

承認書

APPROVAL SHEET

客 戶 名 稱 C u s t o m e r	麗臺科技股份有限公司
原 製 造 廠 Manufacturer	Johanson
物 料 品 名 Description	2450 MHz Small SMD chip Antenna
原 廠 編 碼 P a r t N o .	2450AT42B100
承 認 編 號 C e r t . N o .	JO-C02-15072701-ANT

製作日期 Issue Date	更新內容 Change Log	承製人員 Made by
07-27-2015	初版	Emily



利 安 科 技 股 份 有 限 公 司

BENTECH COMPUTER CORP.

新北市汐止區康寧街 169 巷 23 號 7 樓之 1

7F.-1, No.23, Ln. 169, Kangning St., Xizhi Dist.

New Taipei City 22180, Taiwan (R.O.C.)

TEL : 02-2695-8906 FAX : 02-2695-8911

"High Frequency Ceramic Solutions"

2450 MHz Small SMD Chip Antenna

P/N 2450AT42B100

Ground Clearance Requirements Minimized. This antenna was designed for corner or end-mounting

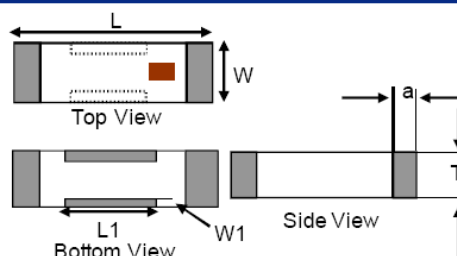
Detail Specification: 10/08/13

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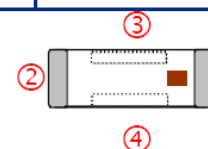
General Specifications			
Part Number	2450AT42B100		
Frequency Range	2400 - 2500 Mhz		
Peak Gain	0 dBi typ. (XZ-V)		
Average Gain	-1.5 dBi typ. (XZ-V)		
Return Loss	9.5 dB min.		
Impedance	50 Ω		
Reel Quantity	2,000		
Operating Temperature	-40 to +85°C	Storage Period	-40 to +85°C
Recommended Storage Condition	+5 ~ +35 °C, Humidity 45~75%RH	Power Capacity	2W max. (CW)



Mechanical Dimensions		
	In	mm
L	0.197 ± 0.008	5.00 ± 0.20
W	0.079 ± 0.008	2.00 ± 0.20
L1	0.102 ± 0.008	2.60 ± 0.20
W1	0.020 ± 0.008	0.50 ± 0.20
T	0.079 +0.004/-0.008	2.00 +0.1/-0.2
a	0.020 ± 0.012	0.50 ± 0.30

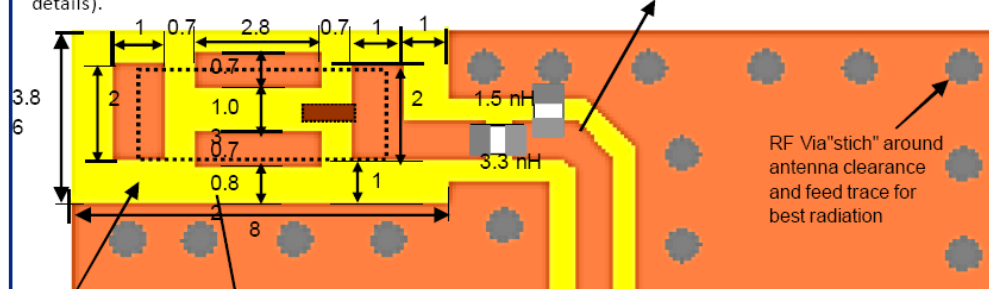


Terminal Configuration	
No.	Function
1	Feeding Point
2	NC
3	NC
4	NC



Mounting Considerations

Line width should be designed to match 50 Ω characteristic impedance (Grounded Co-Planar Waveguide), depending on PCB material and thickness. (The matching circuit and component values will be different on clients PCB layout, see notes below and go to page 2 for details).



Yellow area=Ground/Metal Clearance.

The "0.82mm" dimension is a min. requirement, if the designer can make this larger, the better radiation and gain will occur (i.e. 2.0 or 4.0mm)

Note: It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values here are used when antenna is mounted on Johanson's evaluation board. The matching values on client's PCB will be different, go to: johansontechnology.com/tuning and see how to obtain the new values. If you need further help, contact our RF Applications Eng Team at: www.johansontechnology.com/en/ask-a-technical-question.html

We perform layout review as well as antenna tuning and characterization services. Go to page 2 for details.

Johanson Technology, Inc. reserves the right to make design changes without notice.

All sales are subject to Johanson Technology, Inc. terms and conditions.



www.johansontechnology.com

4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

Ver 2.1

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"High Frequency Ceramic Solutions"

2450 MHz Small SMD Chip Antenna

P/N 2450AT42B100

Detail Specification: 10/08/13

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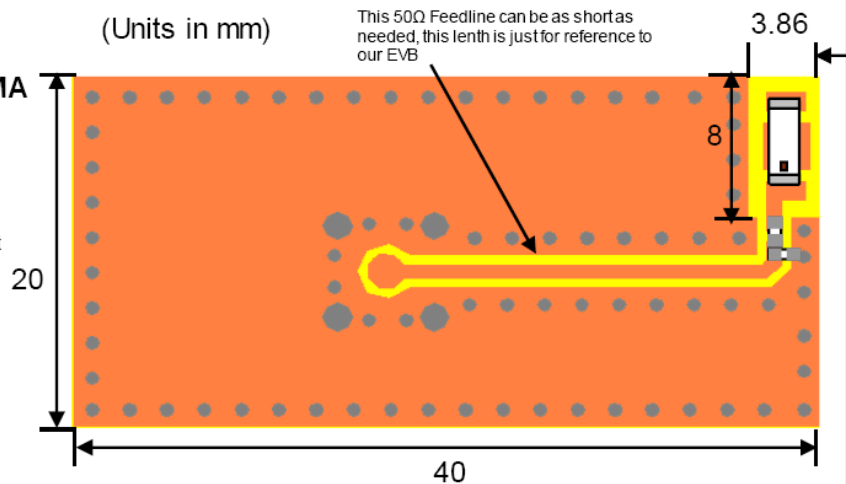
Johanson Evaluation Board (orderable item)

Test Board:

P/N: 2450AT42B100-EB1SMA
(orderable item)

To order, go to:

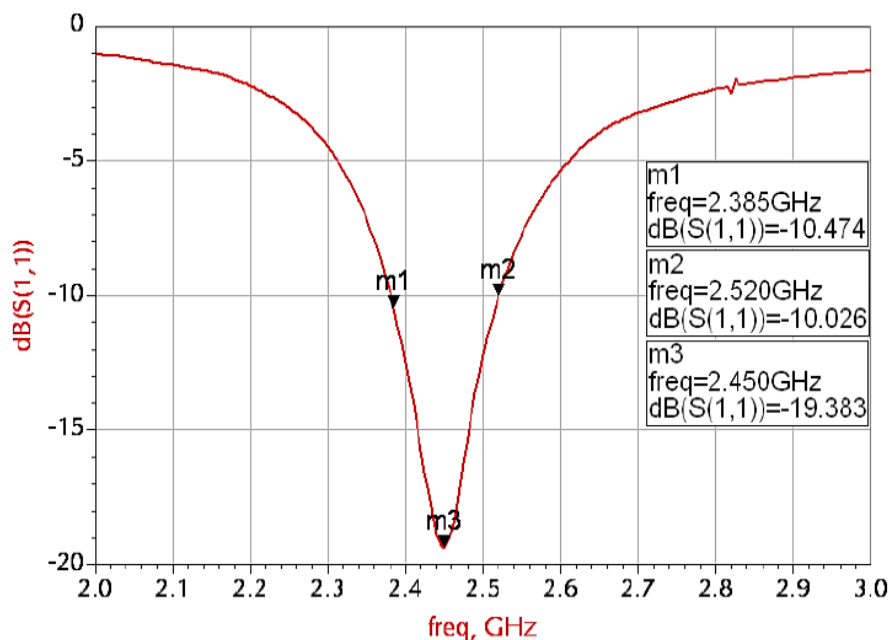
www.johansontechnology.com/samplerrequest



We offer antenna layout review, tuning, and characterization services, go to:
www.johansontechnology.com/ipcantennaservices for details and instructions

Typical Electrical Characteristics (T=25°C)

Return Loss
(with
matching)



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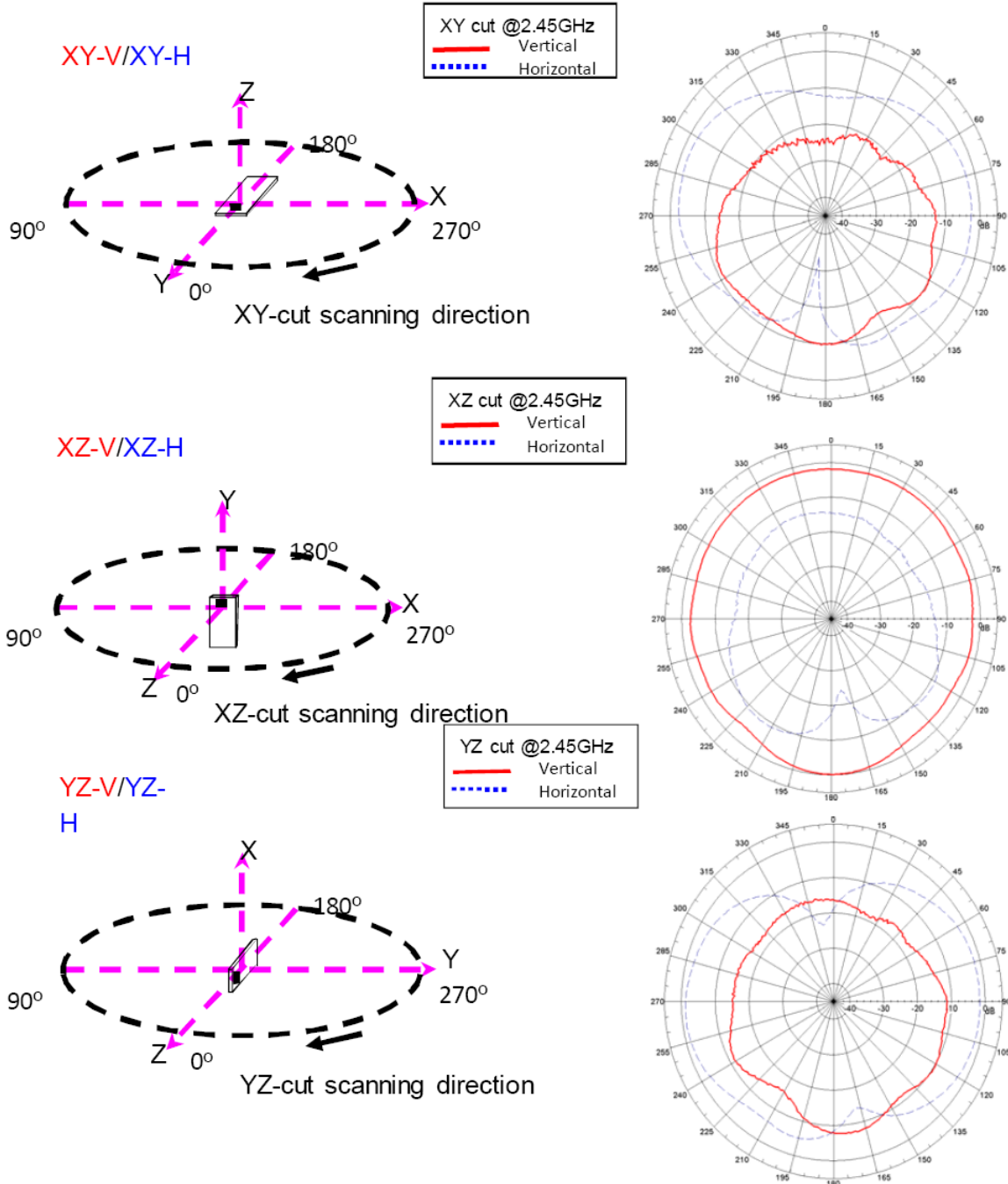
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Typical Electrical Characteristics (T=25°C) Radiation Patterns



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Part Number Explanation

P/N Suffix	Packing Style	Bulk (loose pieces)	Suffix = S	eg.2450AT42B100S
		T & R	Suffix = E	eg. 2450AT42B100E
		T & R (Reverse)	Suffix = R	eg. 2450AT42B100R (MOQ Applies)
		100% Tin	Suffix = None	eg. 2450AT42B100(S, E, R)
	Eval Board (1-port SMA antenna test boards)	2450AT42B100-EB1SMA (Page 2)		
More Details		www.johansontechnology.com/ipc-pn-explained		

Storage Conditions and Shelf Life (On T&R or Bulk)

Temperature:	+5C to +35°C	Shelf Life:	18 months max.
Relative Humidity:	45 to 75%		

Packaging information

www.johansontechnology.com/ipcpackaging.html

Soldering Information

www.johansontechnology.com/ipcsoldering-profile

Antenna layout and tuning techniques

www.johansontechnology.com/tuning

Antenna layout review, tuning, and characterization services

www.johansontechnology.com/ipcantennaservices

RoHS Compliance

www.johansontechnology.com/technical-notes/rohs-compliance.html

MSL Info

www.johansontechnology.com/technical-notes/msl-rating.html

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Conflict Minerals Investigation

衝突礦產調查

Materials or Products which supply to Leadtek contains any of 4 minerals as below. (gold , tin , tantalum , tungsten)

在提供給麗臺科技的零件或產品中所含物質含有以下這四項物質<金、錫、鉭、鎢>

☒ YES ☐ NO

IF YES , please complete the following<A&B>

若選擇 YES , 請完成下列 A 及 B 。

(A) Select the mineral which contained, and check these boxes. (Multiple Choice Possible)

若選擇YES, 請選擇所含有的物質在下列表格中<可複選>

Gold<金>	☒ YES
Tin<錫>	☒ YES
Tantalum<鉭>	☐ YES
Tungsten<鎢>	☒ YES

(B)If contains any of 4 minerals, please complete to fill in additional form as below.

若含有四項任何物質, 請完成下列冶煉廠清單

Product Name 產品/零件 名稱	mineral contained 所含物質	Metals originate from the DRC or an adjoining country 來源來自剛 果 或相鄰國家	Smelter Names 冶煉廠名稱	Smelter Facility Contact Name 冶煉廠聯絡人	Smelter Facility Contact Email 冶煉廠郵件信箱	Smelter Facility Location Address 冶煉廠地址	Country 所在國家
	Gold	☒ YES ☐ NO	Royal Canadian Mint	Chris Carkner	ccarkner@mint.ca	320 Sussex Drive Ottawa, Ontario	CANADA
	Gold	☒ YES ☐ NO	Metalor USA Refining Corporation	Larry Drummond	larrydrummond@metalor.com	255 John Dietsch Dr. Attleboro Falls, Massachusetts	USA
	Gold	☒ YES ☐ NO	Umicore SA Business Unit Precious Metals Refining	Jean Poole	jean.poole@am.umicore.com	Adolf Greinerstraat 14, B-2660 Hoboken Antwerp, Belgium	BELGIUM
	Gold	☒ YES ☐ NO	United Precious Metal Refining, Inc.	Bill Merkle	sales@unitedpmr.com	271 Town Line Road Alden, New York	USA
	Tin	☒ YES ☐ NO	Minsur	Bernard Silverstein	bsilverstein@acmtin.com	AV. San Martin 1371 Pisco, Peru	PERU
	Tungsten	☒ YES ☐ NO	H.C. Starck GmbH	Frank Habig	frank.habig@hcstark.com	Im Schleecke 78-91 Gostar, Germany	GERMANY



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JOHANSON TECHNOLOGY INCORPORATED
4001 CALLE TECATE, CAMARILLO, CA 93012 USA



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

Sample Submitted By : JOHANSON TECHNOLOGY INCORPORATED
Sample Description : INTEGRATED PASSIVE COMPONENTS
Style/Item No. : INTEGRATED PASSIVE COMPONENTS INCLUDING "AD", "AM", "AS", "AT", "BD",
"BL", "BM", "BP", "CD", "CF", "CH", "CP", "DP", "FA", "FB", "HP", "LD", "LP", "PD",
AND "NF"
Sample Receiving Date : 2014/07/15
Testing Period : 2014/07/15 TO 2014/07/17

Test Requested : (1) As specified by client, to test Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs
contents in the submitted sample.
(2) As specified by client, to test PFOA, PFOS, Halogen-Fluorine, Chlorine, Bromine,
Iodine contents in the submitted sample.

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

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


Troy Chang, Manager - Tech
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei

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Test Result(s)

PART NAME No.1 : MIXED ALL PARTS

Test Item(s)	Unit	Method	MDL	Result
				No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	32
Mercury (Hg)	mg/kg	With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.
Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.
PFOA (CAS No.: 335-67-1)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.
Halogen				
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)			50	n.d.
Halogen-Bromine (Br) (CAS No.: 10097-32-2)			50	n.d.
Halogen-Iodine (I) (CAS No.: 14362-44-8)			50	n.d.

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Test Item(s)	Unit	Method	MDL	Result No.1
Sum of PBBs	mg/kg	With reference to IEC 62321: 2008 and performed 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			-	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.

Note :

1. mg/kg = ppm; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated
5. The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing.
The above result(s) was/were only given as the informality value.

PFOS Reference Information : POPs - (EU) 757/2010

Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1µg/m².

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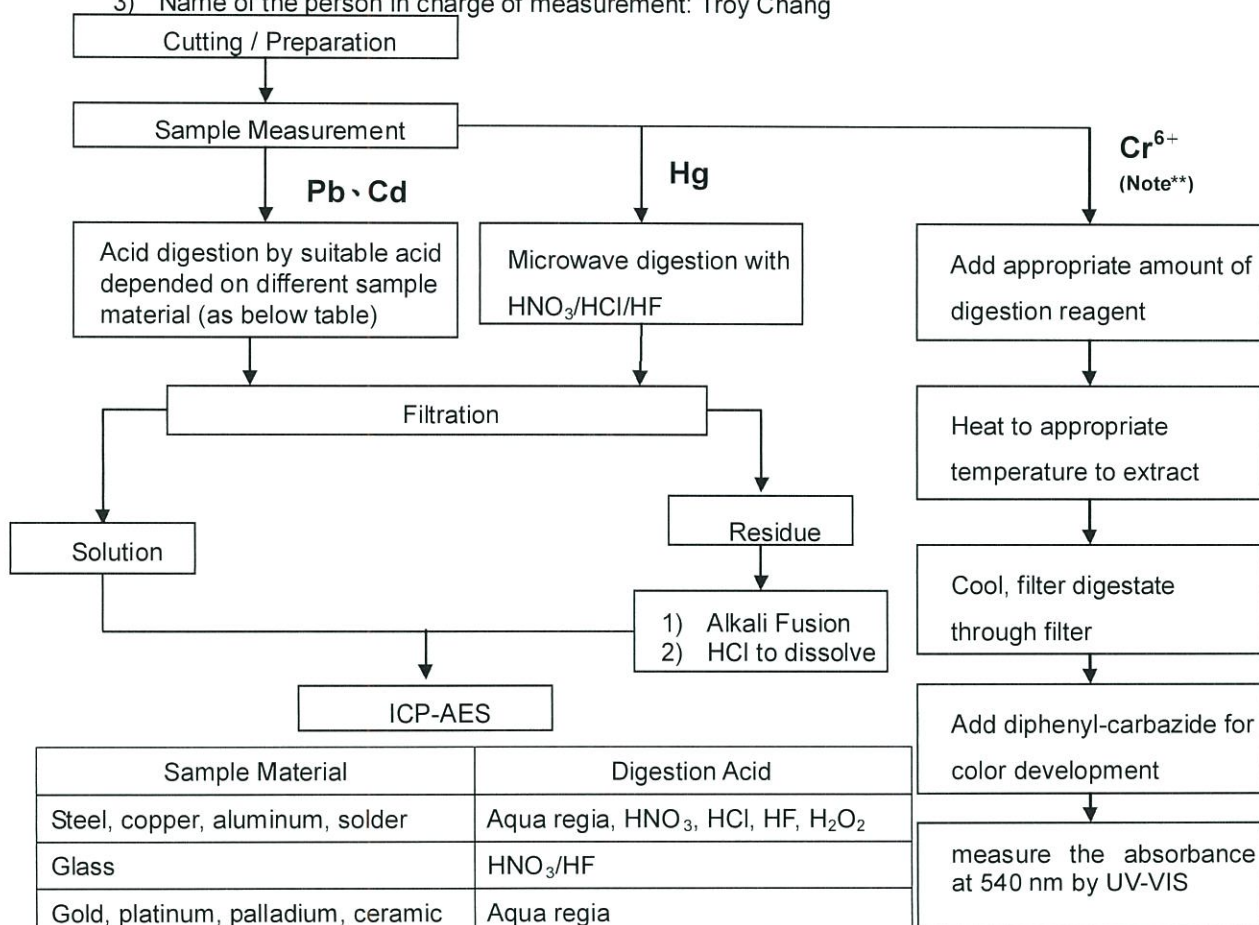
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4001 CALLE TECATE, CAMARILLO, CA 93012 USA



- 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: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Added appropriate reagent to total digestion

Note :** (1) For non-metallic material, add alkaline digestion reagent and heat to 90~95 °C.
(2) For metallic material, add pure water and heat to boiling.

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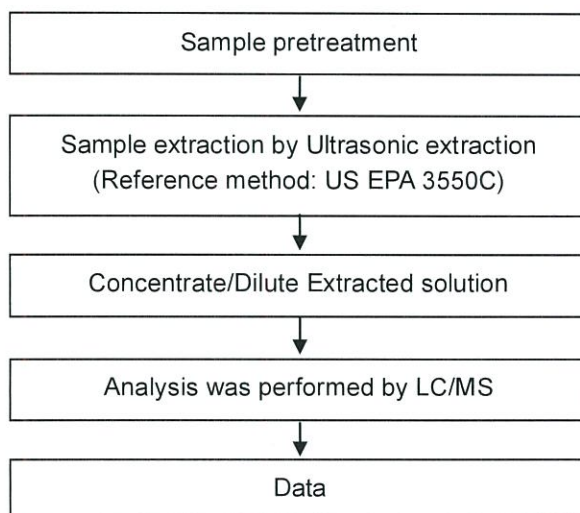
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PFOA/PFOS analytical flow chart of Ultrasonic extraction (LC/MS) procedure

- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



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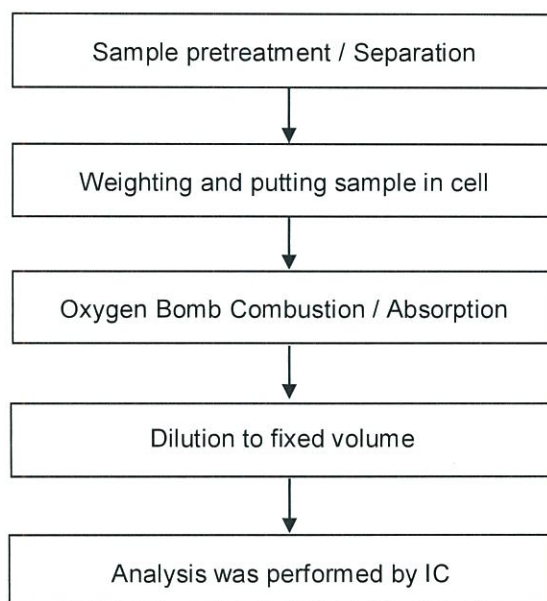
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Analytical flow chart of halogen content

- Name of the person who made measurement: Rita Chen
- Name of the person in charge of measurement: Troy Chang



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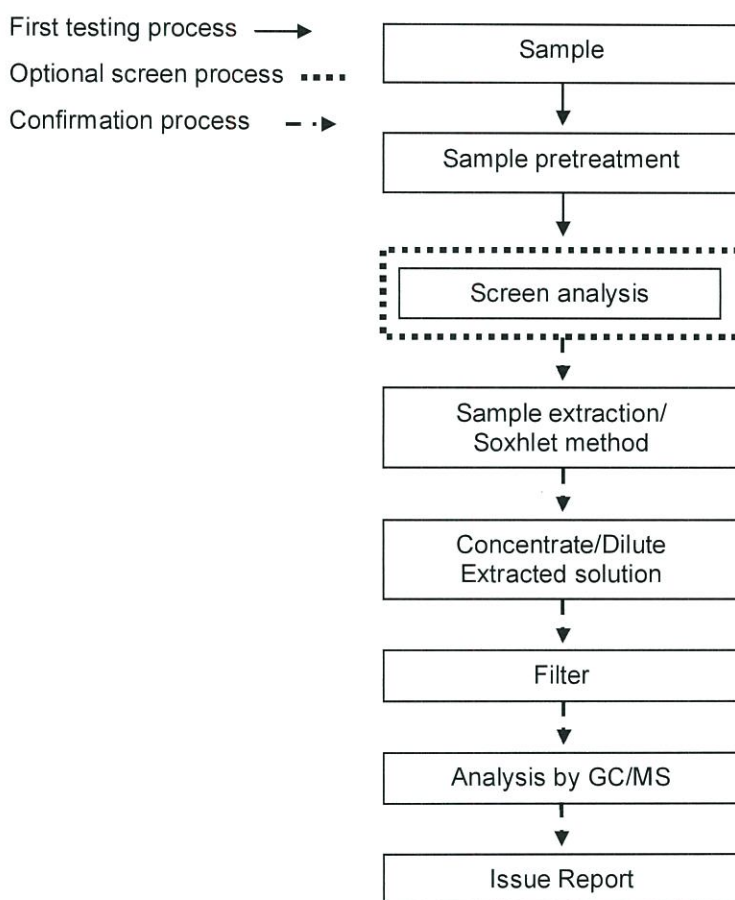
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PBB/PBDE analytical FLOW CHART

- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



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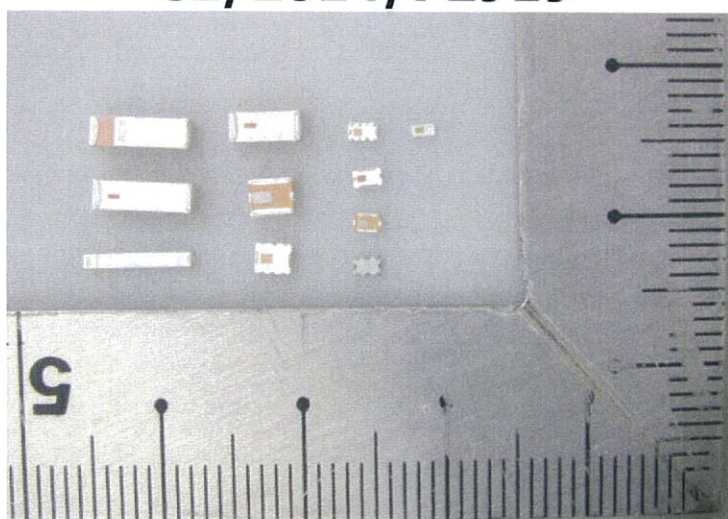
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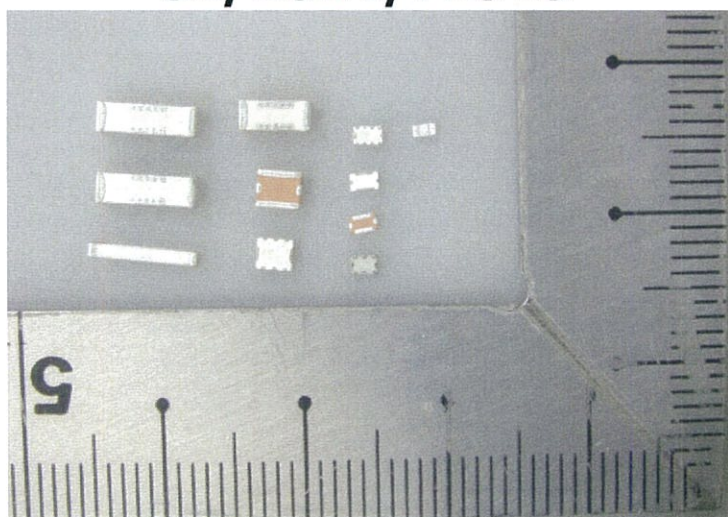


* The tested sample / part is marked by an arrow if it's shown on the photo. *

CE/2014/72919



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** End of Report **

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