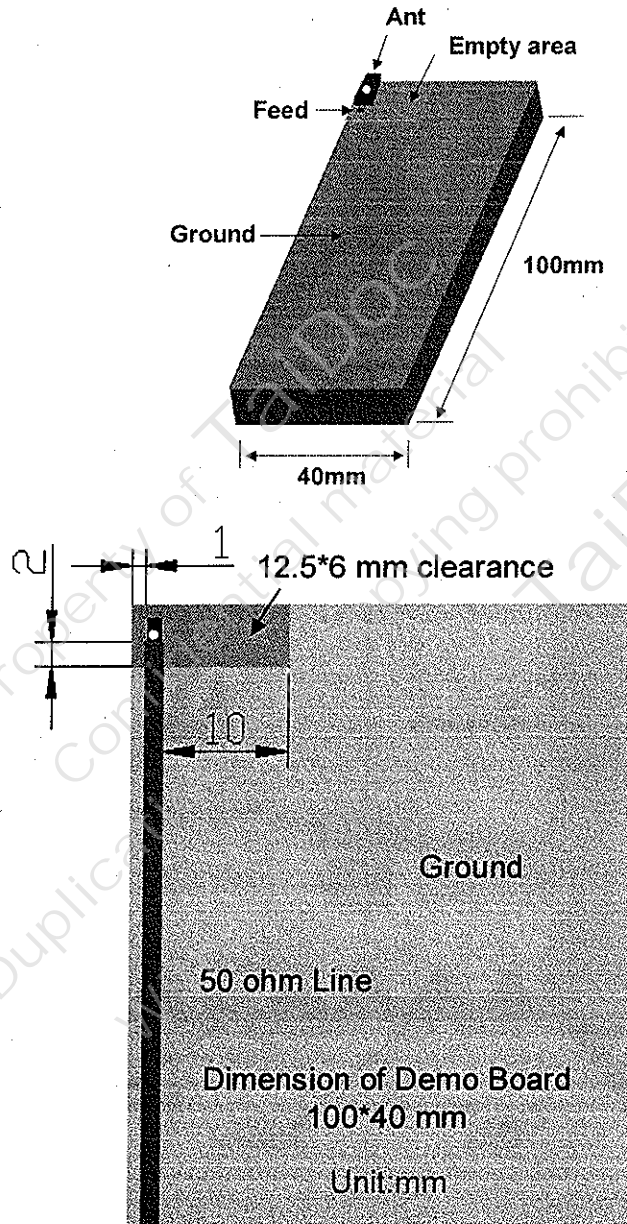
R&D	Print date 09/07/21					March, 2007 v4
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**7. The Environment of Antenna Radiation Pattern**  
**Anechoic Chamber Dimension=8(m) × 4(m) × 4(m)**



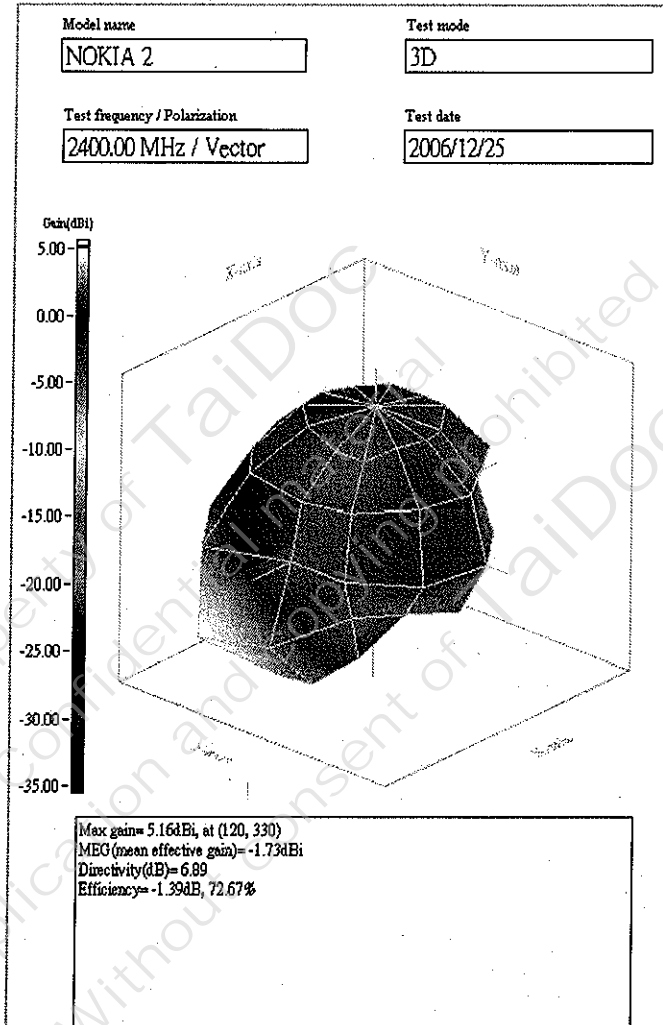
R&D	Print date 09/07/21				
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### 8. Layout Recommendation



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**9. 3D Radiation Pattern (base on 100x40mm demo board)**



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### 10. Reliability

IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.4		Mounting	The antenna can be mounted on printed-circuit boards or ceramic substrates by applying wave soldering, reflow soldering (including vapour phase soldering) or conductive adhesive	No visible damage
4.5		Visual inspection and dimension check	Any applicable method using $\times 10$ magnification	In accordance with specification (chip off 4mm)
4.6.1		Antenna	Central Frequency at 20 °C	Standard test board in page 4
4.8		Adhesion	A force of 3 N applied for 10 s to the line joining the terminations and in a plane parallel to the substrate	No visible damage
4.9		Bond strength of plating on end face	Mounted in accordance with CECC 32 100, paragraph 4.4	No visible damage
			Conditions: bending 0.5 mm at a rate of 1mm/s, radius jig. 340 mm, 2mm warp on FR4 board of 90 mm length	No visible damage
4.10	20(Tb)	Resistance to soldering heat	$260 \pm 5$ °C for $10 \pm 0.5$ s in a static solder bath	The terminations shall be well tinned after recovery and Central Freq. Change $\pm 6\%$

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IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
		Resistance to leaching	260 ± 5 °C for 30 ± 1 s in a static solder bath	Using visual enlargement of × 10, dissolution of the termination shall not exceed 10%
4.11	20(Ta)	Solderability	Zero hour test, and test after storage (20 to 24 months) in original atmosphere; un-mounted chips completely immersed for 2 ± 0.5 s in 235 ± 5°C.	The termination must be well tinned, at least 75% is well tinned at termination
4.12	4(Na)	Rapid change of temperature	-25 °C (30 minutes) to +85 °C (30 minutes); 100 cycles	No visible damage Central Freq. Change ± 6%
4.14	3(Ca)	Damp heat	500 ± 12 hours at 60 °C; 90 to 95 % RH	No visible damage 2 hours recovery Central Freq. Change ± 6%
4.15		Endurance	500 ± 12 hours at 85 °C;	No visible damage 2 hours recovery Central Freq. Change ± 6%

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### 11. Ordering Information

The antennas may be ordered by using the Yageo ordering code. These code numbers can be determined by the following rules:

#### CAN43 11 7 12 xx 245 3K

**Family Code**

**CAN 43** = Yageo Part No. for Antenna

**Packing Type Code**

**11** = 180 mm/ 7" reel , blister taping

**Materials Code**

**7** = High Frequency Material

**Size Code**

**11** = 3.2 \* 2.5

**12** = 3.2 \* 1.6

**13** = 2.5 \* 2.0

**14** = 2.0 \* 1.2

**15** = 1.6 \* 0.8

**Antenna type**

**00** = normal type

**02** = Type 2

**03** = Type 3

**04** = Type 4

**05** = Type 5

**06** = Type 6

**07** = Type 7

**08** = Type 8

**09** = Type 9

**Working Frequency**

**245** = 2.45 GHz

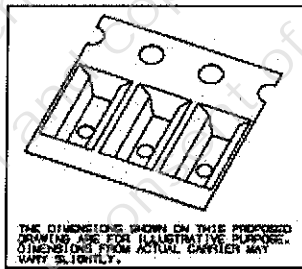
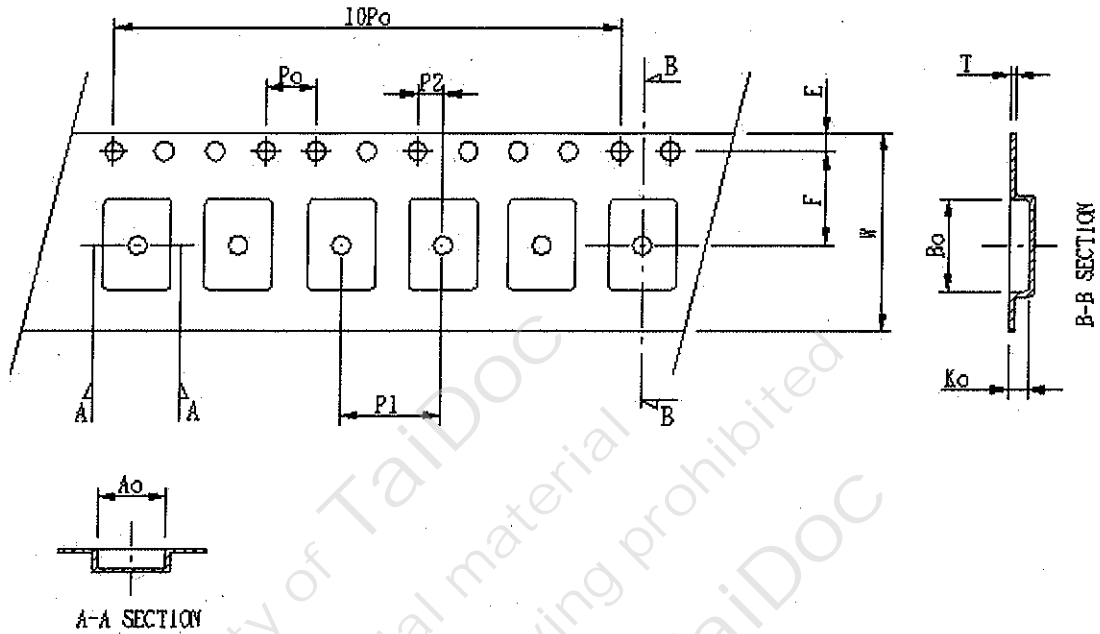
**Packing Type Code**

**3K** = 3000 pcs for taping per reel

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## 12. Taping Blister Tape

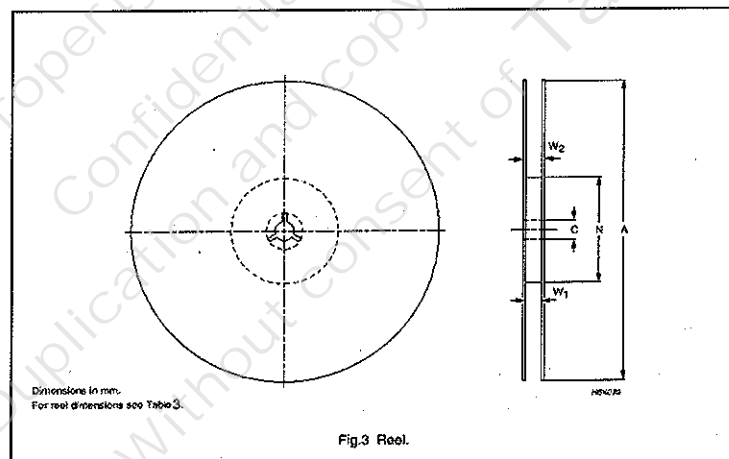


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**Dimension of tape :**

Serial no	Checking note	Index	Spec(mm)
1	Sprocket hole	Do	1.50±0.10
2	Pocket hole	D1	1.0±0.05
3	Distance sprocket hole/sprocket hole	Po	4.0±0.10
4	Distance pocket/pocket	P1	4.0±0.10
5	Distance sprocket hole/pocket	P2	2.0±0.05
6	Tape width	W	12.0±0.30
7	Distance sprocket hole/outside	E	1.75±0.10
8	Distance sprocket hole/pocket	F	5.50±0.05
9	Pocket length	Ao	1.47±0.20
10	Pocket length	Bo	3.4±0.20
11	Pocket depth	Ko	1.8±0.20
12	Thickness of tape	T	0.279±0.02
13	10x sprocket hole pitch	10Po	40.0±0.20

**Specifications of 7"(180mm) Reel**



Tape Width (mm)	A (mm)	N (mm)	C (mm)	W1 (mm)	W2 max. (mm)
12	180	60±1	13 <sup>+0.5/-0.2</sup>	12.4 <sup>+2.0</sup>	18.4

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**13. Revision Control:**

Revision	Date	Content	Remark
V1	4 <sup>th</sup> , April, 2005	New Issued	
V2	April, 2006	Add taping description	
V3	July, 2006	Modify the format of part nr.	
V4	March, 2007	Add the 3D radiation pattern	
V5	7 <sup>th</sup> , July, 2007	Modify the dimension of the product and footprint	
V6	21 <sup>st</sup> , July, 2009	Modify the dimension of the product and add tolerance	

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## 測試報告 Test Report

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國巨股份有限公司楠梓分公司

YAGEO CORPORATION NANTZE BRANCH

高雄市楠梓加工出口區西三街16號

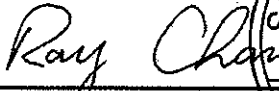
16, WEST 3RD STREET N. E. P. Z. KAOHSIUNG, TAIWAN, R. O. C.



以下測試樣品係由客戶送樣，且由客戶聲稱並經客戶確認如下 (The following samples was/were submitted and identified by/on behalf of the client as) :

樣品名稱(Sample Description) : LTCC RF COMPONENT (BALUN / FILTER / ANTENNA)  
樣品型號(Style/Item No.) : BLUE SERIES  
收件日期(Sample Receiving Date) : 2011/04/21  
測試期間(Testing Period) : 2011/04/21 TO 2011/04/26

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).

  
Ray Chang / Asst. Manager  
Signed for and on behalf of  
SGS Taiwan Limited



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# 測試報告 Test Report

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國巨股份有限公司楠梓分公司

YAGEO CORPORATION NANTZE BRANCH

高雄市楠梓加工出口區西三街16號

16, WEST 3RD STREET N. E. P. Z. KAOHSIUNG, TAIWAN, R. O. C.



測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
多溴聯苯醚總和 / Sum of PBDEs	mg/kg	參考IEC 62321: 2008方法, 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
一溴聯苯醚 / Monobromodiphenyl ether			5	n.d.
二溴聯苯醚 / Dibromodiphenyl ether			5	n.d.
三溴聯苯醚 / Tribromodiphenyl ether			5	n.d.
四溴聯苯醚 / Tetrabromodiphenyl ether			5	n.d.
五溴聯苯醚 / Pentabromodiphenyl ether			5	n.d.
六溴聯苯醚 / Hexabromodiphenyl ether			5	n.d.
七溴聯苯醚 / Heptabromodiphenyl ether			5	n.d.
八溴聯苯醚 / Octabromodiphenyl ether			5	n.d.
九溴聯苯醚 / Nonabromodiphenyl ether			5	n.d.
十溴聯苯醚 / Decabromodiphenyl ether	5	n.d.		
六溴環十二烷 / Hexabromocyclododecane (HBCDD) (CAS No.: 25637-99-4)	mg/kg	參考US EPA 3540C: 1996方法, 以氣相層析質譜儀檢測. / With reference to US EPA 3540C: 1996 method. Analysis was performed by GC/MS.	5	n.d.
鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	%	本測試參考EN 14372, 以氣相層析儀/質譜儀檢測之. / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
鄰苯二甲酸甲苯基丁酯 / BBP (Benzyl butyl phthalate) (CAS No.: 85-68-7)	%	本測試參考EN 14372, 以氣相層析儀/質譜儀檢測之. / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	%	本測試參考EN 14372, 以氣相層析儀/質譜儀檢測之. / With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.

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# 測試報告 Test Report

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國巨股份有限公司楠梓分公司  
YAGEO CORPORATION NANTZE BRANCH  
高雄市楠梓加工出口區西三街16號  
16, WEST 3RD STREET N. E. P. Z. KAOHSIUNG, TAIWAN, R. O. C.



測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
鹵素 / Halogen				
鹵素 (氟) / Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (氯) / Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析。 / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.

### 備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. "-" = Not Regulated (無規格值)

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# 測試報告 Test Report

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國巨股份有限公司楠梓分公司

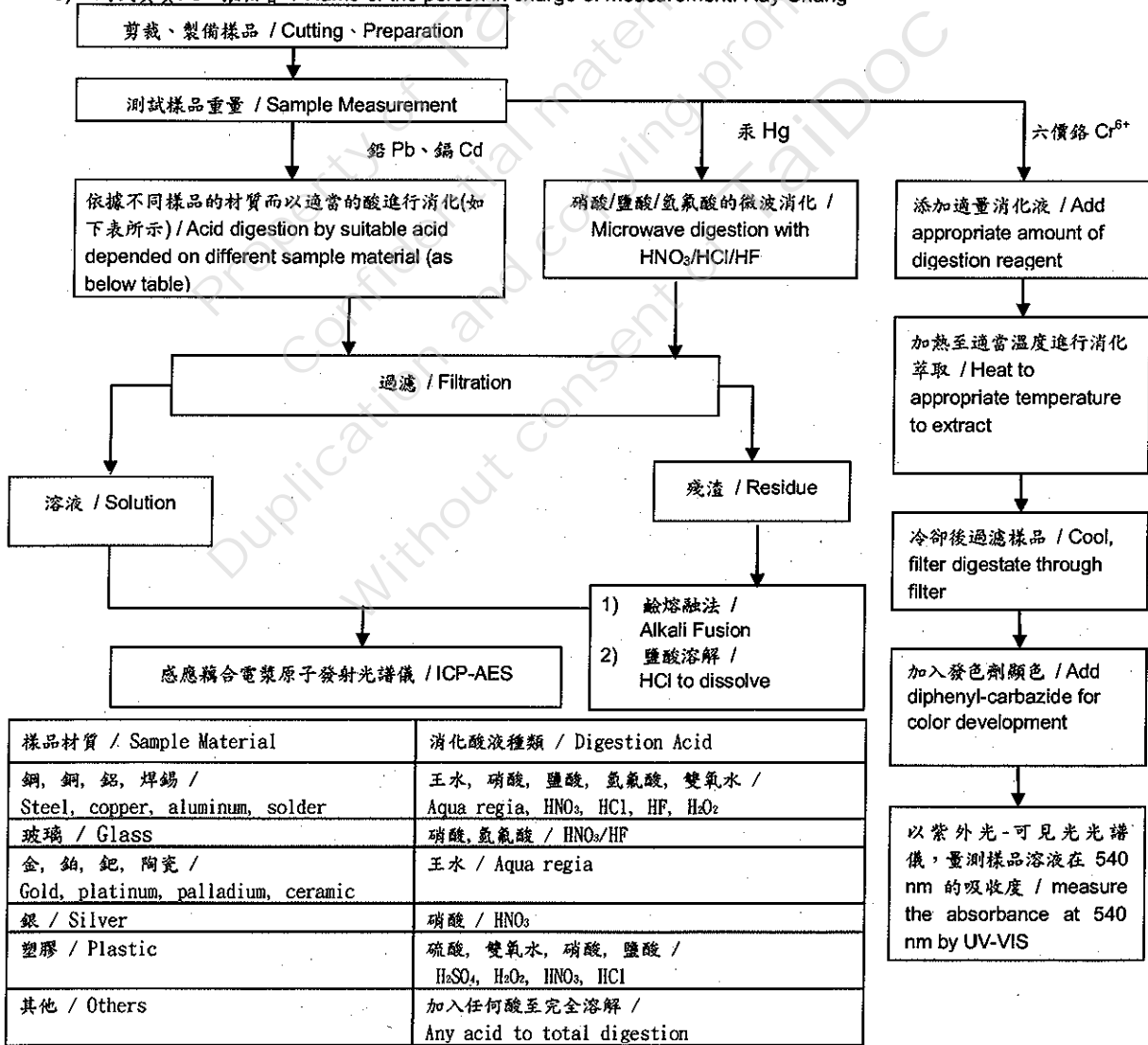
YAGEO CORPORATION NANTZE BRANCH

高雄市楠梓加工出口區西三街16號

16, WEST 3RD STREET N. E. P. Z. KAOHSIUNG, TAIWAN, R. O. C.



- 1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)
- 2) 測試人員：張俊雄 / Name of the person who made measurement: Alex Chang
- 3) 測試負責人：張伯霖 / Name of the person in charge of measurement: Ray Chang



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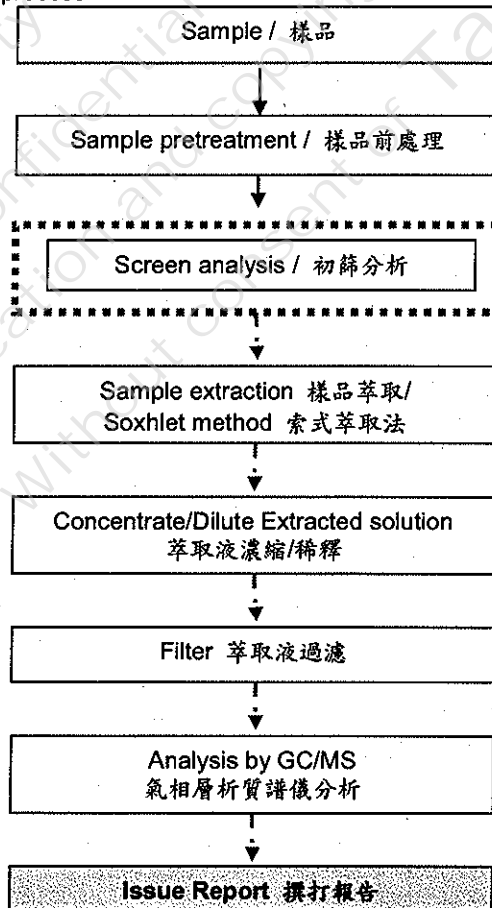
國巨股份有限公司楠梓分公司  
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高雄市楠梓加工出口區西三街16號  
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## 多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

- 1) 測試人員 : 曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人 : 張伯睿 / Name of the person in charge of measurement: Ray Chang

初次測試程序 / First testing process →  
 選擇性篩檢程序 / Optional screen process .....  
 確認程序 / Confirmation process - - - ▶







# 測試報告 Test Report

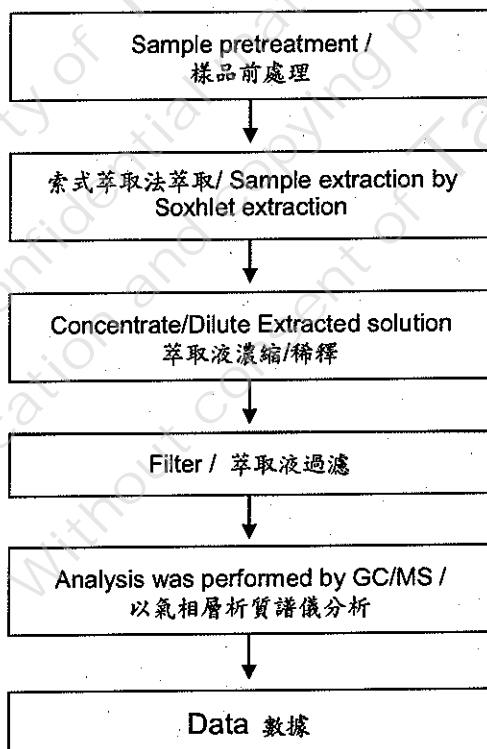
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## 六溴環十二烷分析流程圖 / HBCDD Analytical FLOW CHART

- 1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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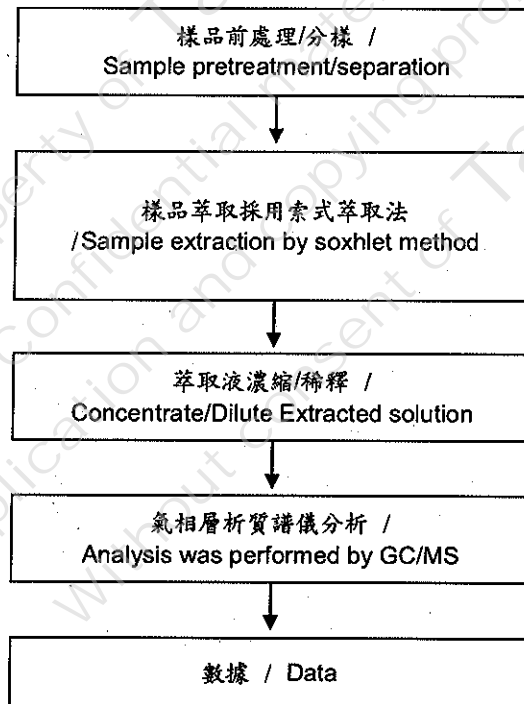
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## 可塑劑分析流程圖 / Analytical flow chart of phthalate content

- 1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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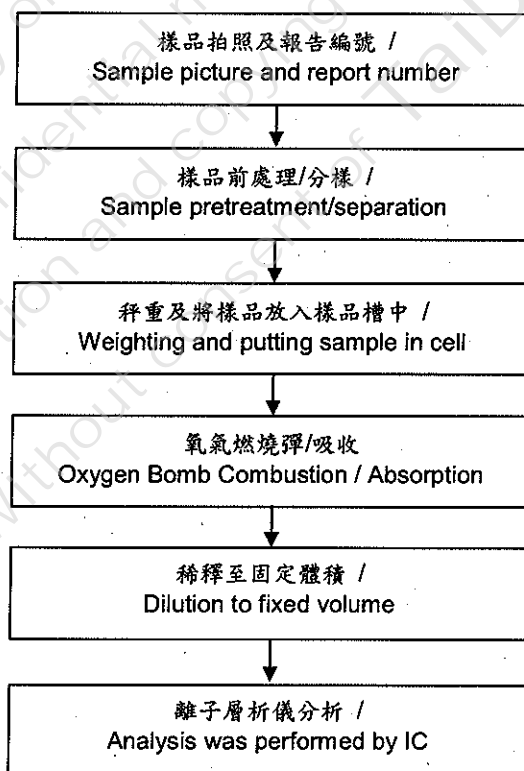
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### 鹵素分析流程圖 / Analytical flow chart of halogen content

- 1) 測試人員：洪秀真 / Name of the person who made measurement: Jean Hung
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



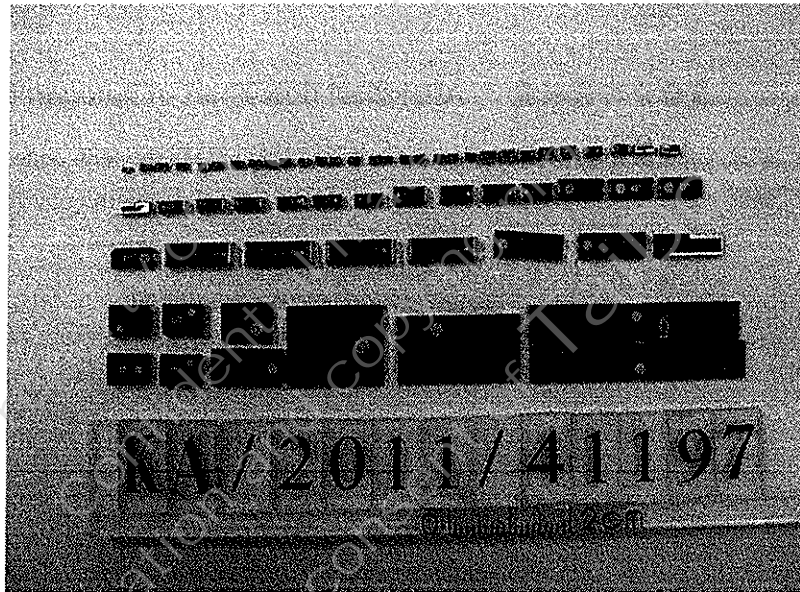
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