CC&C 晶訊科技股份有限公司
CC&C Technologies, Inc.

CC&C APPROVAL
數位簽署者 Kelly Chung
DN：cn=Kelly Chung，c=TW - 台灣，o=DCC，ou=DCC
日期：2009.10.28 13:42:57 +08'00'

承　認　書
SPECIFICATION FOR APPROVAL

使用機種：**Bluetooth V2.0 EDR USB Adapter, I**

品　　號：**30G000000-00**

品　　名：**Ceramic Chip Antenna**

製 造 商：**YAGEO**

製造商型號：**CAN4311153002301K**

採購部門		零件承認單位		
採購承辦	主管審核	承　認	審　查	核　准
Kylie 10/6		Alex 10/6		

注意事項：

晶訊科技 研發處 OCT 2 8 2009 文件管制章

興邦國際股份有限公司

SPECIFICATION FOR APPROVAL

承 認 書

DATE / 日期 : 2009.10.20

Customer /
客戶名稱： 晶訊科技股份有限公司

Description /
品名規格 ： **5320 Ceramic Chip Antenna for IEEE 802.11 b/g & Blue tooth Application**
CAN43111 5300 2301K

Brand /
承認品牌 ： **YAGEO BRAND**

Spec NO. /
編號 ：

Vendor NO.
承認號碼 ：

Approval Signatures /
承認簽回 ：

(Please return one copy with your approval / 承認後請寄回本承認書一份)

業務部
2009.10.20
蘇明珊

興邦國際股份有限公司 台北縣新店市寶橋路235巷16弄3號2樓
Hsin Bung International Co., Ltd TEL:+886.2.2914.3801 FAX:+886.2.2918.6664

ANTENNA PRODUCTS

DATA SHEET

5320 Ceramic Chip Antenna for IEEE 802.11 b/g & Bluetooth Application

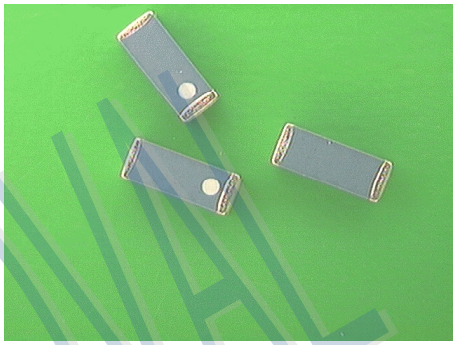
Jan, 2009 Rev.3

R&D	Print date 09/02/02							
	5320 Ceramic Chip Antenna for WLAN & Bluetooth Application			**CAN4311153002xx1K**			July,2006	
							March, 2007	
							Jan, 2009	
Justin Liu	Tommy Chen	Jan. 2009		Page 1	sheet 190-1			A4
spec.doc	Yageo Taiwan							

5320 Ceramic Chip Antenna for IEEE802.11 b/g & Bluetooth Application

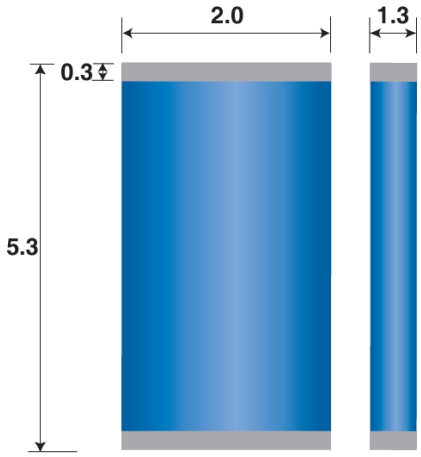
Quick Reference Data

Central Frequency	2.45GHz*[1]
Bandwidth	at least 200 MHz*[2]
VSWR	2.0 (Max.)*[2]
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Peak Gain	5.5 dBi*[2]
Impedance	50Ω
Operating Temperature	-25~85 °C
Termination	Ni / Sn (Environmentally-Friendly Leadless)
Resistance to soldering heats	260℃ , 10sec.
Maximum Power	1W



[1] All the technical data and information contained herein are subject to change without prior notice
[2] Testing under evaluation board of page2

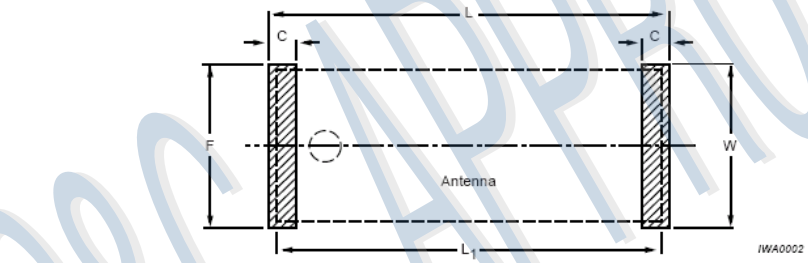
1. Mechanical Data (5.3 x 2.0x 1.3mm³)



Unit: mm

2. Dimension of Footprint

FOOTPRINT DIMENSIONS



For dimensions see Table 2.

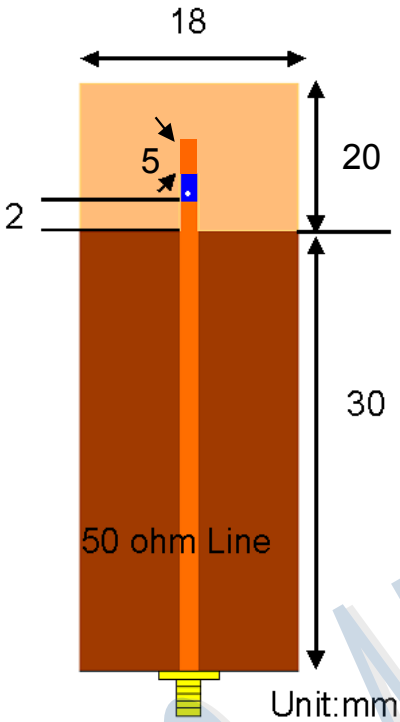
Fig.2. Recommend dimensions of solder

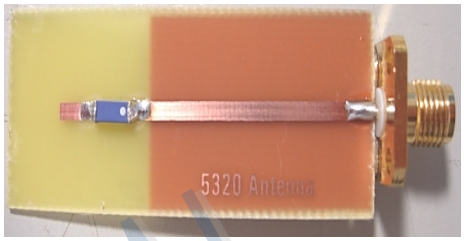
Physical dimensions

Table 2 The dimensions of antenna appearance

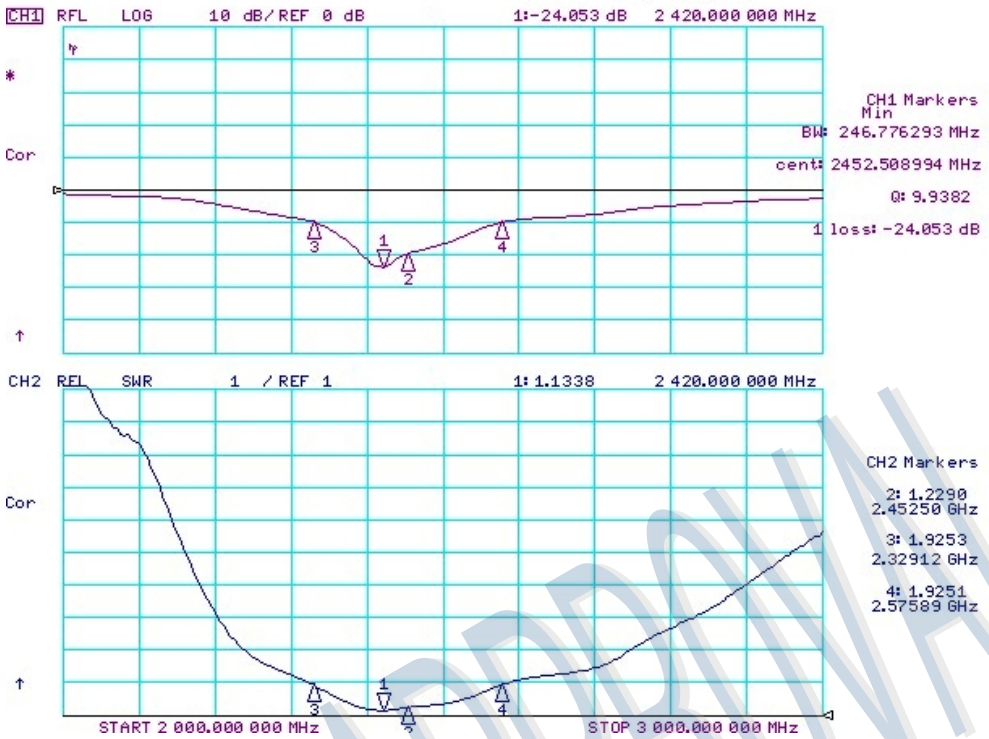
SYMBOL	DETAILS	DIMENSIONS (mm)
L	–	5.5 ±0.2
W	–	2.2 ±0.2
F	feed pad	2.2 ±0.2
C	–	0.5 ±0.25
L1	–	5.3 ±0.5

3. Evaluation Board Dimension and Outlook

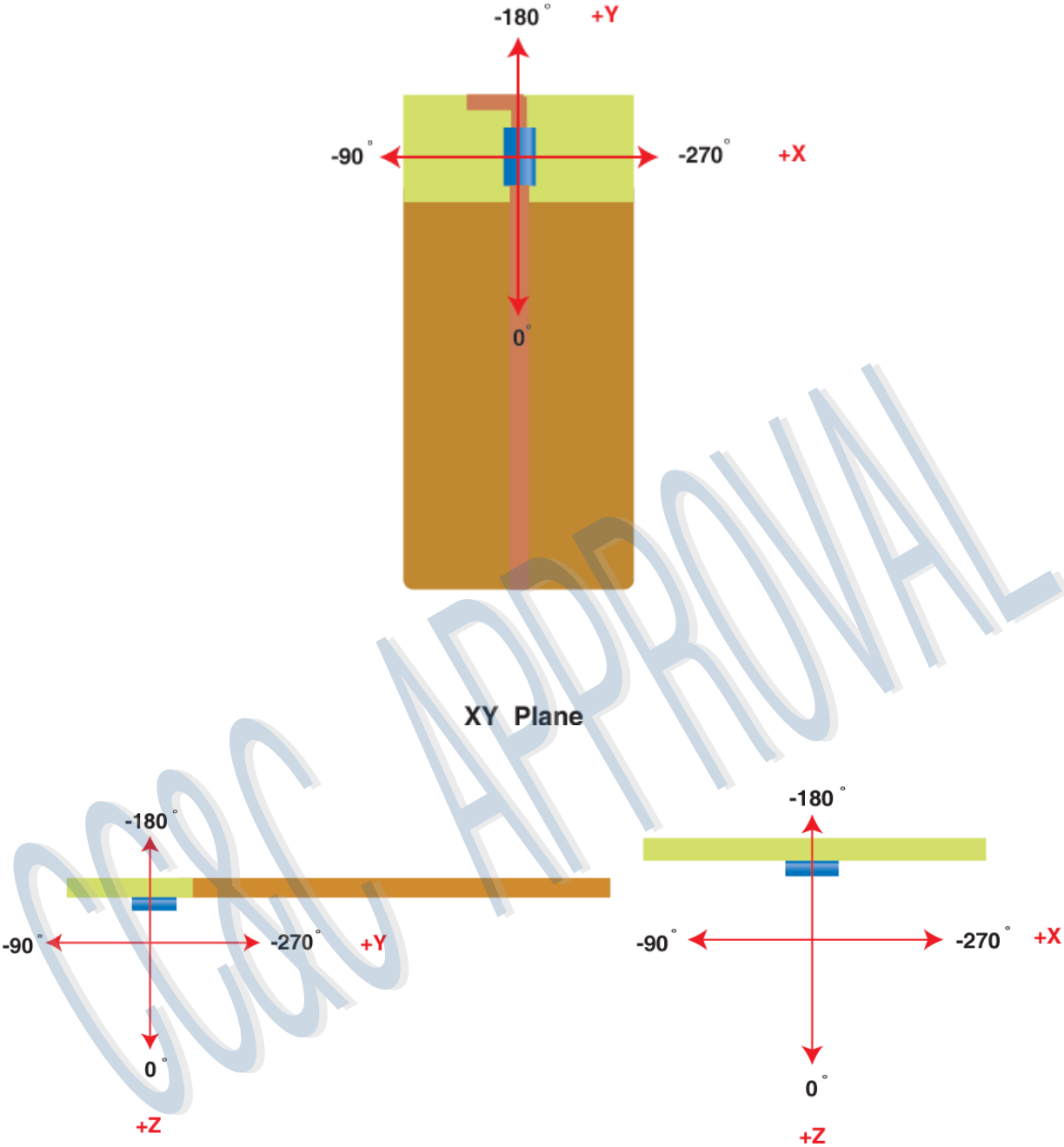




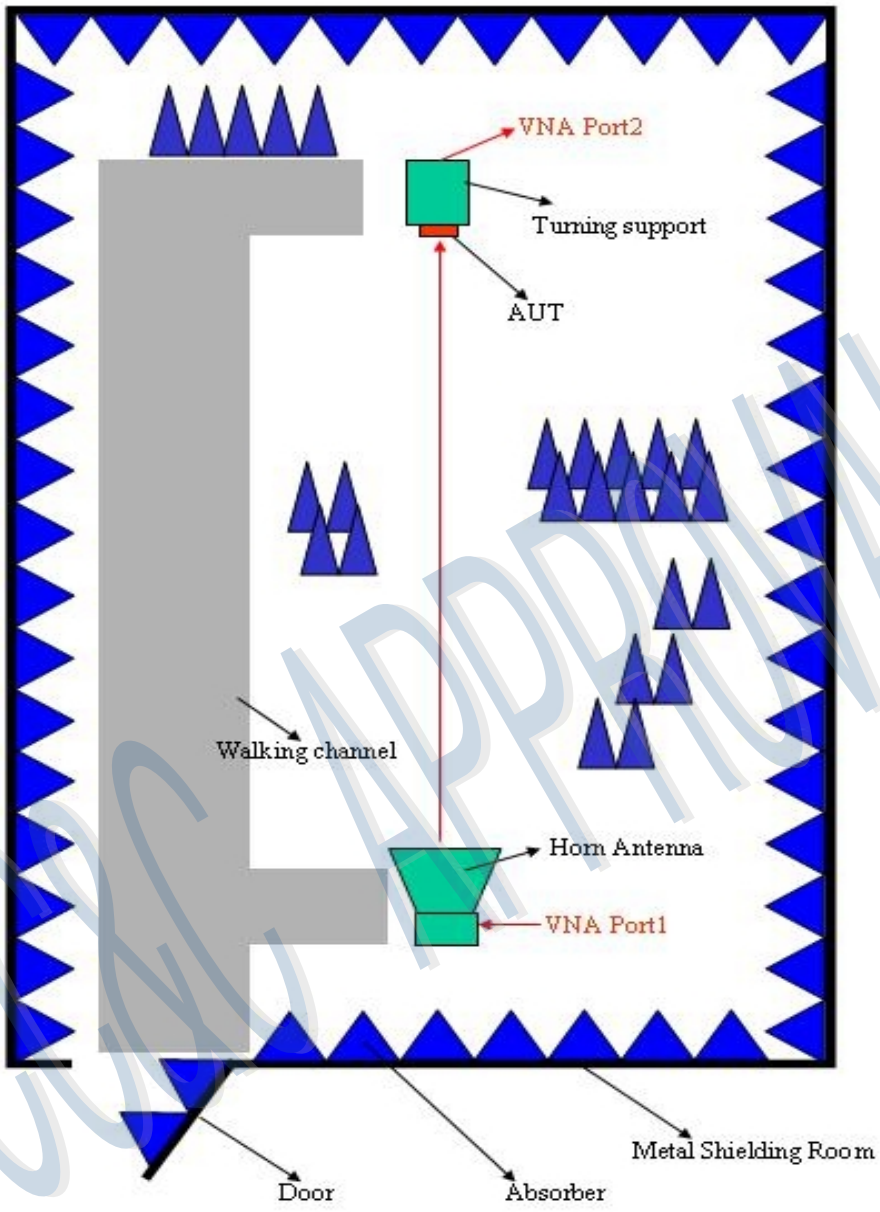
4. Return Loss



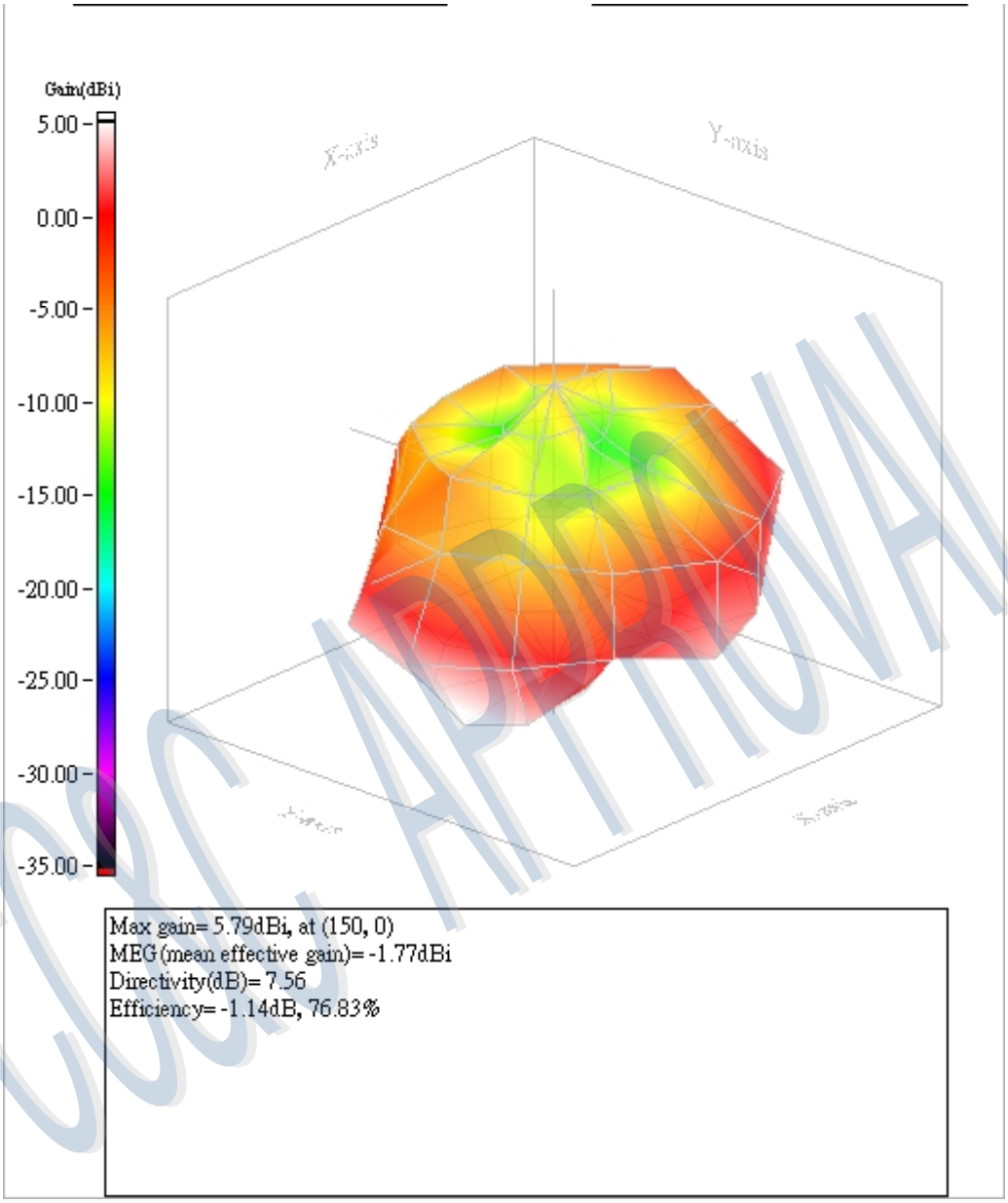
5. The Definition of X-Y-Z Plane and Angle



6. The Environment of Antenna Radiation Pattern
Anechoic Chamber Dimension=10(m) × 6(m) × 6(m)



7. 3D Radiation Pattern



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 ´ 10 magnification	In accordance with specification (chip off 4mm)
4.6.1		Antenna	Central Frequency at 20 ^{o}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 ± 5 °C for 10 ± 0.5 s in a static solder bath	The terminations shall be well tinned after recovery and Central Freq. Change ± 6%
		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%

IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
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%

Ordering Information

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

CAN 43	11	1	53	00	2xx	1K
A	P	M	S	B	T	Q

A. Family Code

CAN 43 = Yageo Part No. for Antenna

P.Packing Type Code

11 = 180 mm/ 7" reel, blister taping

M. Materials Code

1 = High Frequency Material

S. Size Code

53= 5.3 * 2.0*1.3mm

B. Application

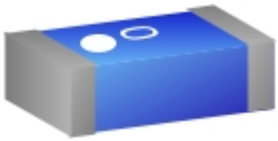
00 = Bluetooth Application

T. Type

200 = type 0
210 = type 1
220 = type 2
230 = type 3
240 = type 4
245 = normal type
250 = type 5

Q. Packing amount

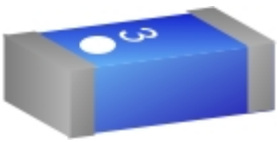
1K = 1000 pcs for taping per reel



5320 Chip Antenna Type 0
CAN4311153002001K
(Bluetooth & Wifi)

5320 Chip Antenna Type 1
CAN4311153002101K
(Bluetooth & Wifi)

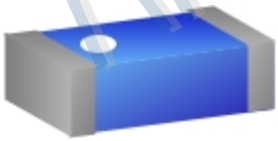
5320 Chip Antenna Type 2
CAN4311153002201K
(Bluetooth & Wifi)



5320 Chip Antenna Type 3
CAN4311153002301K
(Bluetooth & Wifi)

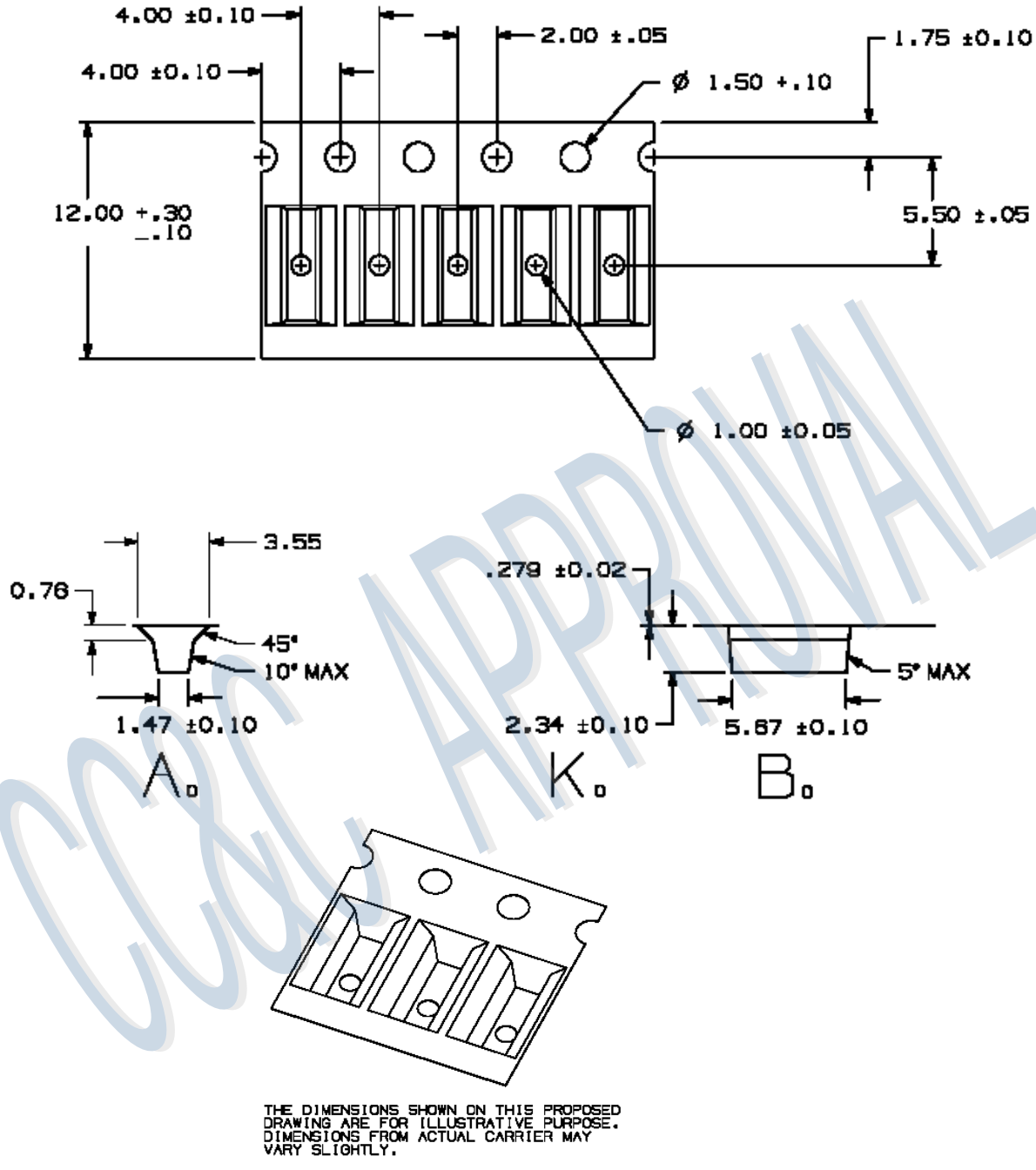
5320 Chip Antenna Type 4
CAN4311153002401K
(Bluetooth & Wifi)

5320 Chip Antenna Type 5
CAN4311153002501K
(Bluetooth & Wifi)



5320 Chip Antenna Normal Type
CAN4311153002451K
(Bluetooth & Wifi)

Taping Blister Tape



THE DIMENSIONS SHOWN ON THIS PROPOSED DRAWING ARE FOR ILLUSTRATIVE PURPOSE. DIMENSIONS FROM ACTUAL CARRIER MAY VARY SLIGHTLY.

DIMENSION:

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±0.10
10	Pocket length	Bo	5.57±0.10
11	Pocket depth	Ko	2.34±0.10
12	Thickness of tape	T	0.279±0.02
13	10x sprocket hole pitch	10Po	40.0±0.20

7”(180mm) Reel Specifications

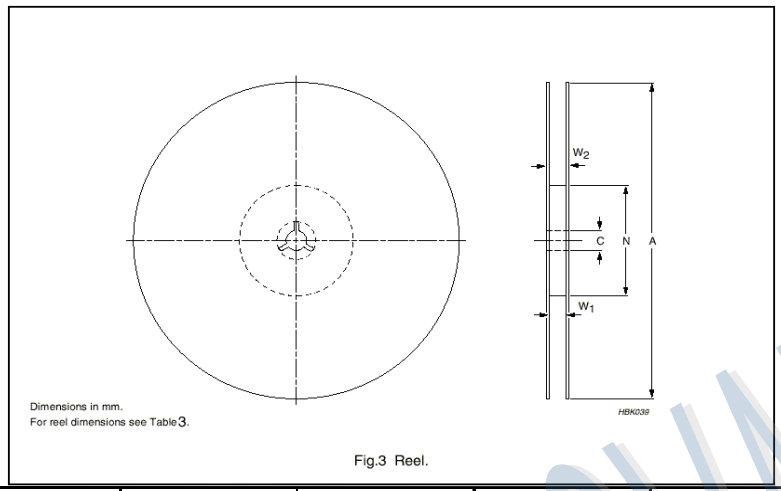


Fig.3 Reel.

TAPE WEITH (mm)	A (mm)	N (mm)	C (mm)	W_1 (mm)	W_2 MAX. (mm)
12	180	60±1	$13^{+0.50}/_{-0.20}$	$12.4^{+2.0}/_{-0.0}$	18.4

Revision Control:

Revision	Date	Content	Remark
1	2006, July	Modify the description for part nr.	
2	2007, March	Modify the part nr.	
3	2009, Jan	Add description for each type	

Test Report

No. : KA/2009/30993 Date : 2009/03/18 Page : 1 of 7

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

The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description	:	LTCC RF COMPONENT(BALUN/FILTER/ANTENNA)
Style/Item No.	:	BLUE SERIES
Sample Receiving Date	:	2009/03/13
Testing Period	:	2009/03/13 TO 2009/3/18

==========

Test Result(s) : Please refer to next page(s).

Ray Chang

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

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

Test Result(s)

PART NAME NO.1 : MIX ALL PARTS:BLUE LTCC RF

Test Item (s):	Unit	Method	MDL	Result No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321:2008. Determination of Cadmium by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321:2008. Determination of Mercury by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321:2008. Determination of Lead by ICP-AES.	2	17.0
Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	With reference to IEC 62321:2008. Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.	2	n.d.
Sum of PBBs	mg/kg	With reference to IEC 62321:2008. Determination of PBB and PBDE by GC/MS.	-	n.d.
Monobromobiphenyl			5	n.d.
Dibromobiphenyl			5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromobiphenyl			5	n.d.
Pentabromobiphenyl			5	n.d.
Hexabromobiphenyl			5	n.d.
Heptabromobiphenyl			5	n.d.
Octabromobiphenyl			5	n.d.
Nonabromobiphenyl			5	n.d.
Decabromobiphenyl			5	n.d.
Sum of PBDEs	mg/kg	With reference to IEC 62321:2008. Determination of PBB and PBDE by GC/MS.	-	n.d.
Monobromodiphenyl ether			5	n.d.
Dibromodiphenyl ether			5	n.d.
Tribromodiphenyl ether			5	n.d.
Tetrabromodiphenyl ether			5	n.d.
Pentabromodiphenyl ether			5	n.d.
Hexabromodiphenyl ether			5	n.d.
Heptabromodiphenyl ether			5	n.d.
Octabromodiphenyl ether			5	n.d.
Nonabromodiphenyl ether			5	n.d.
Decabromodiphenyl ether			5	n.d.

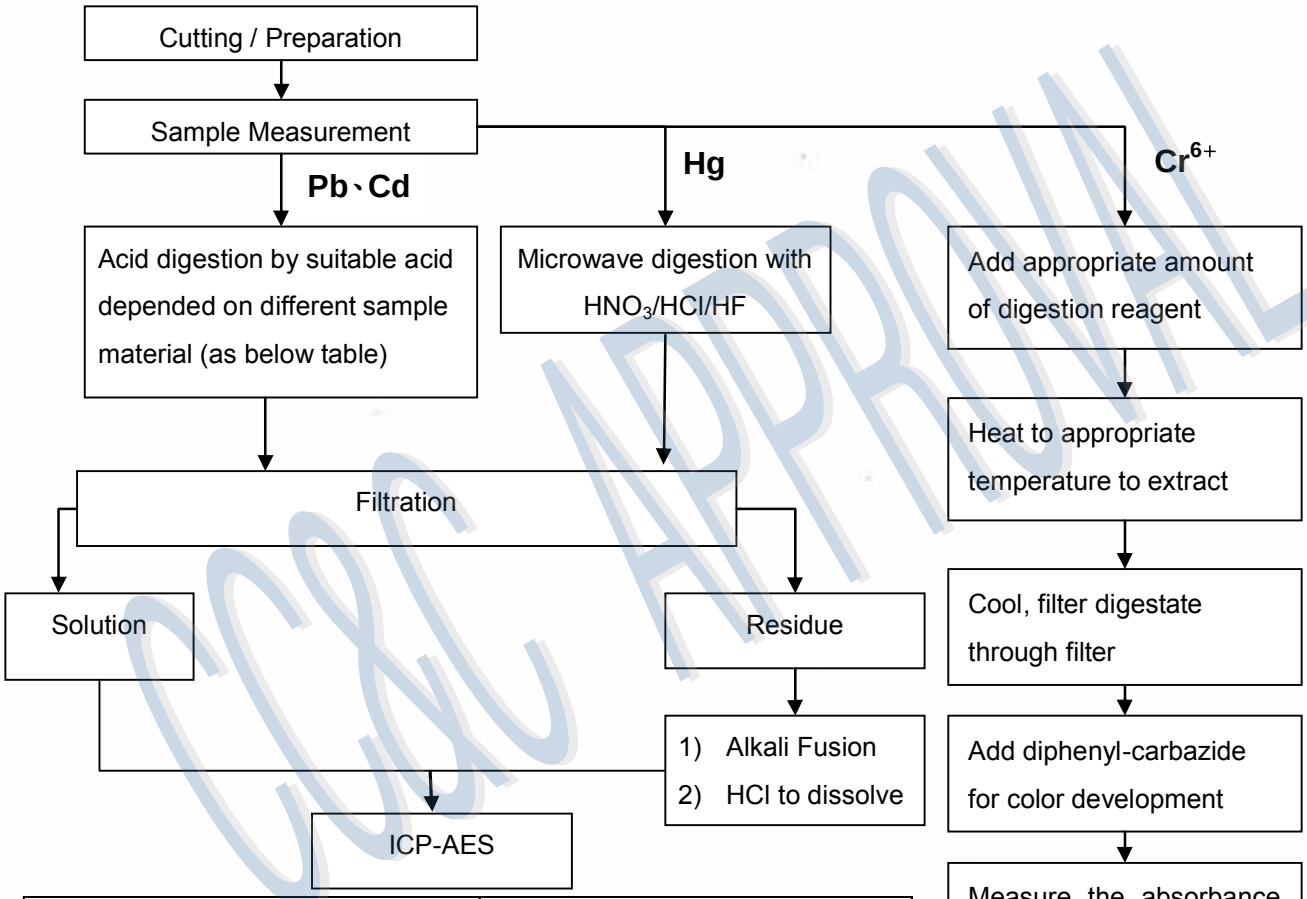
YAGEO CORPORATION NANTZE BRANCH.
16, WEST 3RD STREET N. E. P. Z. KAOHSIUNG, TAIWAN, R. O. C.

Test Item (s):	Unit	Method	MDL	Result No.1
Halogen		With reference to BS EN 14582:2007. Analysis was performed by IC method for F , Cl , Br, I content.		
Halogen-Chlorine (Cl) (CAS No.: 022537-15-1)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Chlorine content.	50	n.d.
Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Fluorine content.	50	n.d.
Halogen-Bromine (Br) (CAS No.: 010097-32-2)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Bromine content.	50	n.d.
Halogen-Iodine (I) (CAS No.: 014362-44-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Iodine content.	50	n.d.

Note： 1. mg/kg = ppm；0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated
5. The exemption of DecaBDE in polymeric application according 2005/717/EC was overruled by the European Court of Justice by its decision of 01.04.2008. Subsequently DecaBDE will be included in the sum of PBDE after 01.07.2008

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

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.（Cr6+ test method excluded）
2) Name of the person who made measurement: Hungming Li
3) Name of the person in charge of measurement: Ray Chang



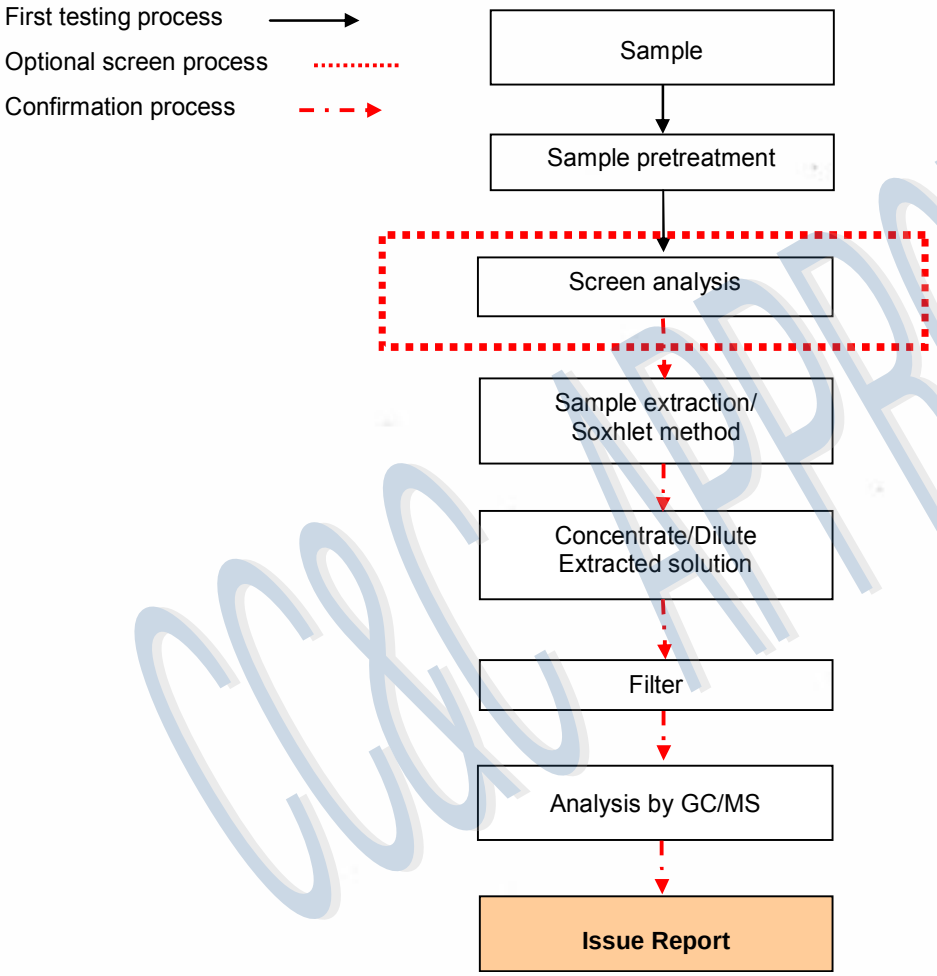
Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO_3, HCl, HF, H_2O_2
Glass	HNO_3/HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO_3
Plastic	H_2SO_4, H_2O_2, HNO_3, HCl
Others	Any acid to total digestion

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

PBB/PBDE analytical FLOW CHART

1) Name of the person who made measurement: Anson Tsao

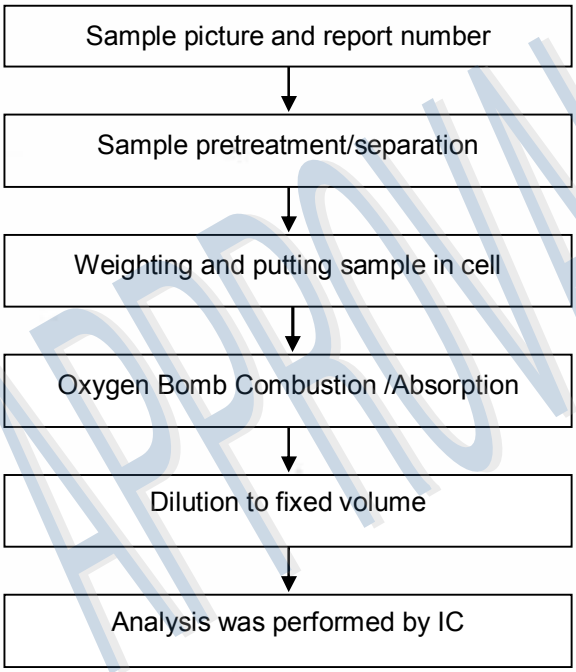
2) Name of the person in charge of measurement: Ray Chang



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

Analytical flow chart of halogen content

1) Name of the person who made measurement: Hungming Li
2) Name of the person in charge of measurement: Ray Chang



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

** End of Report **

CC&C 晶訊科技股份有限公司
CC&C Technologies, Inc.

不使用證明書（零部件量產用）

列印日期：

公司名稱：興邦國際股份有限公司
部門簽名：業務部
交易單位代碼：3060000000
負責人姓名：蔡淑貞
e-mail：cream@hsinbung.com.tw

印

1. 茲證明向貴公司交貨的零部件、輔助材料及裝置部件的使用材料、包裝材料以及生產工程中的添加劑等，沒有晶訊科技公司規定的禁止使用物質（Level 1）；如本公司所生產之產品中，含有晶訊科技股份有限公司規定禁用之物質，本公司將負產品回收及賠償之責任。。
2. 交貨的零部件、輔助材料及裝置部件，請參看附件。

填寫內容：產品名稱、生產工廠、（交貨或變更）開始（交貨日、Serial No. or Lot. No.）

產品名稱:Bluetooth Antenna
生產工廠:台灣高雄廠

本文件保存期限：三年

CC&C 晶訊科技股份有限公司
CC&C Technologies, Inc.

不使用證明書（零部件批准部品）

列印日期：

- 公司名稱：興邦國際股份有限公司
- 部門簽名：業務部
- 交易單位代碼：
- 負責人姓名：　蔡淑貞
- e-mail：cream@hsinbung.com.tw

印

茲證明關於向貴公司交貨的零部件、輔助材料及裝置部件的使用材料、包裝材料以及生產工程中的添加劑等，沒有晶訊科技股份有限公司規定的管理標準之禁用物質（Level 1）；如本公司所生產之產品中，含有晶訊科技股份有限公司規定禁用之物質，本公司將負產品回收及賠償之責任。

另外，關於零部件、輔助材料及裝置部件的使用材料、包裝材料以及生產工程中的添加劑等的構成成分報告如下。

（1） 零部件、輔助材料/裝置部件

零部件、輔助材料名稱：Bluetooth Antenna　　零部件編號：30G000000-00

SB（規格書、圖紙）No.：＿＿＿＿＿＿　　生產工廠：台灣高雄廠

〈使用材料〉

●部位：

原物料廠商名稱（ YAGEO ）　材料名稱/Tape 名稱（ Ceramic ）

．部位：

原物料廠商名稱（　　）　材料名稱/Tape 名稱（　　）

〈使用添加劑〉

．部位：

原物料廠商名稱（　　）　材料名稱/Tape 名稱（　　）

．部位：

原物料廠商名稱（　　）　材料名稱/Tape 名稱（　　）

（2） 可以測定物質的 ICP 資料，請參見附件。

（3） 不能測定物質的成分表及 MSDS，請參見附件。

- 填寫不下時請另外用紙填寫。

備考：

2009 年 10 月 22 日

本文件保存期限：三年