

APPROVAL SHEET

Chip Antenna

2.4~2.5 / 5.25~5.85 GHz Band Working

Frequency

P/N: ACM3-3216-P1-CC-S

Customer : 振曜

Customer 's Part No. : 5062-000009+191

Production : _____

Address : _____

佳邦科技股份有限公司

2021.06.29

天線事業部承認書專用

[illegible]

品名：ACM3-3216-P1-CC-S

1. Explanation of part number :

AC	M3	3216	P1	CC	S
Product Type	Center Frequency/Band Code	Product Code (Unit: mm)	Design Revision Code	Antenna Type	Special Code
Chip Antenna	A: 2.4GHz E: Cellular G:868MHz H:915MHz L:5GHz M3:2G+5GHz N:NFC	Per 2 digits of length, width e.g.: 3216 3.1*1.6(Length * Width)	P1:Rev.1	CC: Coupling Ceramic GF: On Ground, FR4 LC: Loop ceramic MC: Monopole Ceramic MF: Monopole FR4 PF: PIFA FR4	S: RoHS Compliant

2. Electrical Specification :

Item	Specification
Working Frequency Range	2.4~2.5 / 5.25~5.85 GHz (Note-1)
Gain	0.6 / 2 dBi (Typical)
VSWR	2.1 max.
Polarization	Linear
Azimuth Bandwidth	Omni-directional
Impedance	50Ω

UNLESS OTHER SPECIFIED TOLERANCES ON :
X=N/A X.X=N/A X.XX=N/A
ANGLES=N/A HOLEDIA=N/A



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SCALE : N/A

UNIT : mm

DRAWN BY : 詹惠雯

CHECKED BY : 詹惠雯

DESIGNED BY :

APPROVED BY : 陳振榮

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DOCUMENT
NO.

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3. Antenna Drawing :

CONSTRUCTION



PIN	Connection
1	Feeding
2	Soldering terminal

DIMENSIONS

Figure	Symbol	Dimension (mm)
	L	3.10 ± 0.20
	W	1.60 ± 0.20
	T	0.60 ± 0.10
	A	0.25 ± 0.20

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DOCUMENT
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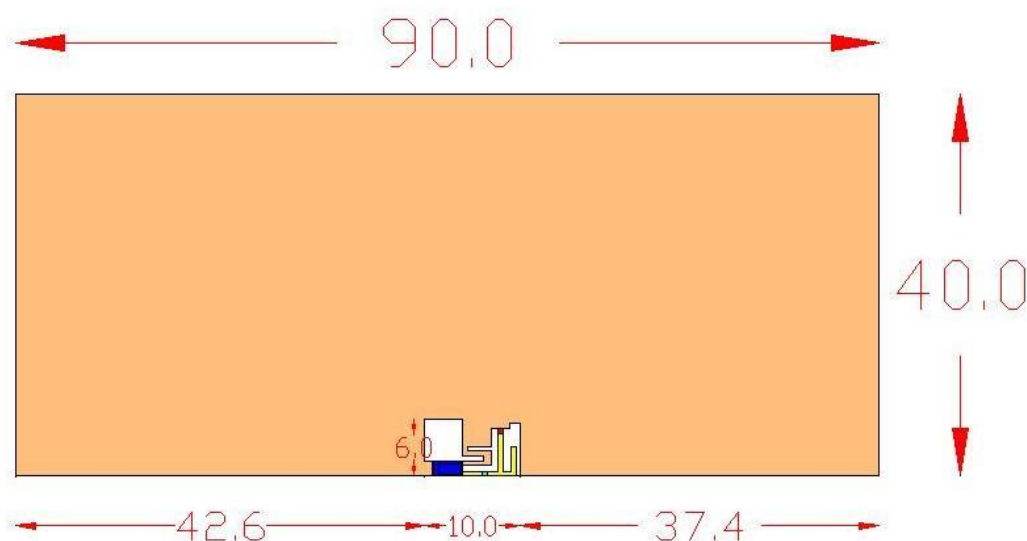
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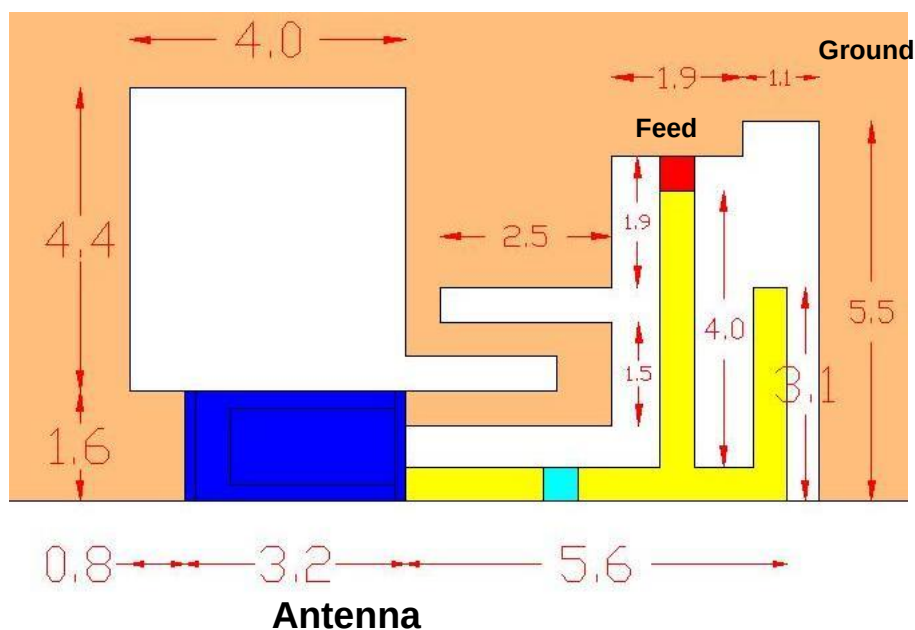
4. Performance Report :

SOLDER LAND PATTERN DESIGN

Figure (Empty Space 10.0 mm x 6.0 mm)



Land Pattern



UNLESS OTHER SPECIFIED TOLERANCES ON :
 X = N/A X.X = N/A X.XX = N/A
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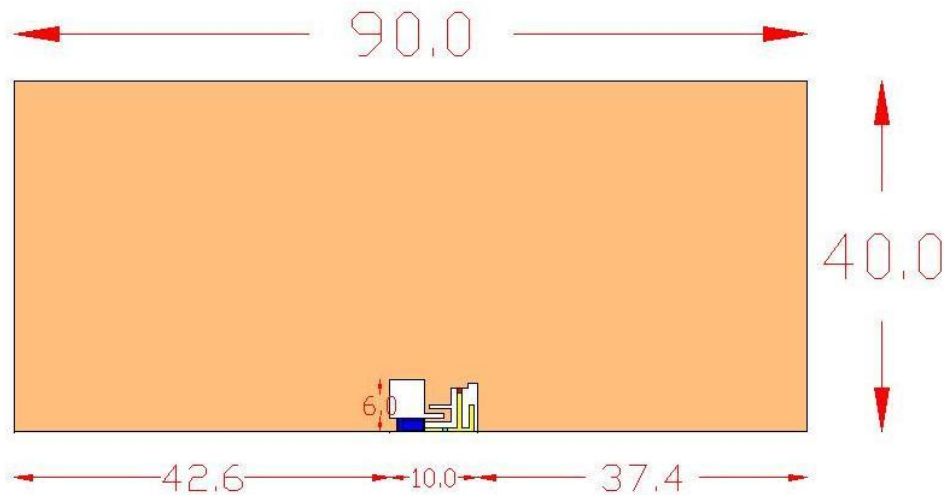
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DOCUMENT
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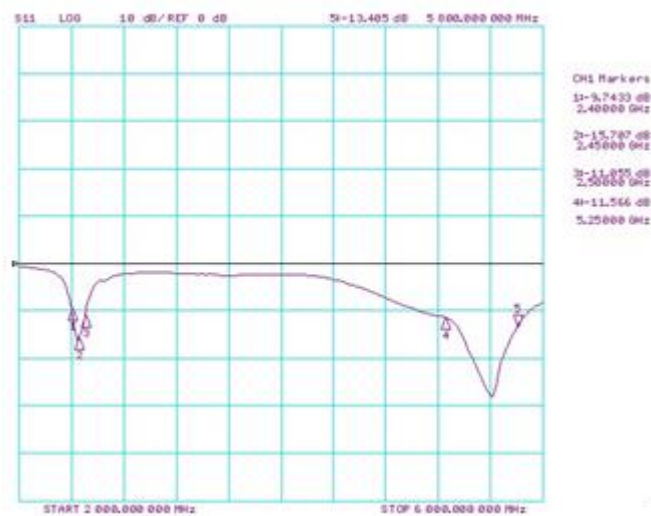
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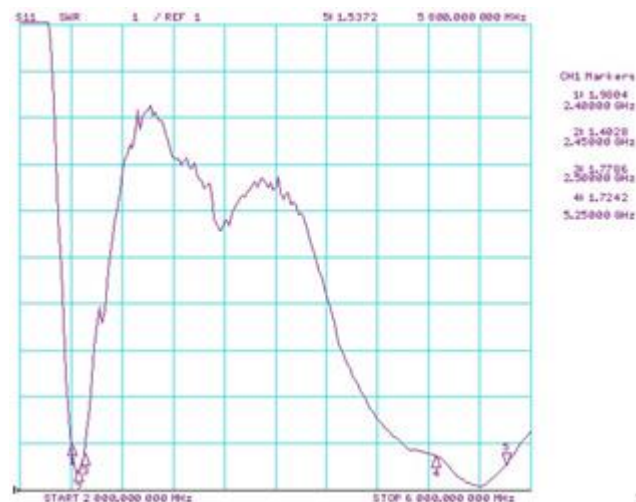
Antenna on Test Board (Thickness 0.8mm)



Antenna S11 on Test Board



Antenna VSWR on Test Board



UNLESS OTHER SPECIFIED TOLERANCES ON :
 X=N/A X.X=N/A X.XX=N/A
 ANGLES=N/A HOLEDIA=N/A



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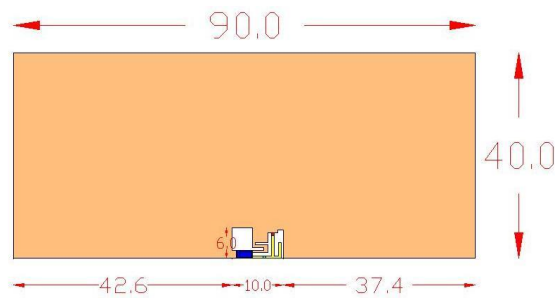
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RADIATION PATTERN

Radiation Pattern and Gain were dependent on measurement board design. The specification of ACM3-3216-P1-CC-S antenna was measured based on the PCB size and installation position as shown in the below figure Test Board.



2.4GHz

	Vertical	Horizontal
Y - Z Plane Average Gain= 0.959 dBi	 Peak Gain = 1.18 dBi Average Gain = -2.53 dBi	 Peak Gain= 2.97 dBi Average Gain=-1.62 dBi
X - Z Plane Average Gain= 0.540 dBi	 Peak Gain= 2.77 dBi Average Gain=0.26 dBi	 Peak Gain= -6.7 dBi Average Gain= -11.5dBi
X - Y Plane Average Gain= 0.129 dBi	 Peak Gain= -6.89 dBi Average Gain= -11.64dBi	 Peak Gain= 3.91 dBi Average Gain= -0.17 dBi

UNLESS OTHER SPECIFIED TOLERANCES ON :
 X= N/A X.X= N/A X.XX= N/A
 ANGLES= N/A HOLEDIA= N/A



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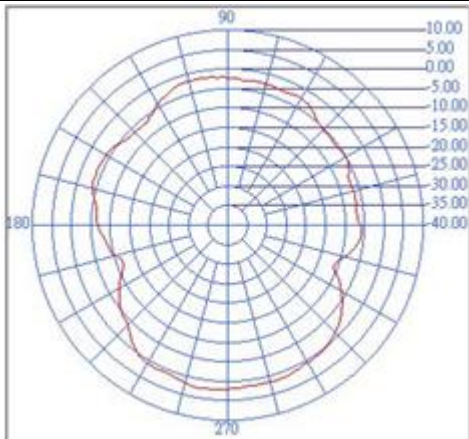
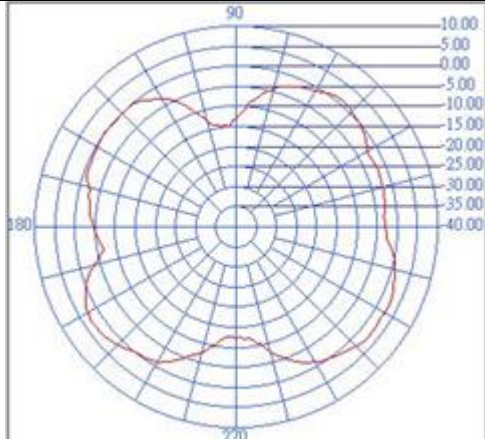
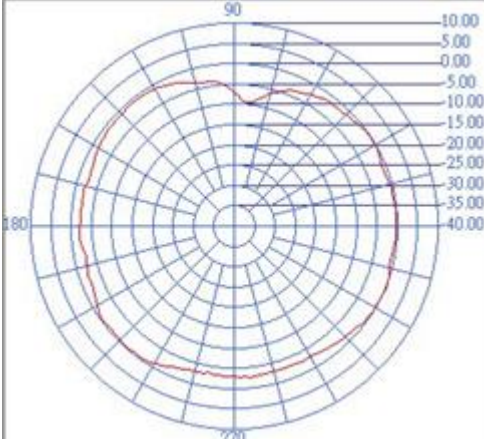
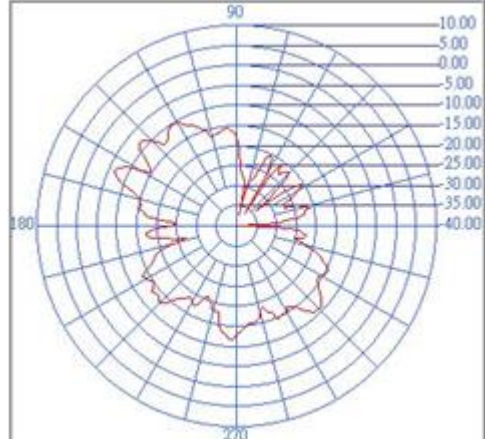
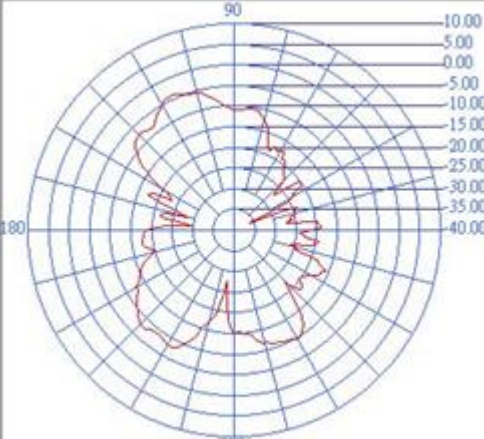
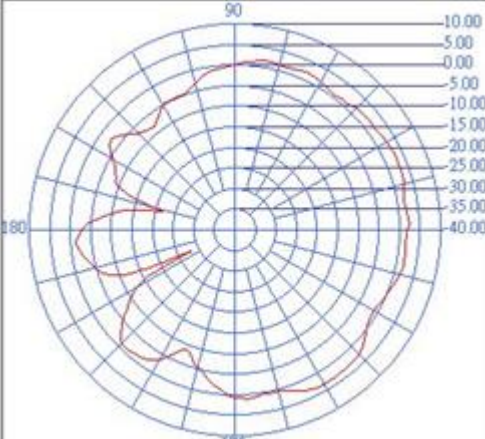
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5.55GHz

	Vertical	Horizontal
Y - Z Plane Average Gain= 1.209 dBi	 Peak Gain =2.32 dBi Average Gain = -2.42 dBi	 Peak Gain= 2.81 dBi Average Gain=-1.26 dBi
X - Z Plane Average Gain= -1.476 dBi	 Peak Gain= 0.15 dBi Average Gain=-1.67 dBi	 Peak Gain= -6.68 dBi Average Gain= -15.07dBi
X - Y Plane Average Gain= -0.002 dBi	 Peak Gain= -4.18 dBi Average Gain= -11.93 dBi	 Peak Gain=3.41 dBi Average Gain= -0.29 dBi

UNLESS OTHER SPECIFIED TOLERANCES ON :
 X= N/A X.X= N/A X.XX= N/A
 ANGLES= N/A HOLEDIA= N/A



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5. RELIABILITY TEST

Test item	Test condition / Test method	Specification
Solderability JIS C 0050-4.6 JESD22-B102D	*Solder bath temperature : $235 \pm 5^{\circ}\text{C}$ *Immersion time : 2 ± 0.5 sec *Solder : Sn3Ag0.5Cu for lead-free	At least 95% of a surface of each terminal electrode must be covered by fresh solder.
Leaching (Resistance to dissolution of metallization) IEC 60068-2-58	*Solder bath temperature : $260 \pm 5^{\circ}\text{C}$ *Leaching immersion time : 30 ± 0.5 sec *Solder : SN63A	Loss of metallization on the edges of each electrode shall not exceed 25%.
Resistance to soldering heat JIS C 0050-5.4	*Preheating temperature : $120\sim 150^{\circ}\text{C}$, 1 minute. *Solder temperature : $270\pm 5^{\circ}\text{C}$ *Immersion time : 10 ± 1 sec *Solder : Sn3Ag0.5Cu for lead-free Measurement to be made after keeping at room temperature for 24 ± 2 hrs	No mechanical damage. Samples shall satisfy electrical specification after test. Loss of metallization on the edges of each electrode shall not exceed 25%.
Drop Test JIS C 0044	*Height : 75 cm *Test Surface : Rigid surface of concrete or steel. *Times : 6 surfaces for each units ; 2 times for each side.	No mechanical damage. Samples shall satisfy electrical specification after test.
Adhesive Strength of Termination JIS C 0051- 7.4.3	*Pressurizing force : $5\text{N}(\leq 0603)$; $10\text{N}(>0603)$ *Test time : 10 ± 1 sec	No remarkable damage or removal of the termination.
Bending test JIS C 0051- 7.4.1	The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm/s per second until the deflection becomes 1mm/s and then pressure shall be maintained for 5 ± 1 sec. Measurement to be made after keeping at room temperature for 24 ± 2 hours	No mechanical damage. Samples shall satisfy electrical specification after test.

UNLESS OTHER SPECIFIED TOLERANCES ON :
 X = N/A X.X = N/A X.XX = N/A
 ANGLES = N/A HOLEDIA = N/A



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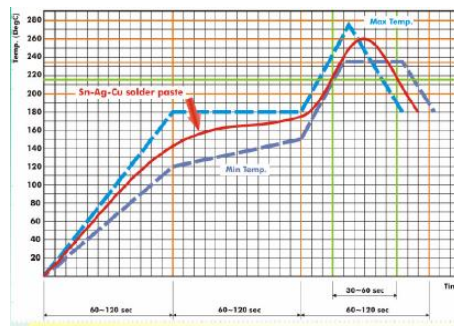
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Temperature cycle JIS C 0025	1. 30±3 minutes at -40°C±3°C, 2. 10~15 minutes at room temperature, 3. 30±3 minutes at +85°C±3°C, 4. 10~15 minutes at room temperature, Total 100 continuous cycles Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Samples shall satisfy electrical specification after test.
Vibration JIS C 0040	*Frequency : 10Hz~55Hz~10Hz(1min) *Total amplitude : 1.5mm *Test times : 6hrs.(Two hrs each in three mutually perpendicular directions)	No mechanical damage. Samples shall satisfy electrical specification after test.
High temperature JIS C 0021	*Temperature : 85°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Samples shall satisfy electrical specification after test.
Humidity (steady conditions) JIS C 0022	*Humidity : 90% to 95% R.H. *Temperature : 40±2°C *Time : 1000+24/-0 hrs. Measurement to be made after keeping at room temperature for 24±2 hrs ※ 500hrs measuring the first data then 1000hrs data	No mechanical damage. Samples shall satisfy electrical specification after test.
Low temperature JIS C 0020	*Temperature : -40°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Samples shall satisfy electrical specification after test.

SOLDERING CONDITION

Typical examples of soldering processes that provide reliable joints without any damage are given in Fig 2



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 X = N/A X.X = N/A X.XX = N/A
 ANGLES = N/A HOLEDIA = N/A



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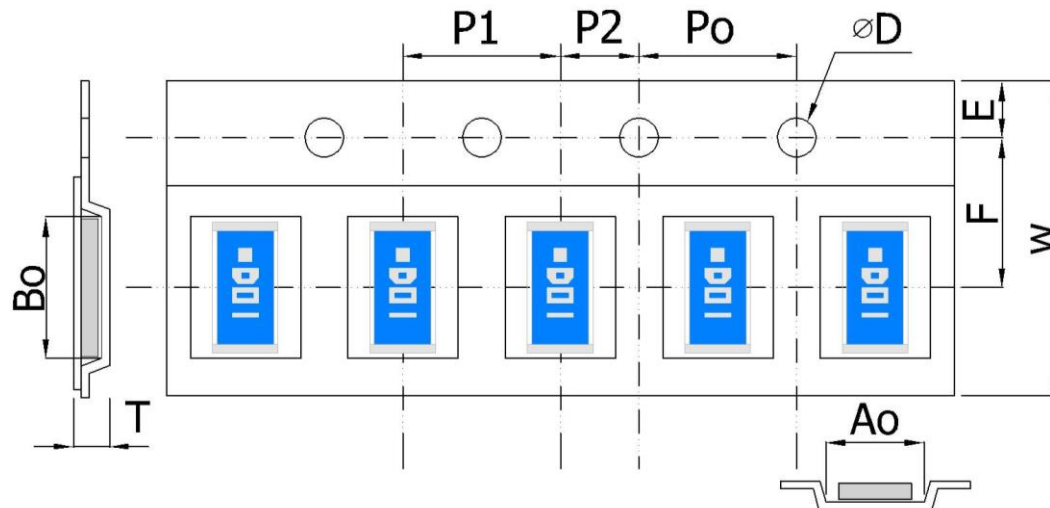
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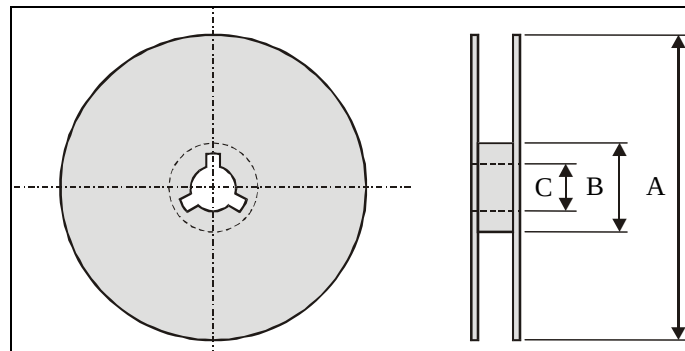
6. Package



Plastic Tape specifications (unit :mm)

Index	Ao	Bo	ΦD	T	W
Dimension (mm)	1.85 ± 0.10	3.45 ± 0.10	1.55 ± 0.05	0.75 ± 0.10	8.20 ± 0.30
Index	E	F	Po	P1	P2
Dimension (mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10

Reel dimensions



Index	A	B	C
Dimension (mm)	Φ178.0	Φ60.0	Φ13.0

Taping Quantity:2000 pieces per 7" reel

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測試報告

Test Report

號碼(No.): EKR21300076

日期(Date): 09-Mar-2021

頁數(Page): 1 of 14

華新科技股份有限公司高雄分公司 (WALSIN TECHNOLOGY CORPORATION)

高雄市高雄前鎮加工出口區南四路7號 (NO. 7, SOUTH 4TH ROAD, K. E. P. Z. KAOHSIUNG, TAIWAN, 806)

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as) :

送樣廠商(Sample Submitted By) : 華新科技股份有限公司高雄分公司 (WALSIN TECHNOLOGY CORPORATION)
樣品名稱(Sample Name) : RF PRODUCT
樣品型號(Style/Item No.) : ANT SERIES、ECA SERIES

收件日(Sample Receiving Date) : 02-Mar-2021
測試期間(Testing Period) : 02-Mar-2021 to 09-Mar-2021

測試需求(Test Requested) : 依據客戶要求進行測試，測試項目請參閱測試結果表格。(Testing item(s) is/are specified by client. Please refer to result table for testing item(s).)
測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages.)

Day Chang

報告簽署人/張伯睿 博士/技術經理
Ray Chang, Ph.D. Manager-Tech
Signed for and on behalf of
SGS TAIWAN LTD.

化學實驗室-高雄/Cheical Laboratory-Kaohsiung



PIN CODE: SBD1984E

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Test Report

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高雄市高雄前鎮加工出口區南四路7號 (NO. 7, SOUTH 4TH ROAD, K. E. P. Z. KAOHSIUNG, TAIWAN, 806)

測試部位敘述 (Test Part Description)

No.1 : 整體混測電子零件 (MIXED ALL PARTS ELECTRONIC COMPONENT)

測試結果 (Test Results)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
鎘 (Cd) (Cadmium (Cd)) (CAS No.: 7440-43-9)	參考IEC 62321-5: 2013 · 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
鉛 (Pb) (Lead (Pb)) (CAS No.: 7439-92-1)		mg/kg	2	n.d.
汞 (Hg) (Mercury (Hg)) (CAS No.: 7439-97-6)	參考IEC 62321-4: 2013+ AMD1: 2017 · 以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
六價鉻 (Hexavalent Chromium) Cr(VI) (CAS No.: 18540-29-9)	參考IEC 62321-7-2: 2017 · 以紫外光-可見光分光光度計分析。(With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.)	mg/kg	8	n.d.
一溴聯苯 (Monobromobiphenyl)	參考IEC 62321-6: 2015 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.
四溴聯苯 (Tetrabromobiphenyl)		mg/kg	5	n.d.
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.

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高雄市高雄前鎮加工出口區南四路7號 (NO. 7, SOUTH 4TH ROAD, K. E. P. Z. KAOHSIUNG, TAIWAN, 806)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
一溴聯苯醚 (Monobromodiphenyl ether)	參考IEC 62321-6: 2015 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.
二溴聯苯醚 (Dibromodiphenyl ether)		mg/kg	5	n.d.
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5	n.d.
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5	n.d.
五溴聯苯醚 (Pentabromodiphenyl ether)		mg/kg	5	n.d.
六溴聯苯醚 (Hexabromodiphenyl ether)		mg/kg	5	n.d.
七溴聯苯醚 (Heptabromodiphenyl ether)		mg/kg	5	n.d.
八溴聯苯醚 (Octabromodiphenyl ether)		mg/kg	5	n.d.
九溴聯苯醚 (Nonabromodiphenyl ether)		mg/kg	5	n.d.
十溴聯苯醚 (Decabromodiphenyl ether)		mg/kg	5	n.d.
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP)) (CAS No.: 85-68-7)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP)) (CAS No.: 84-74-2)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP)) (CAS No.: 84-69-5)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP)) (CAS No.: 117-81-7)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二異壬酯 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.

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高雄市高雄前鎮加工出口區南四路7號 (NO. 7, SOUTH 4TH ROAD, K. E. P. Z. KAOHSIUNG, TAIWAN, 806)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
鄰苯二甲酸二正己酯 (DNHP) (Di-n-hexyl phthalate (DNHP)) (CAS No.: 84-75-3)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
鄰苯二甲酸二正戊酯 (DNPP) (Di-n-pentyl phthalate (DNPP)) (CAS No.: 131-18-0)	參考IEC 62321-8: 2017 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.
六溴環十二烷及所有主要被辨別出的異構物 (HBCDD) (α - HBCDD, β - HBCDD, γ - HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α - HBCDD, β - HBCDD, γ - HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	參考IEC 62321: 2008 · 以氣相層析儀/質譜儀分析。(With reference to IEC 62321: 2008, analysis was performed by GC/MS.)	mg/kg	5	n.d.
氟 (F) (Fluorine (F)) (CAS No.: 14762-94-8)	參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.
氯 (Cl) (Chlorine (Cl)) (CAS No.: 22537-15-1)	參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.
溴 (Br) (Bromine (Br)) (CAS No.: 10097-32-2)	參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.
碘 (I) (Iodine (I)) (CAS No.: 14362-44-8)	參考BS EN 14582: 2016 · 以離子層析儀分析。(With reference to BS EN 14582: 2016, analysis was performed by IC.)	mg/kg	50	n.d.
全氟辛酸 (PFOA)及其鹽類 (Perfluorooctanoic acid (PFOA) and it's salt) (CAS No.: 335-67-1 and its salts)	參考CEN/TS 15968: 2010 · 以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.
全氟辛烷磺酸(PFOS)及其鹽類 (Perfluorooctane sulfonate (PFOS) and it's salt) (CAS No.: 1763-23-1 and its salts)	參考CEN/TS 15968: 2010 · 以液相層析串聯質譜儀分析。(With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.)	mg/kg	0.01	n.d.

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高雄市高雄前鎮加工出口區南四路7號 (NO. 7, SOUTH 4TH ROAD, K. E. P. Z. KAOHSIUNG, TAIWAN, 806)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result)
				No.1
銻 (Sb) (Antimony (Sb)) (CAS No.: 7440-36-0)	參考US EPA 3052: 1996 · 以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
鈹 (Be) (Beryllium (Be)) (CAS No.: 7440-41-7)	參考US EPA 3052: 1996 · 以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
砷 (As) (Arsenic (As)) (CAS No.: 7440-38-2)	參考US EPA 3052: 1996 · 以感應耦合電漿發射光譜儀分析。(With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.)	mg/kg	2	n.d.
紅磷 (Red Phosphorus)	以熱裂解-氣相層析儀/質譜儀分析。(Analysis was performed by Pyrolyzer-GC/MS.)	**	-	Negative

備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit (方法偵測極限值)
3. n.d. = Not Detected (未檢出) ; 小於MDL / Less than MDL
4. "-" = Not Regulated (無規格值)
5. ** = Qualitative analysis (No Unit) 定性分析(無單位)
6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
7. 全氟辛烷磺酸及其鹽類包含 (PFOS and its salts including) :
CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.
8. 全氟辛酸及其鹽類包含 (PFOA and its salts including) :
CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.
9. 樣品的測試是基於申請人要求混合測試 · 報告中的混合測試結果不代表其中個別單一材質的含量。
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.

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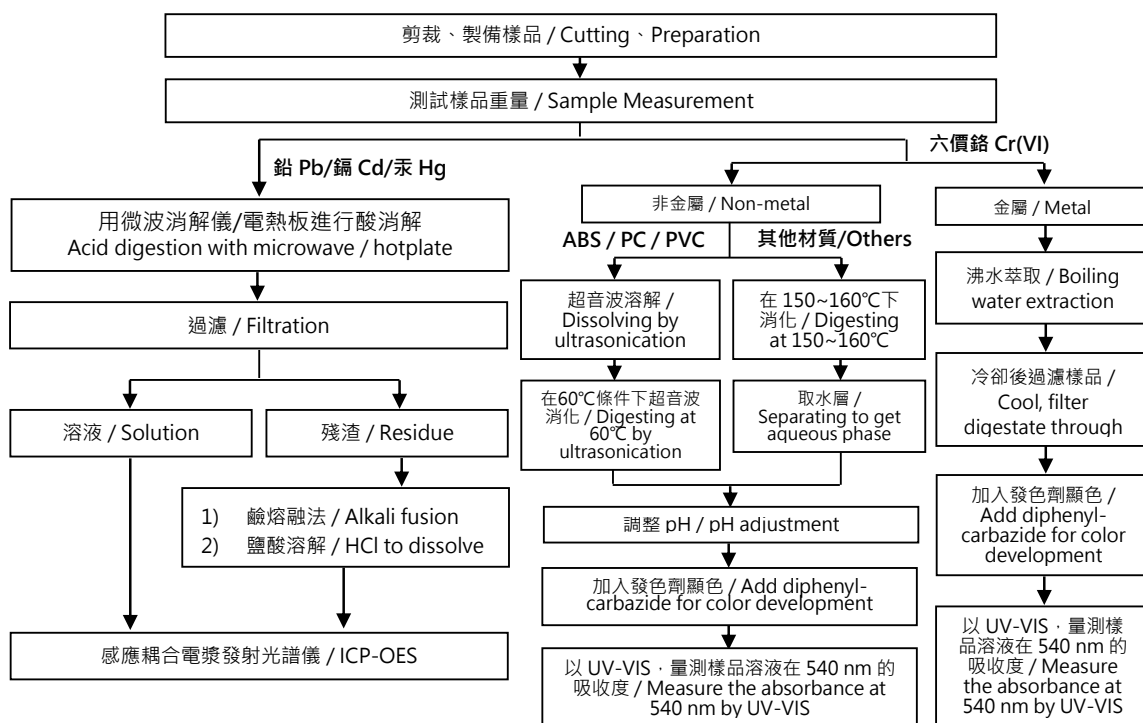
華新科技股份有限公司高雄分公司 (WALSIN TECHNOLOGY CORPORATION)

高雄市高雄前鎮加工出口區南四路7號 (NO. 7, SOUTH 4TH ROAD, K. E. P. Z. KAOHSIUNG, TAIWAN, 806)

重金屬流程圖 / Analytical flow chart of Heavy Metal

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.

(Cr⁶⁺ test method excluded)

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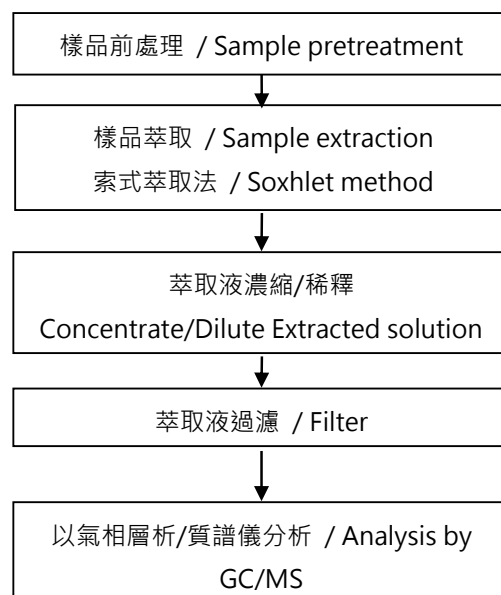
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多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART



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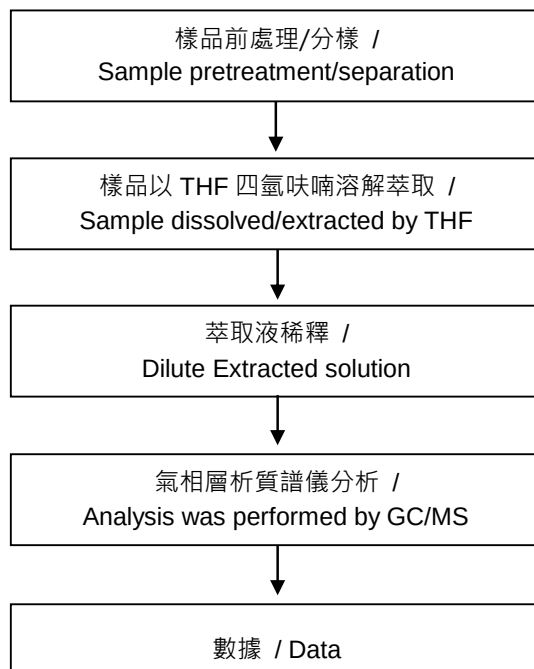
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可塑劑分析流程圖 / Analytical flow chart of phthalate content

【測試方法/Test method: IEC 62321-8】



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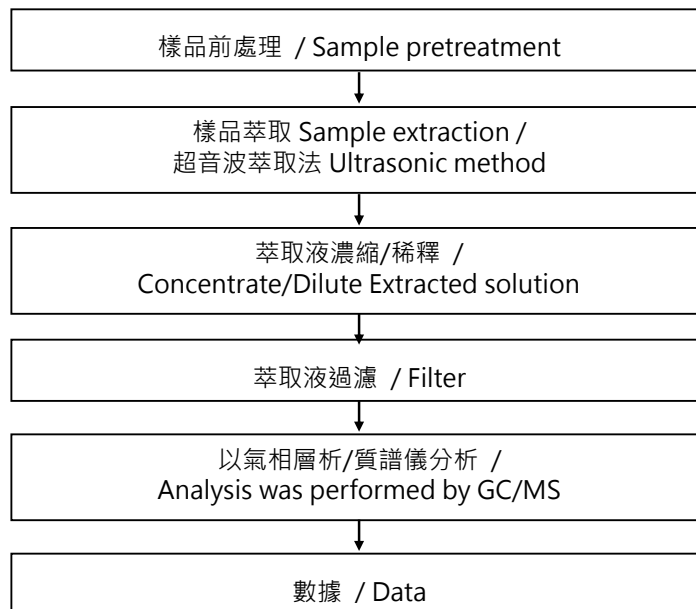
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD



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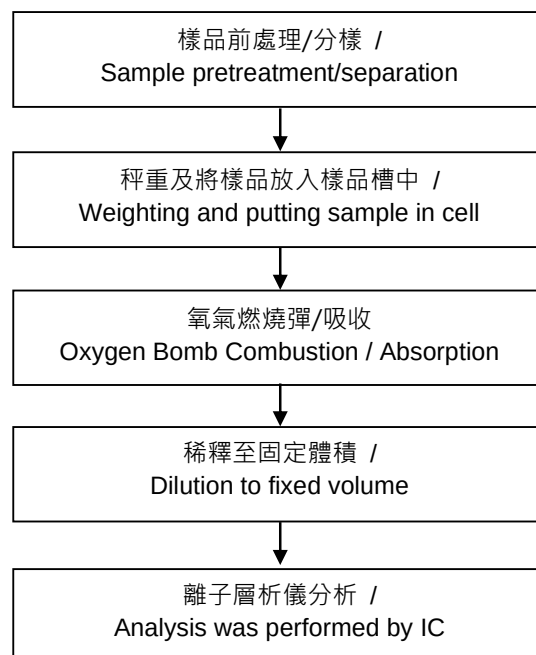
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鹵素分析流程圖 / Analytical flow chart of Halogen



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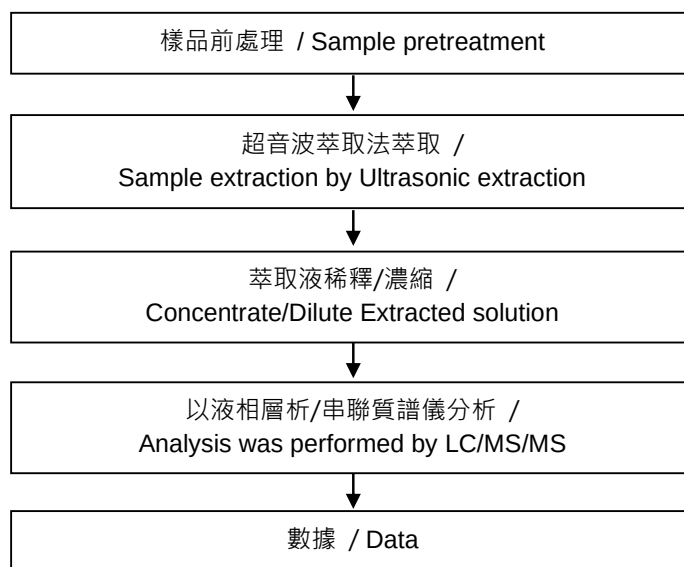
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全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS



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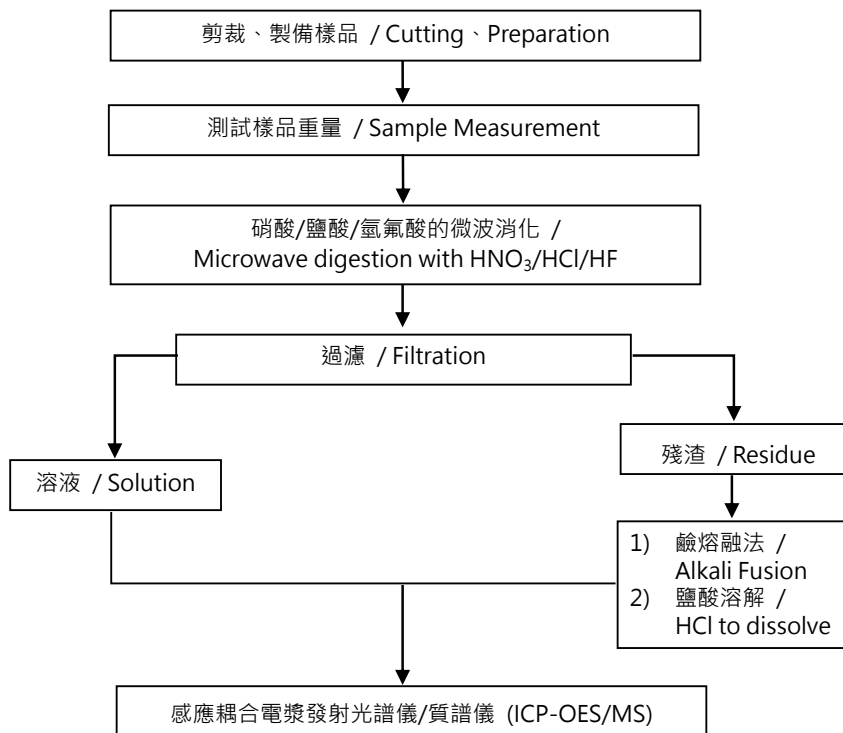
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重金屬流程圖 / Analytical flow chart of Heavy Metal

根據以下的流程圖之條件，樣品已完全溶解。

These samples were dissolved totally by pre-conditioning method according to below flow chart.

【參考方法/Reference method：US EPA 3051、US EPA 3052】



* US EPA 3051 方法未添加氫氟酸 / US EPA 3051 method does not add HF.

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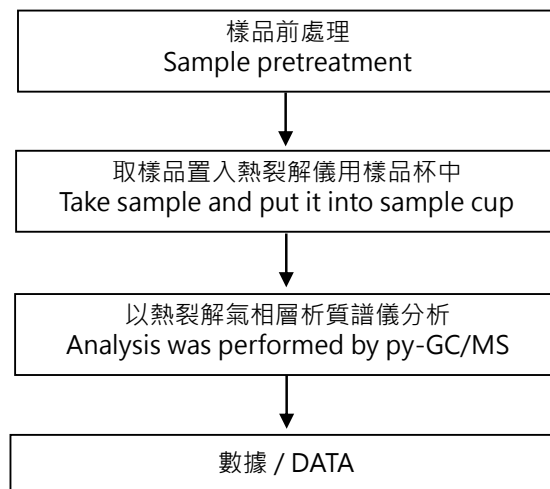
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紅磷分析流程 / Analytical flow chart - Red phosphorus



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華新科技股份有限公司高雄分公司 (WALSIN TECHNOLOGY CORPORATION)

高雄市高雄前鎮加工出口區南四路7號 (NO. 7, SOUTH 4TH ROAD, K. E. P. Z. KAOHSIUNG, TAIWAN, 806)

* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。*

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

EKR21300076



** 報告結尾 (End of Report) **

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Composition List of Products & Parts (RF)

To Customer:

We hereby declare that parts, materials and products delivered by us are compliant with all requirement and exemption set by the European RoHS Directive 2011/65/EU & (EU) 2015/863. We further declare that all the statements in this letter are true and accurate.

Composition of Product			Composition of Parts		Composition of Materials						Typical weight			
No	Compositions	Name	Part Name	Typical wt% in product	Material Name	Typical wt% in material	Substance Name	Substance Name	Typical wt% in product	CAS No.	Exemption	substance weight (mg)	material weight (mg)	product weight (mg)
		RFECA3216 series	Substrate	95.54	Ceramic	96	Al2O3	Aluminum Oxide	91.7184	1344-28-1		8.308	8.655	9.06
						3	SiO2	Silicon dioxide	2.8662	14808-60-7		0.26		
						1	MgO	Magnesium oxide	0.9554	1309-48-4		0.087		
			Top side and back side printing	1.86	Silver	100	Ag	Silver	1.86	7440-22-4		0.169	0.169	
			Overcoat printing	0.78	Epoxy resin	40	NA	Epoxy resin	0.312	25068-38-6		0.028	0.071	
						30	SiO2	Silicon dioxide	0.234	60676-86-0		0.021		
						5	TiO2	Titanium dioxide	0.039	13463-67-7		0.004		
						5	3MgO.4O2Si.H2O	Talc	0.039	14807-96-6		0.004		
						20	C7H12O4	Dibasic acid ester	0.156	1119-40-0		0.014		
			Marking printing	0.38	Ink	55	C18H21ClO3	Epoxy resin	0.209	25068-38-6		0.019	0.034	
						15	BaO4S	Barium sulfate	0.057	7727-43-7		0.005		
						30	TiO2	Titanium dioxide	0.114	13463-67-7		0.01		
			End side sputtering	0.26	Ni/Cr alloy	55	Ni	Nickel	0.143	7440-02-0		0.013	0.024	
						45	Cr	Chromium	0.117	7440-47-3		0.011		
			Under plating	0.33	Nickel	100	Ni	Nickel	0.33	7440-02-0		0.03	0.03	
			Surface plating	0.85	Tin	100	Sn	Tin	0.85	7440-31-5		0.077	0.077	
This Document Prepared by : Jennifer Lin / S&H Deputy Section Manager Approved by : Jay Huang / Q&R AVP														

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