GainForce Technology Co.,Ltd

嘉光科技股份有限公司

承認書

APPROVAL SHEET

品　　名：　**Chip Antenna**

MODEL NAME

料　　號：　**AT5020-E3R0HBAT/LF**

PAT NUMBER　5.0*2.0mm/2.4G

客戶名稱：　訊舟科技股份有限公司

CUSTOMER

供 應 商：　嘉光科技股份有限公司

VENDOR

承認料號：

Approve P/N

使用機種：

MODEL

聯 絡 人：　李　承　皓

聯絡電話：　+886-2-2880-1838

附　　件：

ACCESSORIES

■規格書 SPECIFICATION　■樣品 SAMPLE

■圖樣 DRAWING　□檢驗報告 TEST REPORT

認可狀況：

（APPROVED STATUS）

R&D / PE / QC /PURCHASE / VENDOR　　APP.NO.:

ACX
Advanced Ceramic X

AT5020 Series

Multilayer Chip Antenna

Features

❖ Monolithic SMD with small, low-profile and light-weight type.

❖ Wide bandwidth

Applications

❖2.4GHz WLAN, Home RF, Bluetooth Modules, etc.

Specifications

Part Number	Frequency Range (MHz)	Peak Gain (dBi typ.)	Average Gain (dBi typ.)	VSWR	Impedance
AT5020 -E3R0HBA_	2400~2500	0dBi (XZ-V)	-1.5dBi (XZ-V)	2 max.	50 Ω

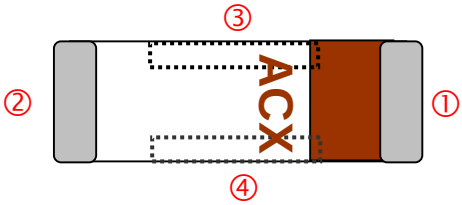
Q'ty/Reel (pcs) : 2,000 pcs
Operating Temperature Range : -40 ~ +85 °C
Storage Temperature Range : -40 ~ +85 °C
Power Capacity : 3W max.

Part Number

AT	5020	-	E	3R0	HBA	□	□
①	②		③	④	⑤	⑥	⑦

① Type	AT : Antenna	② Dimensions (L × W)	5.0× 2.0 mm
③ Material Code	E	④ Frequency Range	3R0=3000MHz
⑤ Specification Code	HBA	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	=lead-containing /LF=lead-free		

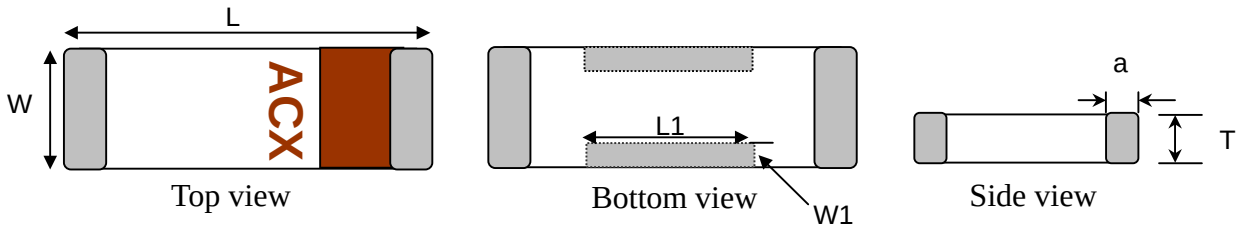
Terminal Configuration



No.	Terminal Name	No.	Terminal Name
①	Feeding Point	③	NC
②	NC	④	NC

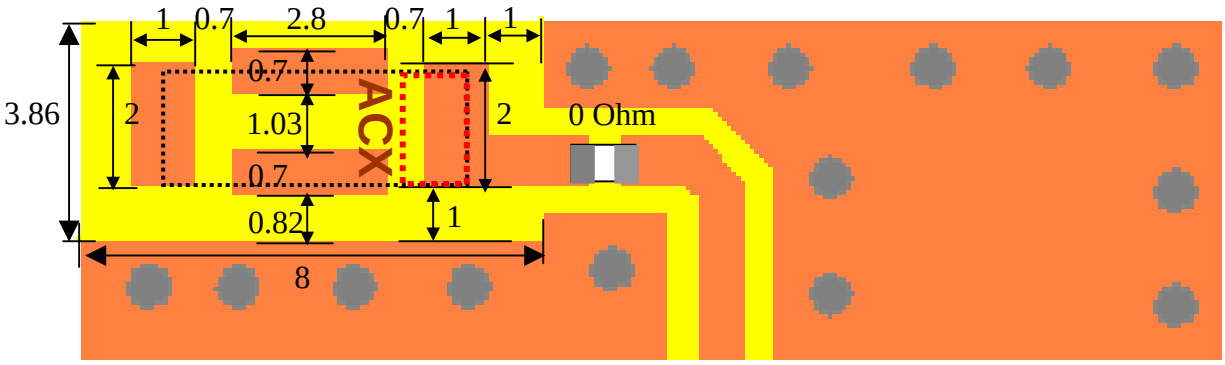
Dimensions and Recommended PC Board Pattern

Unit : mm

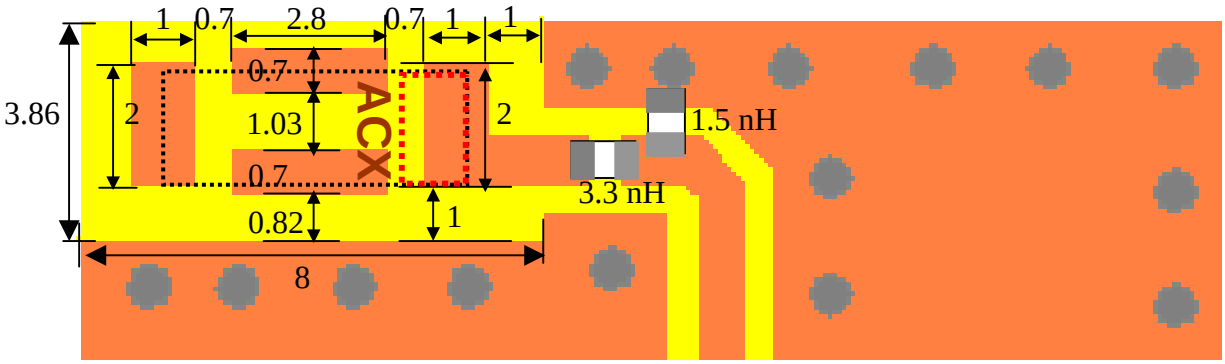


Mark	L	W	L1	W1	T	a
Dimensions	5.0±0.2	2.0±0.2	2.6±0.2	0.5±0.2	2.0+ 0.1/-0.2	0.5±0.3

(a) Without Matching Circuits (Unit in mm)



(b) With Matching Circuits



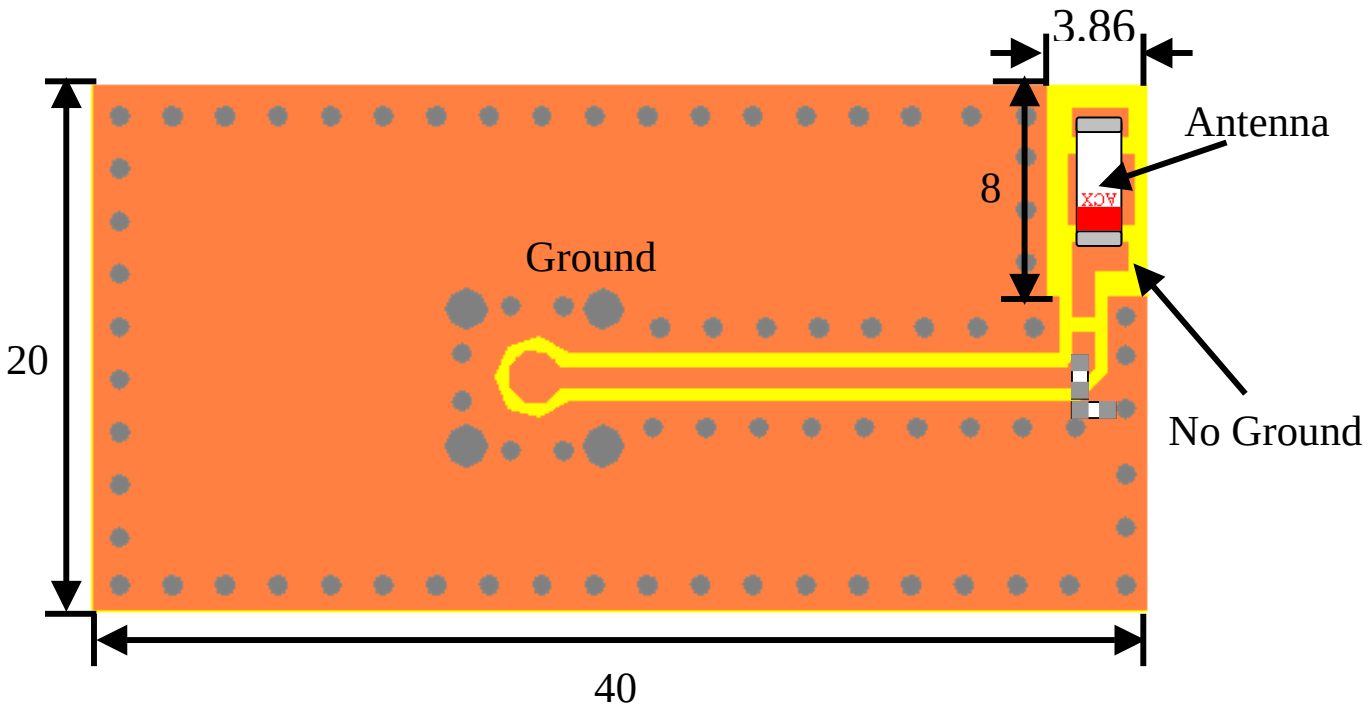
(Matching circuit and component values will be different, depending on PCB layout)

*Line width should be designed to match 50Ω characteristic impedance, depending on PCB

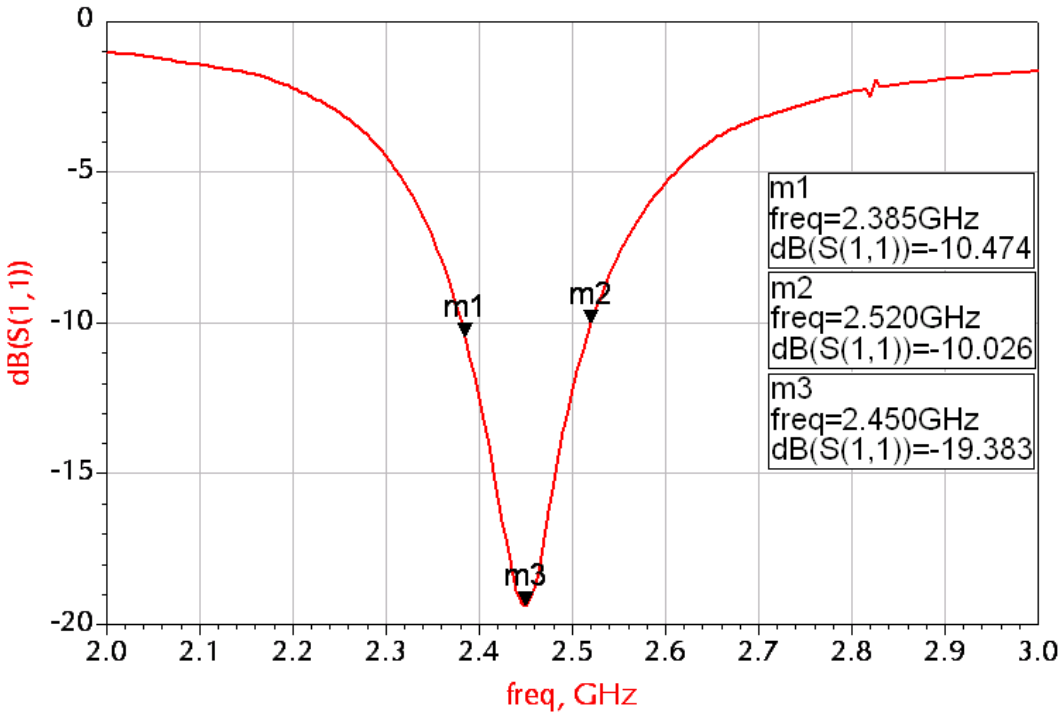
material and thickness.

Typical Electrical Characteristics (T=25°C)

❖Test Board (Unit in mm)

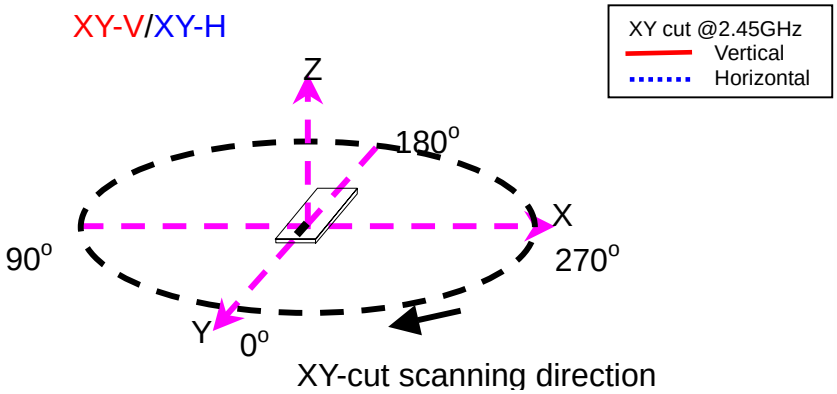


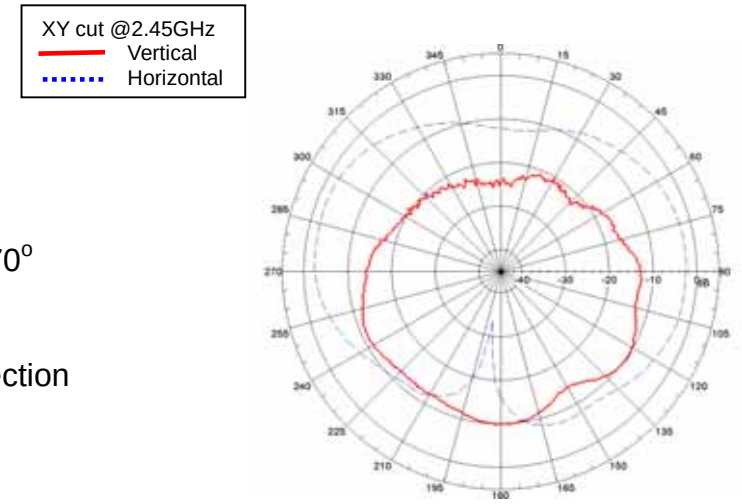
❖Return Loss(with matching)



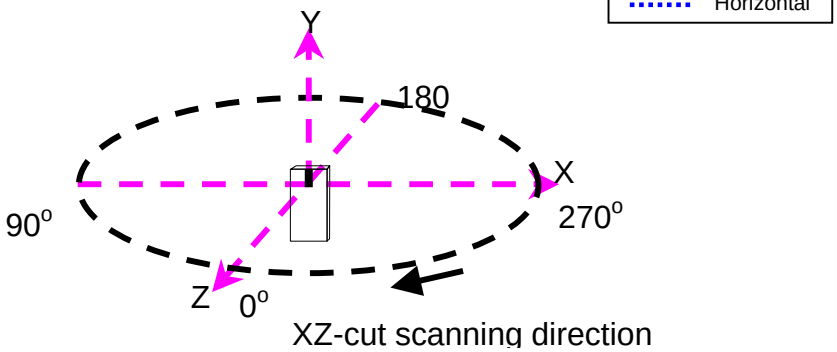
❖Radiation Patterns

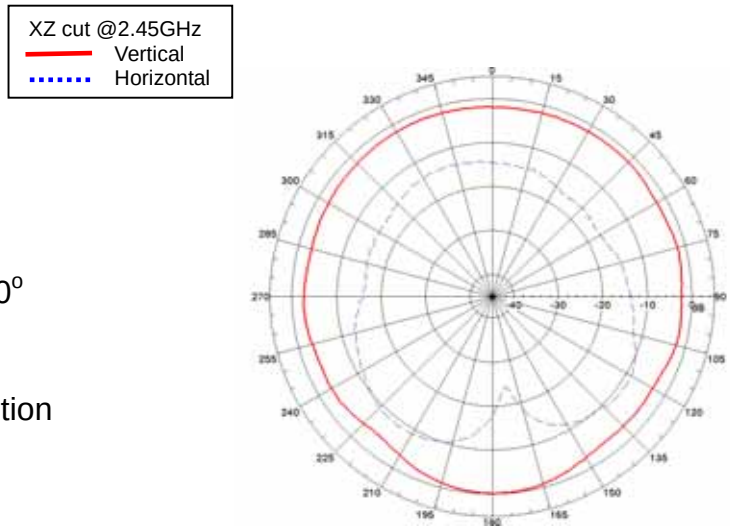
XY-V/XY-H



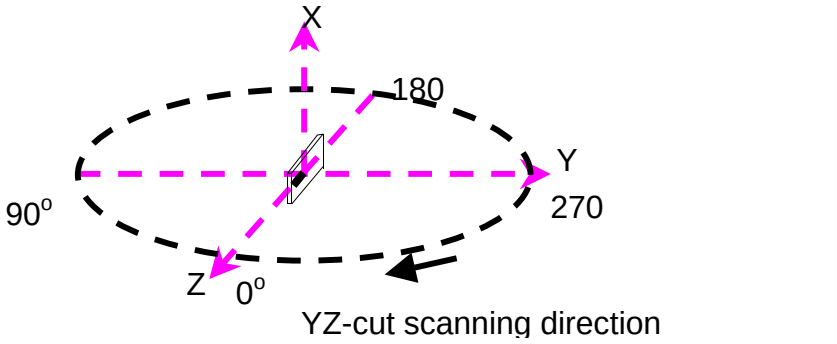


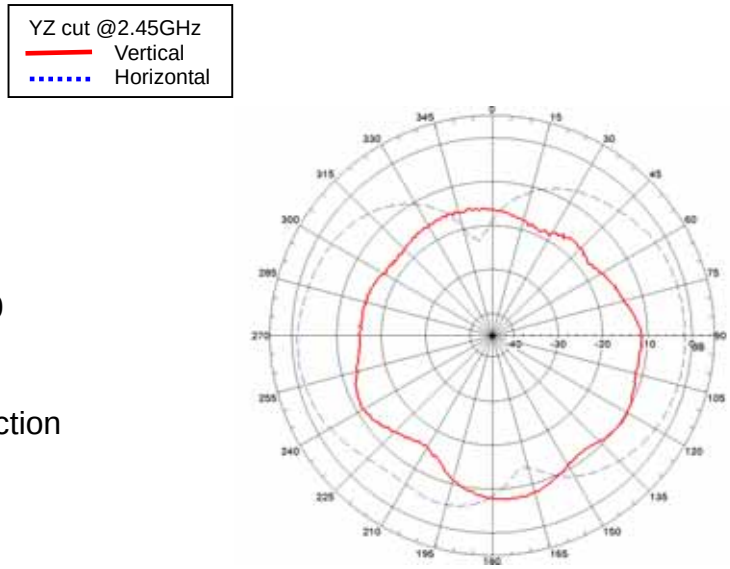
XZ-V/XZ-H





YZ-V/YZ-H



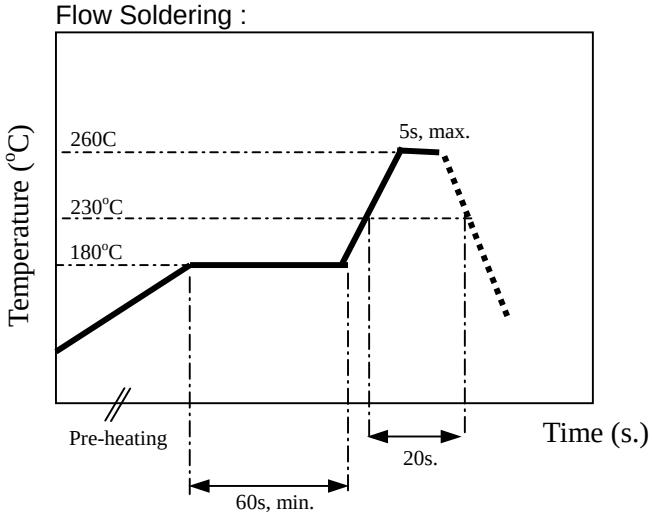


Advanced Ceramic X Corp.
16 Tzu Chiang Road, Hsinchu Industrial District Hsinchu Hsien 303, Taiwan
TEL:886-3-5987008 FAX:886-3-5987001
E-mail: acx@acxc.com.tw http://www.acxc.com.tw

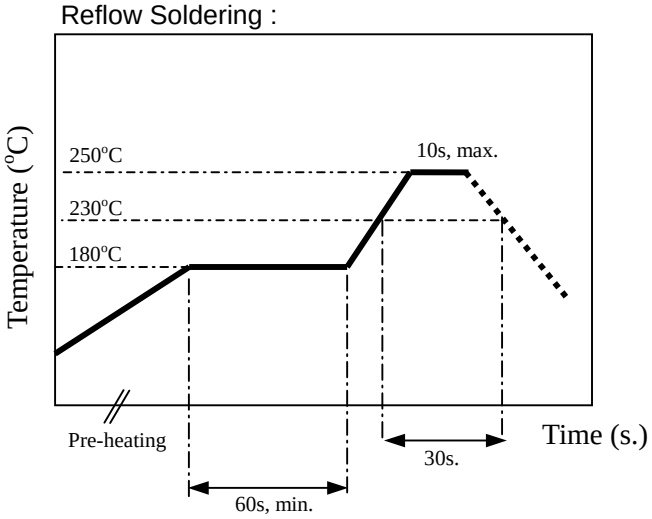
Soldering Conditions

❖**Typical Soldering Profile for Lead-free Process**

Flow Soldering :



Reflow Soldering :



Notes

❖The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

EDIMAX 訊舟科技

綠色產品聲明書

供應商基本資料

填表日期	2008.10.08		供應(代理)商名稱	嘉光科技股份有限公司	
(若貴公司為代理商，則請填寫上原廠商公司完整名稱)			公司(原廠)名稱	琛德電子股份有限公司	
填表人	李丞皓	單位	業務	職稱	業務課長

供應品基本資料

送樣種類： ☐ 單料承認 ■ 系列承認

單料承認請續填料品基本資料，系列承認請附上「系列料品基本資料」

該料(該系列)是否曾經進貨入庫： ☐ 是，訊舟料號：＿＿＿＿＿＿ ■ 否

料品編號： AT 系列 料品名稱： Chip Antenna

料品狀態保證：

☐ A1： 無鉛，但不符合 RoHS，未來也不提供符合 RoHS 的產品。

☐ A2： 無鉛，但不符合 RoHS，預計： 年 月 日起供應符合 RoHS 的產品。

☐ B1： 符合 RoHS，但無物質分析報告。預計： 年 月 日起補提供分析報告。

■ B2： 符合 RoHS，需檢附物質分析報告(第三公證單位)

☐ C： 其他，請詳細說明：

正式聲明

本公司，供應予 訊舟科技以上之產品、零件、原物耗料、包裝材，皆如上所述(RoHS 標準：Pb, Hg, Cr^{6+}, PBB, PBDE 各項含量分別少於 1000ppm，Cd 含量少於 100ppm；包裝材 PPW 標準：Pb, Cd, Hg, Cr^{6+}總含量少於 100ppm)，無任何隱匿。若本公司發現有違反事項，應立即通知 訊舟科技相關內容，並全力協助 訊舟科技採取補救措施。若本公司違反上述事項或故意隱匿，導致 訊舟科技名譽或產品損害時，則本公司應擔負所有損害賠償。

此聲明書連同本公司提供之承認書一併附上。

填表人簽名：＿＿李丞皓＿＿＿＿ 公司用印：＿＿＿＿＿＿＿＿

嘉光科技股份有限公司 97.10.08 文件發行章

EDIMAX 訊舟科技

綠色產品聲明書

附表-系列承認用

系列料品基本資料

序號	料品編號	規格	若曾經進貨入庫請填訊舟料號	無鉛		RoHS		其他
				A1	A2	B1	B2	C
1	AT5020-E3R0HBAT/LF	Chip Antenna 5.0*2.0mm					V	
							V	
							V	

Test Report

No. : CE/2007/C1026 Date : 2007/12/12 Page : 1 of 5

ADVANCED CERAMIC X (ACX) CORPORATION
16 TZU CHIANG ROAD, HSINCHU INDUSTRIAL DISTRICT, HSINCHU
HSIEN, TAIWAN 303

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

Sample Description	:	MULTILAYER LTCC-E COMPONENTS
Style/Item No.	:	AD SERIES, AM SERIES, AT SERIES, AW SERIES, BD SERIES, BF SERIES, BL SERIES, BM SERIES, CD SERIES, CF SERIES, CP SERIES, DM SERIES, DP SERIES, DS SERIES, FA SERIES, FB SERIES, HI SERIES, HF SERIES, LF SERIES, LF SERIES, NF SERIES, TS SERIES, LTCC SUBSTRATES, BCM2307
Buyer/Order No.	:	LOCAL COMPANY OR USA COMPANY
Sample Receiving Date	:	2007/12/05
Testing Period	:	2007/12/05 TO 2007/12/12

==========

Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : With reference to IEC 62321, Ed.1 111/54/CDV Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products.

(1) Determination of Cadmium by ICP-AES.
(2) Determination of Lead by ICP-AES.
(3) Determination of Mercury by ICP-AES.
(4) Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.
(5) Determination of PBB and PBDE by GC/MS.

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

Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

ADVANCED CERAMIC X (ACX) CORPORATION
16 TZU CHIANG ROAD, HSINCHU INDUSTRIAL DISTRICT, HSINCHU
HSIEN, TAIWAN 303

Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result No.1	MDL
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	19	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2
Sum of PBBs		n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
Sum of PBDEs (Mono to Nona) (Note 4)	(5)	n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether		n.d.	5
Decabromobiphenyl ether		n.d.	5
Sum of PBDEs (Mono to Deca)		n.d.	-

TEST PART DESCRIPTION:

NO.1 : MULTILAYER LTCC-E COMPONENTS

Note： 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. According to 2005/717/EC DecaBDE is exempt.
5. "-" = Not Regulated

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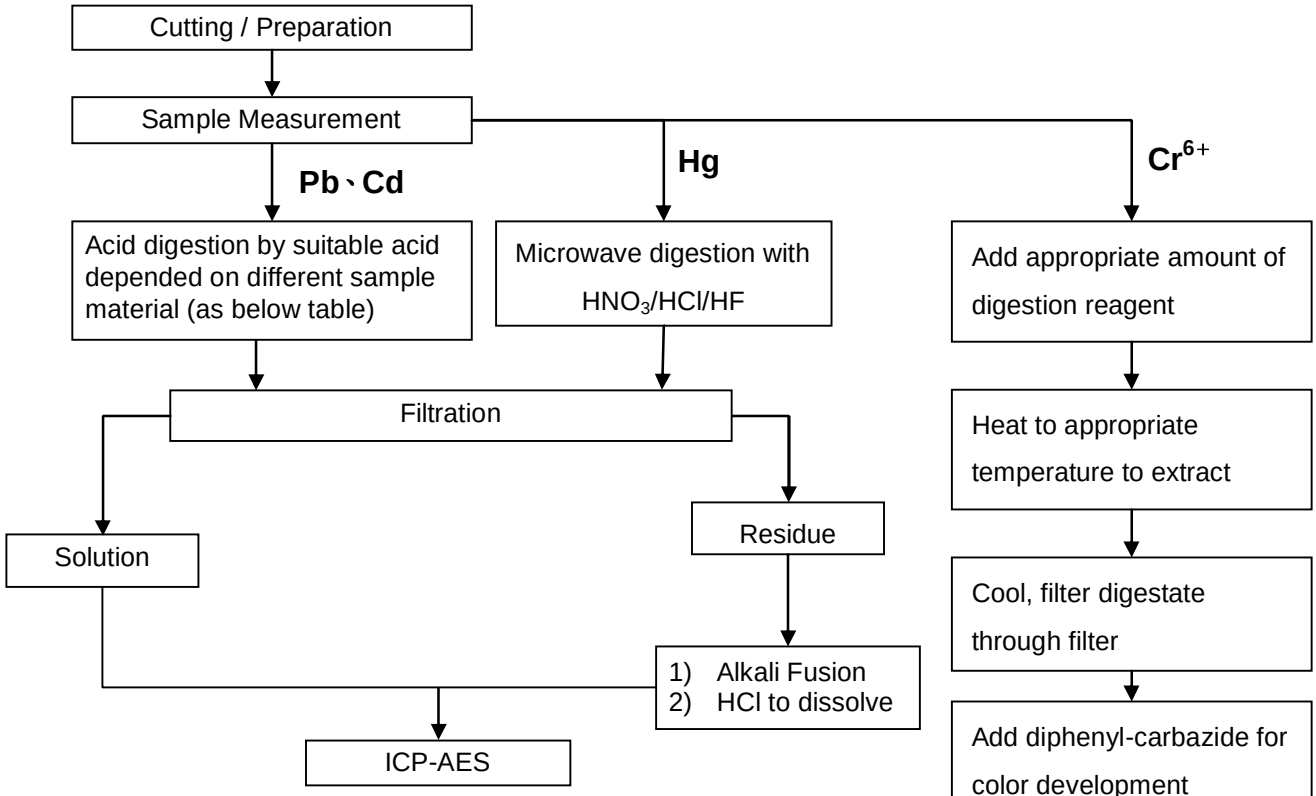
HSIEN, TAIWAN 303

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: Troy Chang
3) Name of the person in charge of measurement: Chenyu Kung



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

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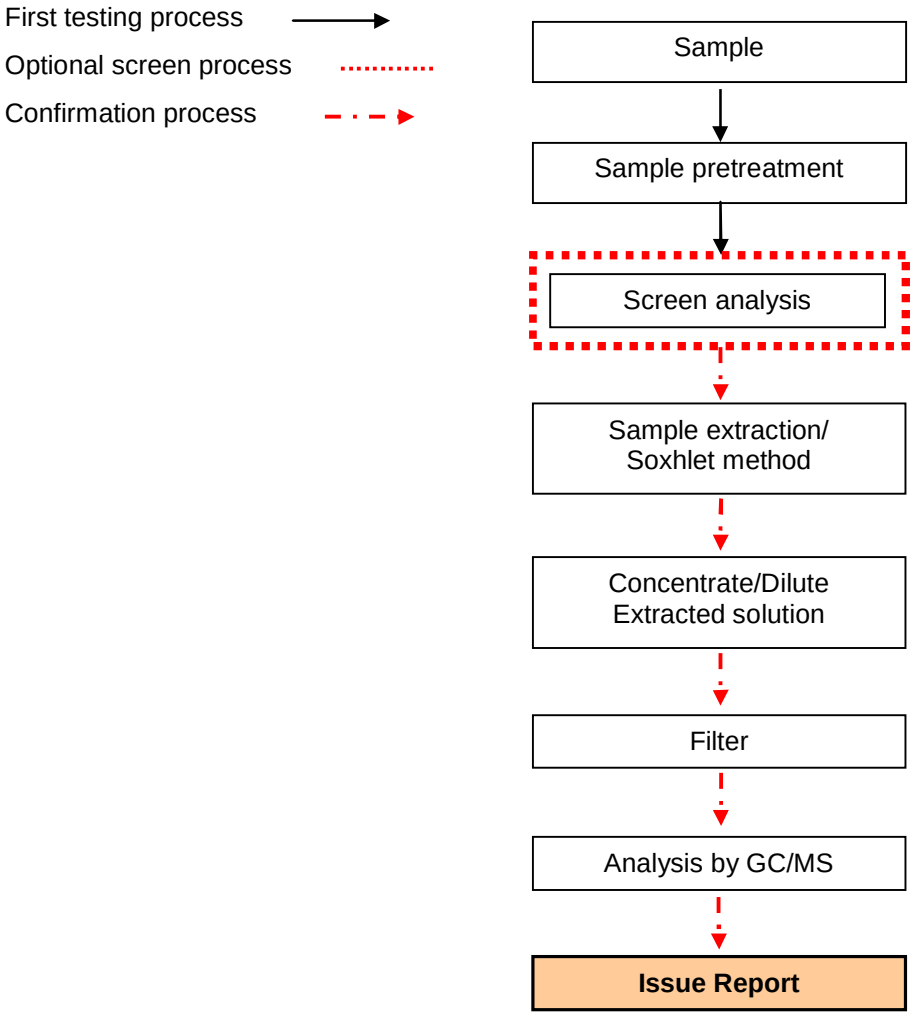
PBB/PBDE analytical FLOW CHART



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HSIEN, TAIWAN 303

** End of Report **