




CHANT SINCERE CO.,LTD.

TITLE : **CHIP ANTENNA MEASUREMENT AND PERFORMANCE REPORT**

CUSTOMER : 亞旭

PRODUCT : **PC-661**

SAMPLE NO. : **920D07E15225013**

 CHANT SINCERE CO.,LTD	MEASURED BY : C. L. Liao	APPROVAL BY : Belle
WEB SITE : www.coxoc.com.tw	DOCUMENT NO. : CAMR-06011801 DATE : 2006-01-18	PAGE NO. 5

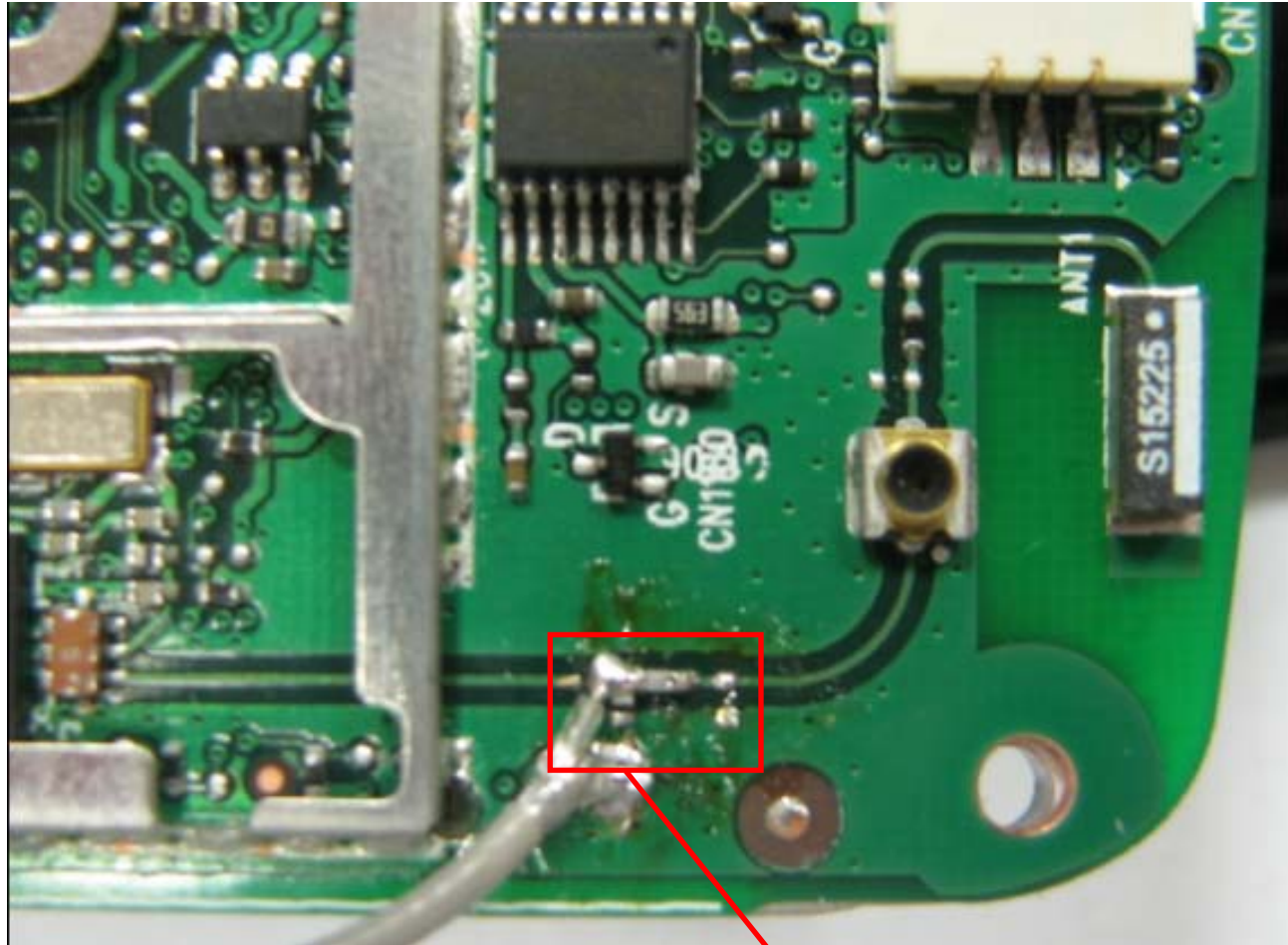


Outline

- Matching Circuit Network
- Return Loss Measurement
- 3D Far-field Radiation Measurement
 - *3D Radiation Pattern*
 - *Test Summarization Table*



Matching Circuit Network



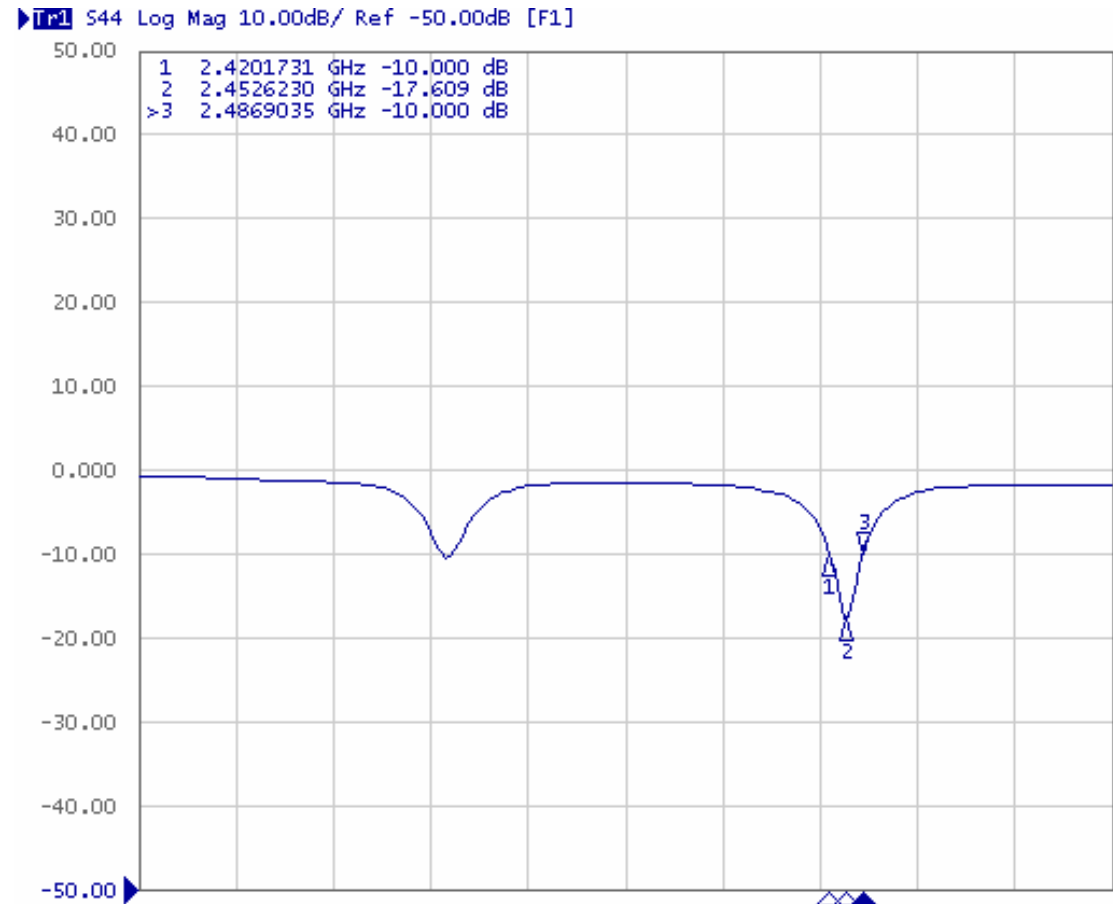
At first series winding 3.3pF capacitor and then parallel winding 1.5nH inductor



Return Loss Measurement

Return loss (S11) Test Report for COXOC BT Chip Antenna

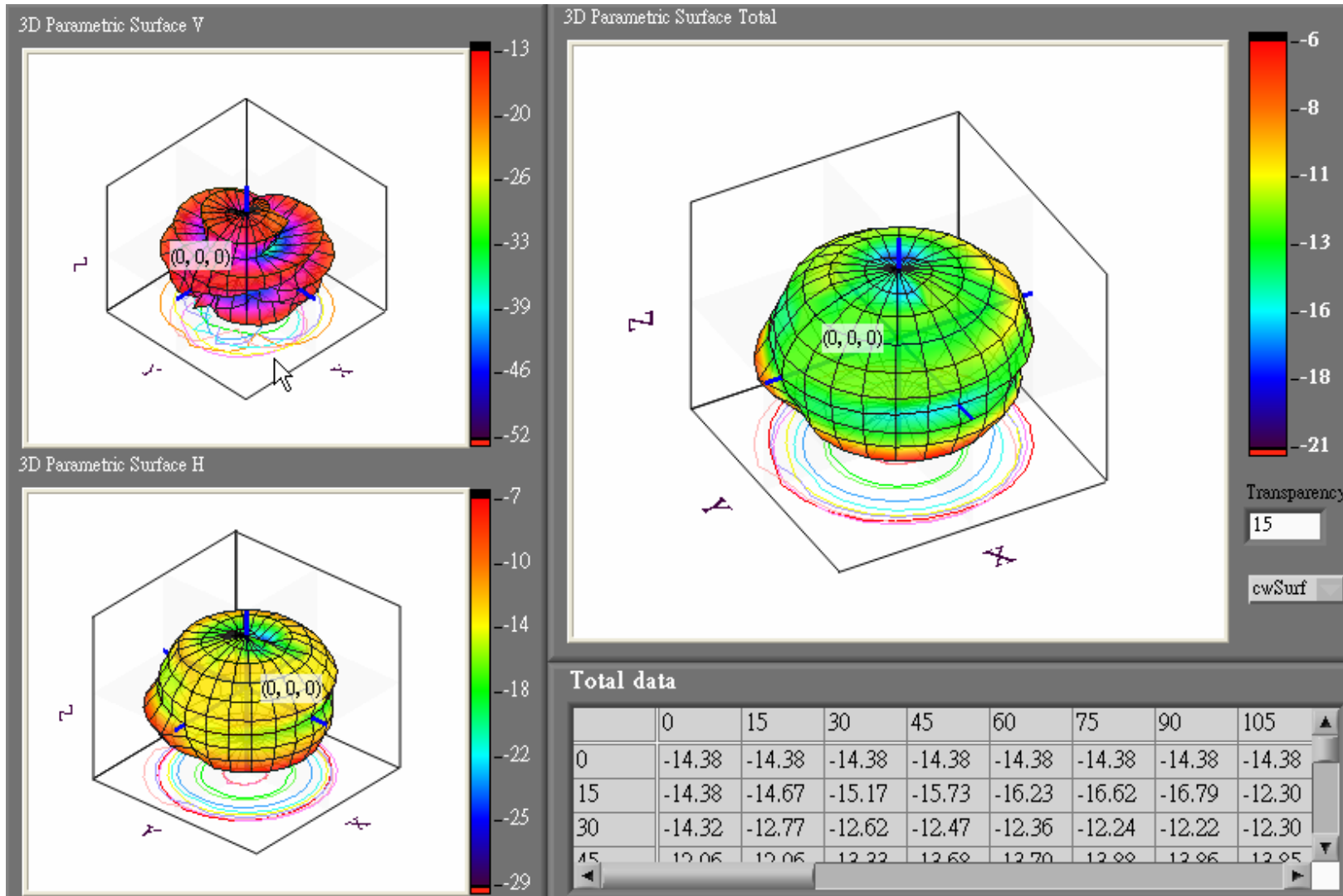
Measurement Instrument	(Agilent E5071B ENA, 300KHz~8.5GHz)
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3D Far-field Radiation Measurement

3D Radiation Pattern-



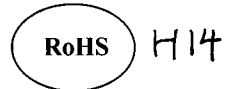


3D Far-field Radiation Measurement

Test Summarization Table-

Trade Name			
Model Name			
Test Mode			
Free Space & Talking Position			
Communication System			
Channel	2400	2450	2483
Note			
Ant. Port Input Pwr. (dBm)	0	0	0
Tot. Rad. Pwr. (dBm)	-11.146	-9.25	-8.858
Peak EIRP (dBm)	-6.05	-3.886	-3.194
Directivity (dBi)	5.096	5.364	5.664
Efficiency (dB)	-11.146	-9.25	-8.858
Efficiency (%)	7.681	11.885	13.009
Gain (dBi)	-6.05	-3.886	-3.194
Boresight Phi (°)	75	75	75
Boresight Th. (°)	135	135	135
Maximum Power (dBm)	-6.05	-3.886	-3.194
Minimum Power (dBm)	-20.735	-17.121	-16.842
Average Power (dBm)	-10.644	-8.831	-8.505
Max/Min Ratio (dB)	14.685	13.235	13.648
Max/Avg Ratio (dB)	5.096	5.364	5.664
Min/Avg Ratio (dB)	-9.589	-7.871	-7.984
Average Gain (dB)	-11.146	-9.25	-8.858
Mobile Phone Efficiency (%)	7.68	11.89	13.01

亞旭電子科技(江蘇)有限公司



樣品確認單

一般承認
 條件承認
 退件
 2007年1月9日

料號：3907-002450 序號：陸研070115

種類：CHIP ANTENNA 使用機種：PC660-D92.RoHS

廠牌：COXOC 是否指定 YES NO 供應商：COXOC

規格：CHIP ANTENNA,SMD,920D07E15225013(RoHS),Bluetooth WLAN IEEE802.11b/g 2.4GHz 2dBi 5.2×2.0×1.5mm,COXOC

外觀	<input checked="" type="checkbox"/> 完全確認 <input type="checkbox"/> 條件確認 <input type="checkbox"/> 退件												
驗證結果：													
電氣	<input checked="" type="checkbox"/> 完全確認 <input type="checkbox"/> 條件確認 <input type="checkbox"/> 退件												
驗證結果：													
模 具	<input checked="" type="checkbox"/> 完全確認 <input type="checkbox"/> 條件確認 <input type="checkbox"/> 退件												
驗證結果：													
印 刷	<input checked="" type="checkbox"/> 完全確認 <input type="checkbox"/> 條件確認 <input type="checkbox"/> 退件												
驗證結果：													
顏 色	<input checked="" type="checkbox"/> 完全確認 <input type="checkbox"/> 條件確認 <input type="checkbox"/> 退件												
驗證結果：													
零件環保狀態	<input type="checkbox"/> 無 <input checked="" type="checkbox"/> 有化驗報告：		說明：										
PCB LAYOUT方式：	<input type="checkbox"/> Power PCB <input type="checkbox"/> Pads <input type="checkbox"/> THE OTHERS: _____												
安規控制零件	<input type="checkbox"/> 是 <input checked="" type="checkbox"/> 否												
安規證書如下：	<input type="checkbox"/> UL <input type="checkbox"/> CUL <input type="checkbox"/> CSA <input type="checkbox"/> TUV <input type="checkbox"/> VDE <input type="checkbox"/> BSI <input type="checkbox"/> BABT <input type="checkbox"/> SEMKO <input type="checkbox"/> NEMKO <input type="checkbox"/> FIMKO <input type="checkbox"/> DEMKO <input type="checkbox"/> THE OTHERS: _____												
證書期限	<input type="checkbox"/> 是何種證書: _____ <input type="checkbox"/> 否												
品檢重點及其它應特別注意事項： 1)工程師：林威志 2)MARKING控管字元正面：S15225. 反面：225				單顆重量(單位mg)	Pb鉛	Cd鎘	Hg汞	Cr+6六價 鉻	PBBs多溴 聯苯	PBDEs溴 聯苯醚s			
				50	8.3	ND	ND	ND	ND	ND			
				實驗室名稱：				SGS					
				ICP 文件編號：				CE/2006/44760					
測試日期：				2006/4/24									
附樣欄：													
<div style="border: 1px solid black; padding: 5px; display: inline-block;">大陸製造</div>								<div style="border: 1px solid black; padding: 5px; display: inline-block;">輸入編號</div>					
<div style="border: 1px solid black; padding: 5px; display: inline-block;">RD0070109-009</div>													

確認單位 產品工程： 台灣 大陸 研展： 台灣 大陸 平面： 台灣 大陸

分發單位 供應商 THE OTHERS: _____

核准		確認		工程師	
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亞旭電腦股份有限公司

原物料樣品測試報告

17 線材、機構、雜項類 (REV.01)

DATE:07/1/8

料號	3907-002450	品名規格	CHIP ANTENNA,SMD,920D07E15225013(RoHS),Bluetooth WLAN IEEE802.11b/g 2.4GHz 2dBi 5.2x2.0x1.5mm,COXOC
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一.機構測量(單位： mm)&電氣測量								
	實測項目	規格	# 1	# 2	# 3	# 4	# 5	結果
<input checked="" type="radio"/>	長度	L 5.2±0.05	5.23	5.22	5.23	5.22	5.20	<input checked="" type="checkbox"/> OK <input type="checkbox"/> FAIL
<input checked="" type="radio"/>	寬度	W 2.0±0.05	2.05	2.02	2.02	2.03	2.03	<input checked="" type="checkbox"/> OK <input type="checkbox"/> FAIL
<input checked="" type="radio"/>	高度	H 1.5±0.08	1.56	1.57	1.54	1.54	1.51	<input checked="" type="checkbox"/> OK <input type="checkbox"/> FAIL
<input type="radio"/>								<input type="checkbox"/> OK <input type="checkbox"/> FAIL
<input type="radio"/>								<input type="checkbox"/> OK <input type="checkbox"/> FAIL
<input type="radio"/>								<input type="checkbox"/> OK <input type="checkbox"/> FAIL
<input type="radio"/>								<input type="checkbox"/> OK <input type="checkbox"/> FAIL
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<input type="radio"/>								<input type="checkbox"/> OK <input type="checkbox"/> FAIL
<input type="radio"/>								<input type="checkbox"/> OK <input type="checkbox"/> FAIL
<input type="radio"/>								<input type="checkbox"/> OK <input type="checkbox"/> FAIL
<input checked="" type="radio"/>	焊錫性(Solderability)							<input type="checkbox"/> OK <input type="checkbox"/> FAIL
<input checked="" type="radio"/>	抗焊錫熱(Resistance to Soldering Heat)							<input type="checkbox"/> OK <input type="checkbox"/> FAIL
<input type="radio"/>	外觀		OK	OK	OK	OK	OK	<input checked="" type="checkbox"/> OK <input type="checkbox"/> FAIL
<input type="radio"/>	實裝於產品上，確認機構尺寸							<input type="checkbox"/> OK <input type="checkbox"/> FAIL

1.尺寸圖示請參考次頁.

2.測試工具:

A 游標卡尺: CODE NO:500-147.

重要項目：◎

次重要項目：○

工程師：張敏



承認書

SPECIFICATION FOR APPROVAL

客戶
CUSTOMER

亞旭電腦股份有限公司

品名
DESCRIPTION

2.4GHz Chip Antenna
Size 2*5.2mm

詮欣料號
PART No.

920D07E15225013

客戶料號
CUSTOMER P/N

3907-002450

詮欣股份有限公司
CHANT SINCERE CO., LTD

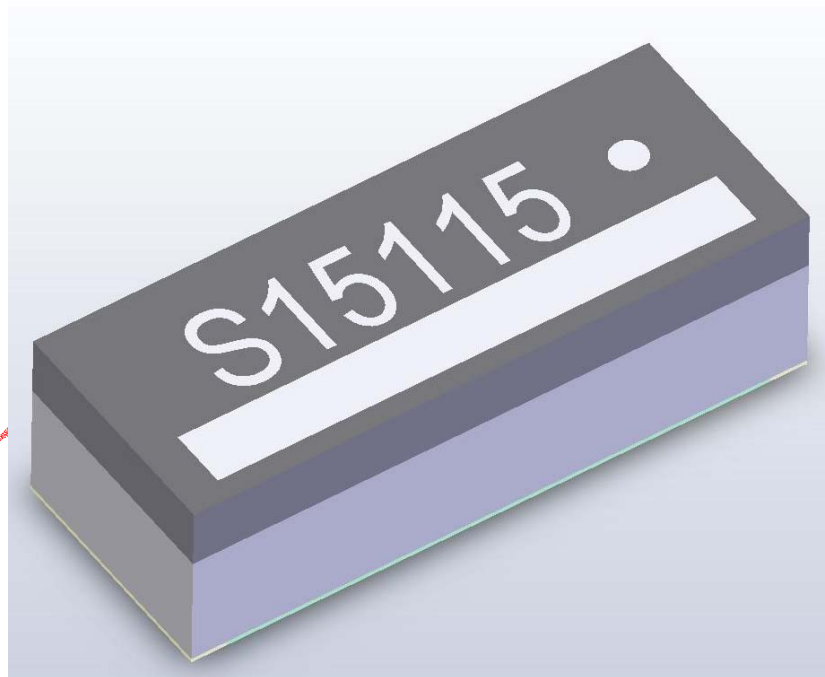
台北縣汐止市大同路三段188號7F-2
7F-2, No.188, SEC.3, TA TUNG ROAD, HSI CHIH
TAIPEI HSIEN, TAIWAN,
TEL : 886-2-86471251
FAX: 886-2-86472962 / 886-2-86471842



ISM Band Planar Chip Antenna
Bluetooth, WLAN IEEE802.11b/g
2.4GHz ISM Band
<Patent Protection>

Approval Sheet

2.4 GHz ISM Band Chip Antenna



920D07E15XXX013

Ver. 1.01

2006/05/15

CHANT SINCERE CO.,LTD.

DESCRIPTIONS

The exciting **920D07E15XXX013** is one of the world's high-performance 2.4GHz small chip antennas. It is for all 2.4GHz applications, including Bluetooth, IEEE802.11b/g, home RF, ZigBee and other popular and emerging standards. This chip antenna comprises a radiating structure of multiple meandered conducting strips, which are developed on a tiny piece of Printed Circuit Board (PCB) and packed with a Liquid Crystal Polymer (LCP) dielectric composite material to achieve size, performance characteristics and cost effectiveness superior to other designs. The incredibly compact surface mountable package measures a merely 5.2mm (L) × 2.0mm (W) × 1.5mm (H) in dimensions and is fully compatible with handmade and reflow attachment processes. The antenna's favorable electrical specifications, stability and cost-effectiveness make it the logical choice for a wide variety of applications in the 2.4GHz ISM band.

FEATURES

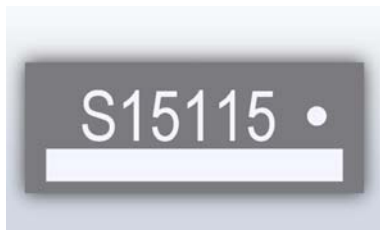
- Low Profile, Ultra-Thin, Light Weight (0.05g)
- Miniaturized Size (**5.2×2.0×1.5 mm³**)
- Omni-Directional Antenna Patterns
- Low Loss (**Average Gain = 0 dBi**)
- 50Ω Characteristic Impedance
- Impedance-Matching Free
- Wide Bandwidth
- Favorable Linear Polarization
- Fully Manual and Surface Mount Compatible
- Incredibly Compact SMD Package
- Highly Stable with Variations in Temperature and Humidity
- LCP Insert Molding Technology
- Cost-Effective

APPLICATIONS

- Bluetooth
- IEEE802.11b/g
- Wireless PCMCIA Cards
- Telemetry
- Data Collection
- Industrial Process Monitoring
- Compact Wireless Products
- External Antenna Elimination
- ZigBee

SPECIFICATIONS

- 920D07E15XXX013



KEY FEATURES:

- Low Profile, Ultra-Thin, Light Weight (0.05g)
- Miniaturized Size (5.2×2.0×1.5mm³)
- Impedance-Matching Free
- SMD Type
- Cost-Effective

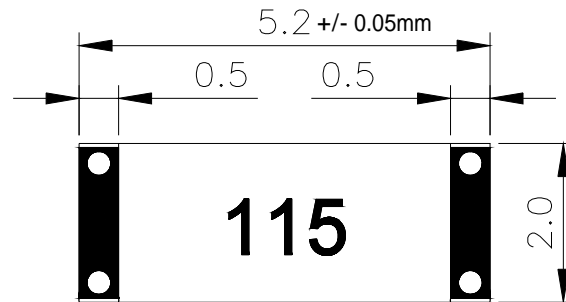
MAIN APPLICATIONS:

- Wireless communications in 2.4GHz ISM Band

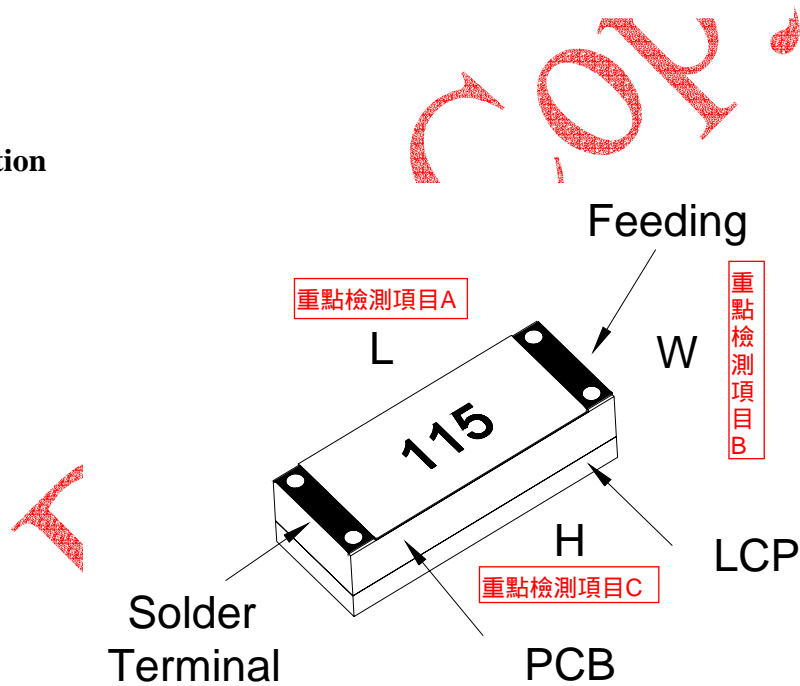
	Single-Band Planar Chip Antenna
Dimension (mm ³)	5.2×2.0×1.5
Central Frequency (GHz)	2.45
Bandwidth (MHz)	>100
Gain (dBi) (Typical)	2
VSWR	2.0 (max.)
Return Loss (dB)	-10 (max.)
Polarization	Linear
Pattern	Omni-Directional
Impedance (Ω)	50
Operating Temperature (°C)	-25 ~ +85
Construction	LCP Insert Molding

CHARACTERISTICS

Pad Layout (unit: mm)



Construction



Antenna size: 5.2mm (L) × 2.0mm (W) × 1.5mm (H)
《+/- 0.05mm》 《+/- 0.05mm》 《+/- 0.08mm》

Land Pattern (unit: mm)

For best results, the chip antenna 920D07E15XXX013 should be mounted on one corner of 0.8mm thick FR4 PCB with $5.2 \times 9.0 \text{ mm}^2$ empty area and 50Ω microstrip-line input.

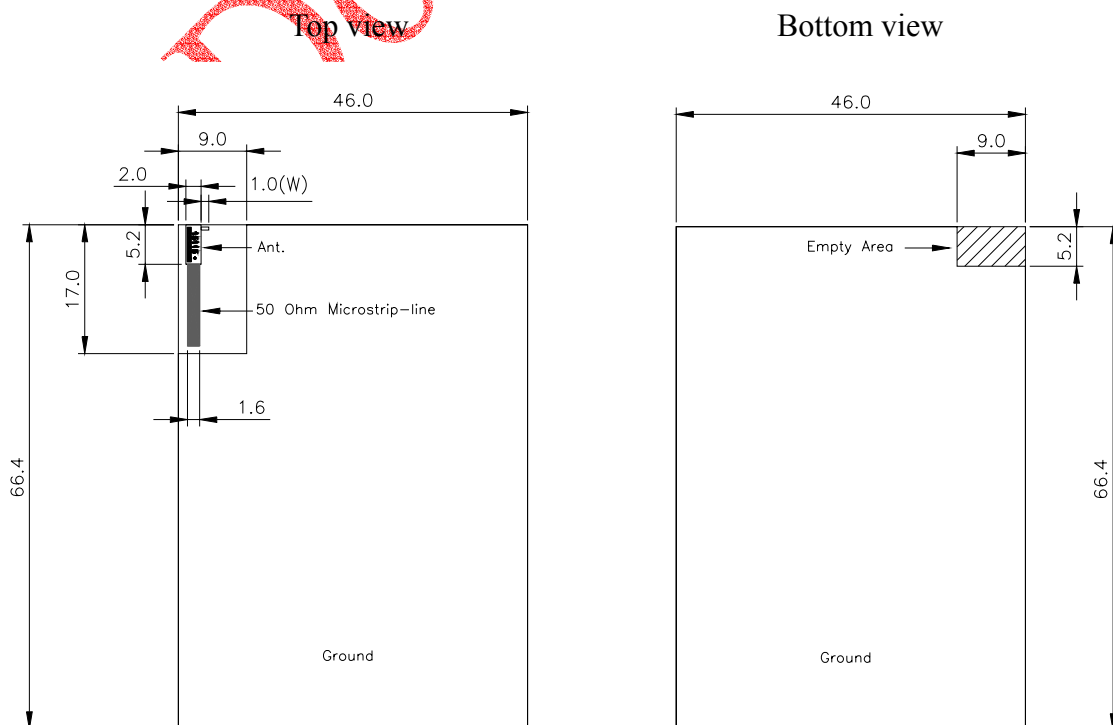
For another condition, the chip antenna 920D07E15XXX013 also could be mounted on one corner of 0.8 mm thick FR4 PCB with $5.2 \times 5 \text{ mm}^2$ empty area and 50Ω microstrip-line input but it must be utilized series winding 1pF capacitor as matching circuit component in order to improve the return loss of chip antenna at 2.45 GHz central frequency. Consequently, we can use the method of Pi circuit to tune central frequency of chip antenna. As regard, it can achieve excellent performance and desire different customer demands.

Summary :

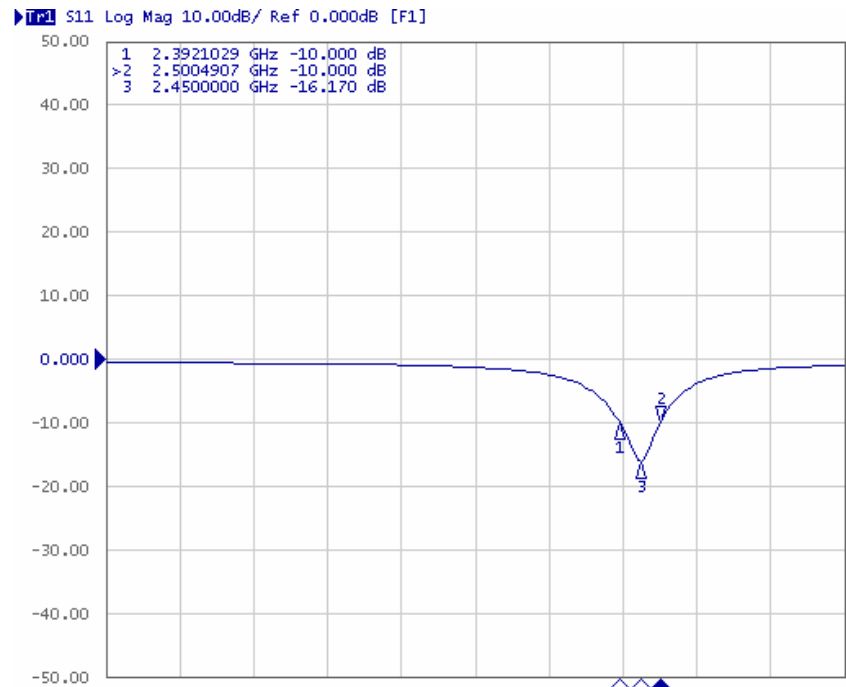
We can utilize different circuit length to tune the return loss of chip antenna for diverse product requirements. It was indicated that the central frequency shifted to high frequency with decrease in line length (see symbol “(W)” in land pattern). Such a results, when the length decreases 1 mm, the central frequency shifts about 100 MHz besides the bandwidth also still achieves previous purpose.

About above the results are mentioned as shown belows :

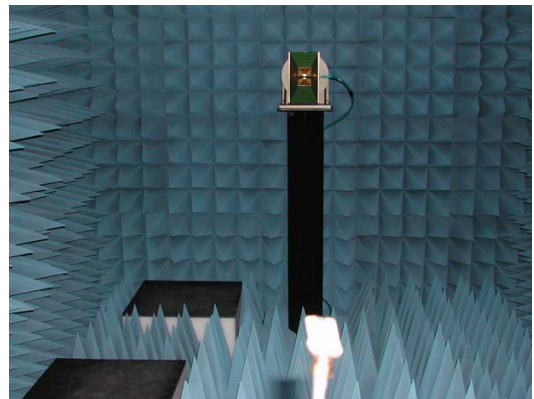
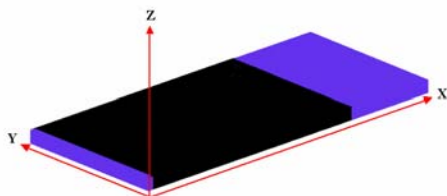
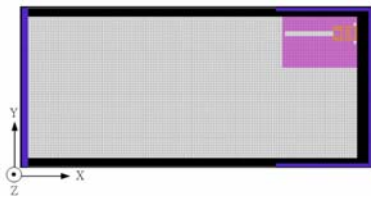
Condition (1) :

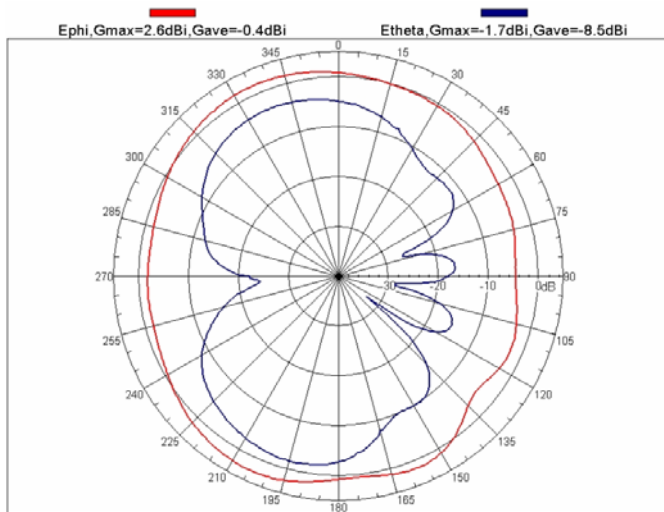


Return Loss and Bandwidth

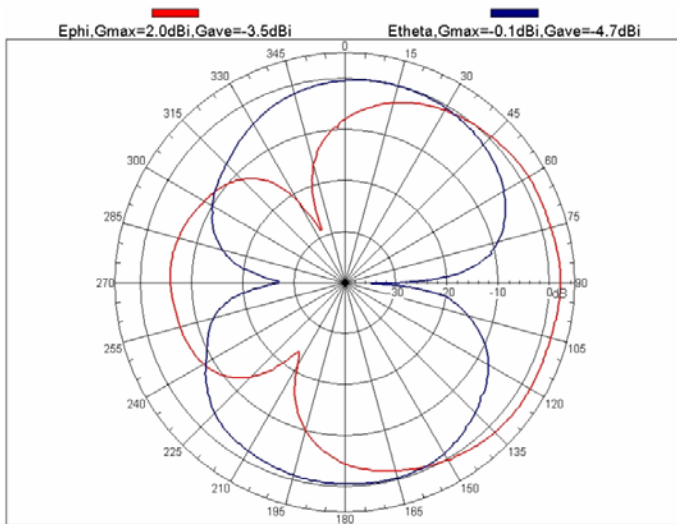


Radiation Pattern (unit dBi)

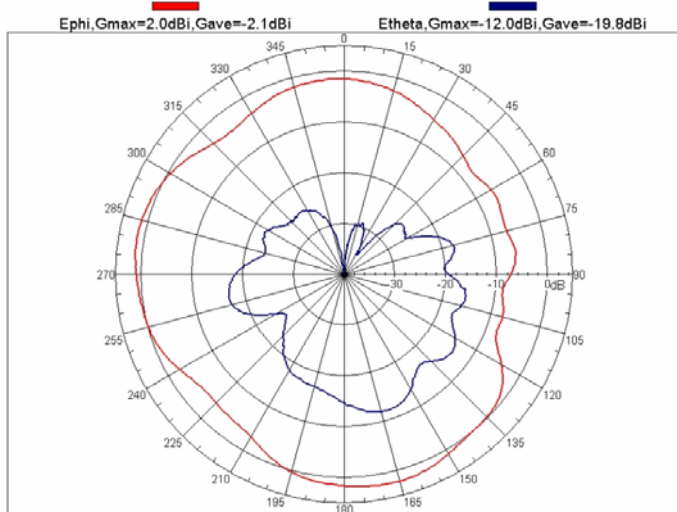
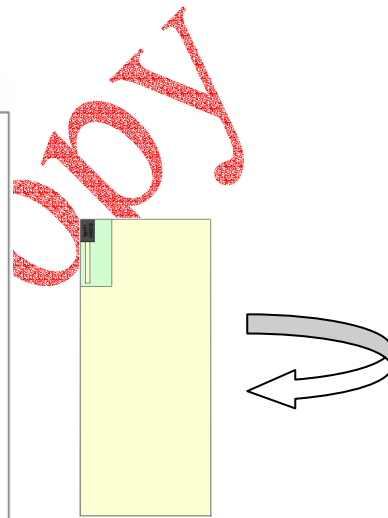




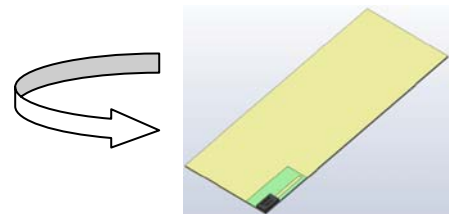
Phi=0° (X-Z plane) for 2.45 GHz



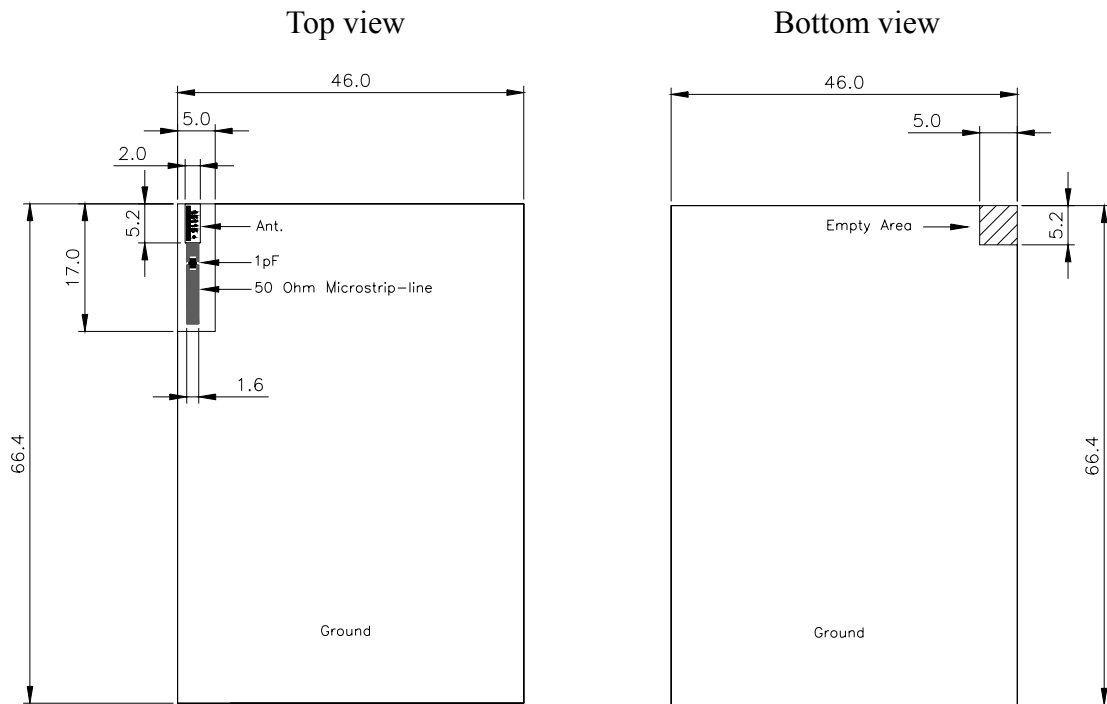
Phi=90° (Y-Z plane) for 2.45 GHz



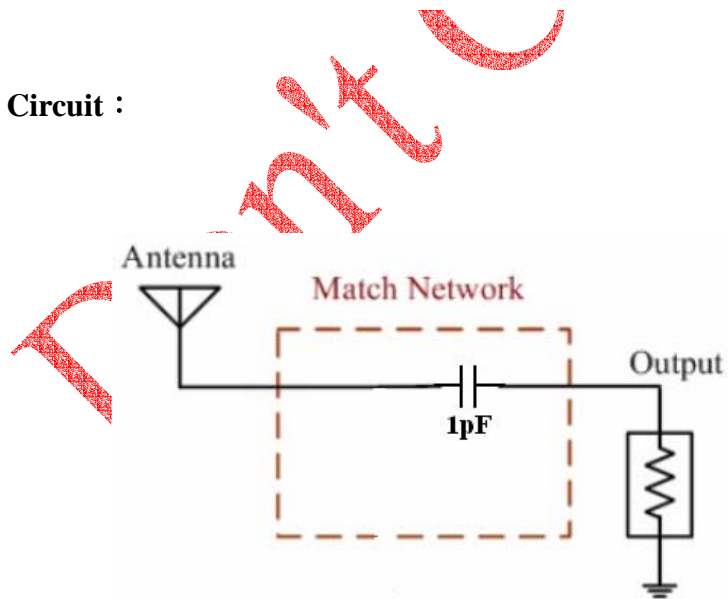
Theta=90° (X-Y plane) for 2.45 GHz



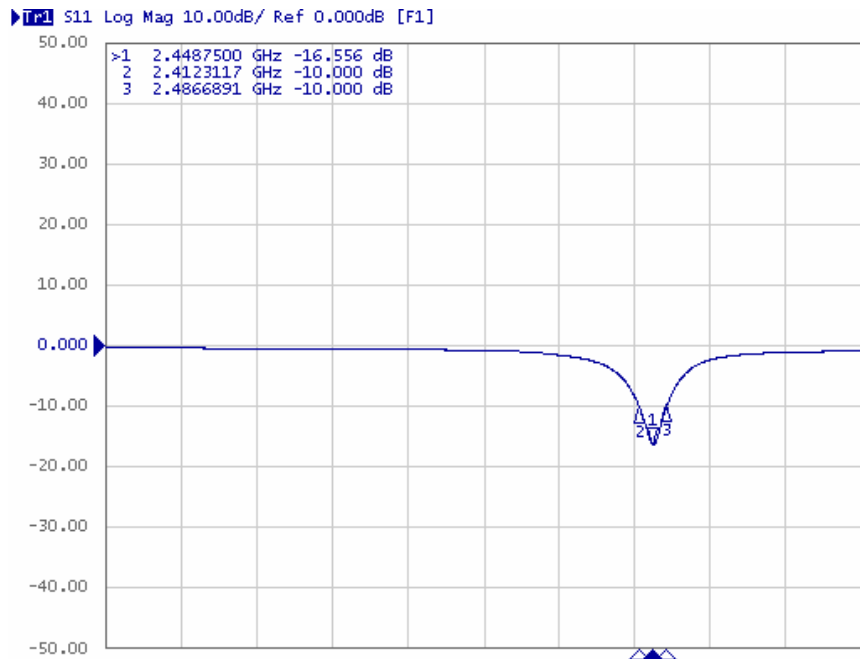
Condition (2) :



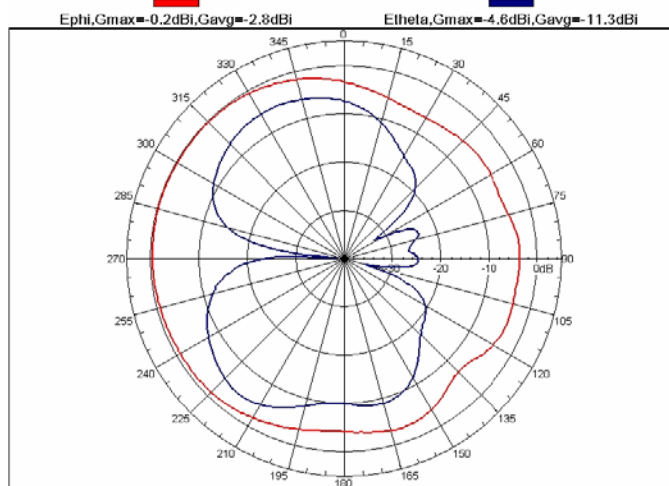
Matching Circuit :



Return loss and Bandwidth

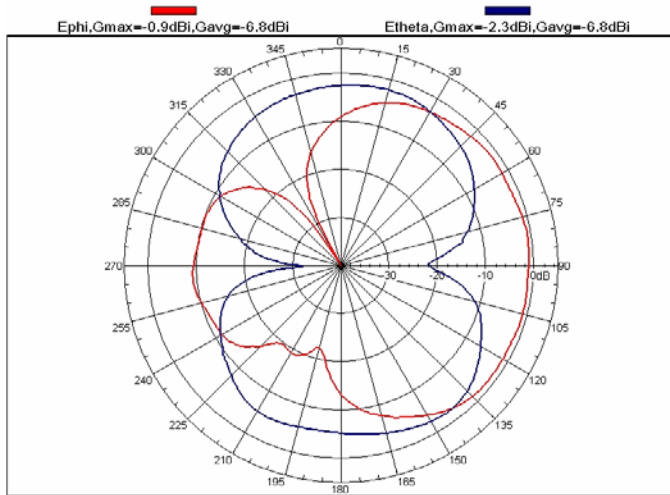


Radiation Pattern (unit : dBi)

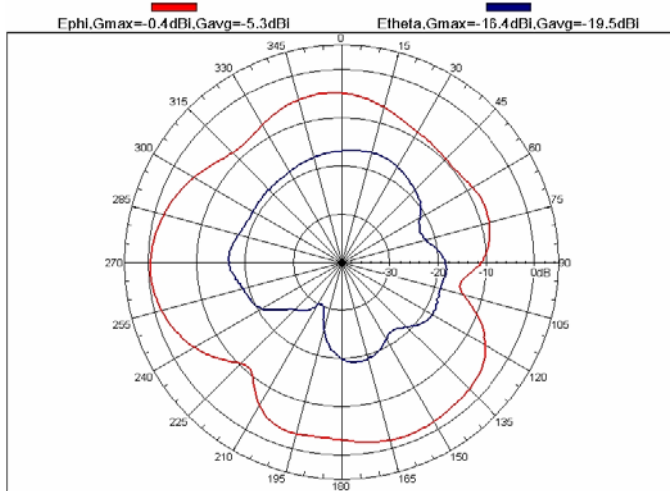
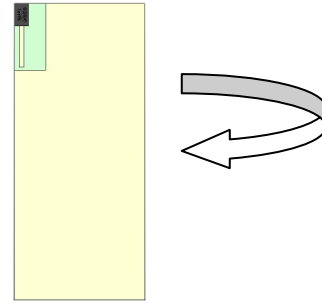


$\Phi=0^\circ$ (X-Z plane) for 2.45 GHz



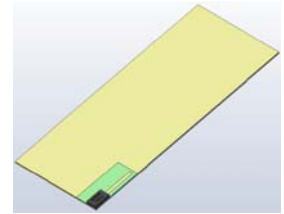


Phi=90° (Y-Z plane) for 2.45 GHz



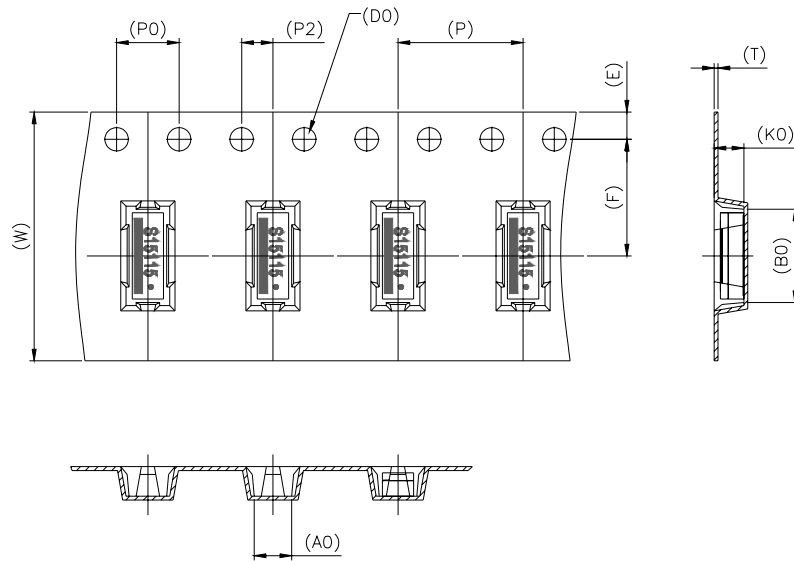
Theta=90° (X-Y plane) for 2.45 GHz

Copy



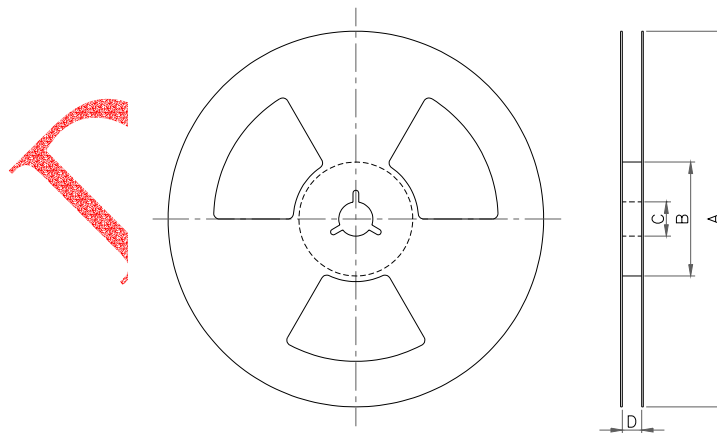
PACKING

Plastic Tape Specification (unit: mm)



Index	W	E	F	T	P	K0
Dimension(mm)	16.00 ± 0.30	1.75 ± 0.10	7.50 ± 0.10	0.25 ± 0.05	8.00 ± 0.10	1.90 ± 0.10
Index	P0	P2	D0	A0	B0	
Dimension(mm)	4.00 ± 0.10	2.00 ± 0.10	Φ1.50	2.40 ± 0.10	6.00 ± 0.10	

REEL DIMENSIONS (unit: mm)



Index	A	B	C	D
Dimension(mm)	Φ330	Φ100	Φ13.5	17.0 ± 0.5

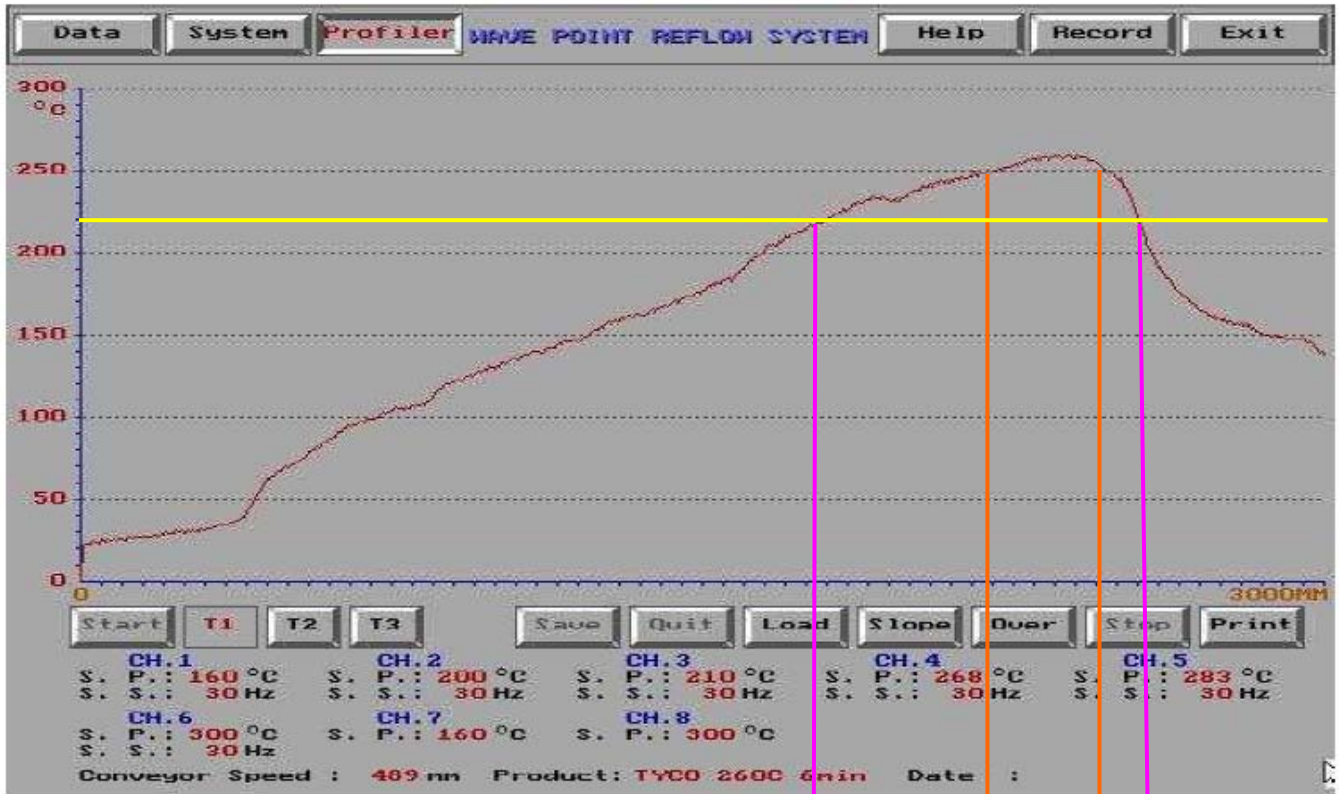
Taping Quantity: MOQ=2K pieces per 13" reel.

Chip Antenna 耐溫測試曲線

920D07E15xx5013 系列

耐熱攝氏 260 度 5 秒

環境溫度能維持攝氏 225 度 60 秒



HOW TO ORDER

920 D07 E 15 XXX 0 1 3

1 2 3 4 5

1. SERIES NO.

920=Chip Antenna

2. TYPE:

D07=2×5.2mm² (Gain=2 dBi)

3. ENVIRONMENT PROTECTION MATERIAL:

E=RoHS

4. THICKNESS:

15=1.5mm

5. CENTRE FREQUENCY:

015 = < 2.4GHz

115 = 2.4 GHz

215 = > 2.4GHz (Type 1)

225 = > 2.4GHz (Type 2)

235 = > 2.4GHz (Type3)

Change :

1. Change How to order of Centre Frequency

CHANT SINCERE CO., LTD.

7F.-2, No.188, Datong Rd., Sec. 3

Sijhih City, Taipei County 221, Taiwan

TEL : 886-2-8647-1251

FAX : 886-2-8647-1872, 886-2-8647-2962

E-MAIL : aaron.hu@coxoc.com.tw

www.coxoc.com.tw

www.co-linkwireless.com

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 1 of 12

The following merchandise was (were) submitted and identified by the client as :

Type of Product : CHIP ANTENNA
Style/Item No : 920D
Sample Received : 2006/04/17
Testing Date : 2006/04/17 TO 2006/04/24

=====

Test Result : - Please see the next page -


Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 2 of 12

Test Result

PART NAME NO.1 : MIXED ALL PARTS

Test Item (s):	Unit	Method	MDL	Result
				No.1
CFC's(Chlorofluorocarbons)		With reference to US EPA 8260.		
Group I				
Chlorofluorocarbon-11(CAS No:000075-69-4)	ppm	Analysis was performed by GC/MS.(CFC's(Chlorofluorocarbons))	1	N.D.
Chlorofluorocarbon-12(CAS No:000075-71-8)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-113(CAS No:000076-13-1)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-114(CAS No:000076-14-2)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-115(CAS No:000076-15-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Group III				
Chlorofluorocarbon-13(CAS No:000075-72-9)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-111(CAS No:000354-56-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-112(CAS No:000076-12-0)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-211(CAS No:135401-87-5)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 3 of 12

Test Item (s):	Unit	Method	MDL	Result
				No.1
Chlorofluorocarbon-212(CAS No:076564-99-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-213(CAS No:060285-54-3)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-214(CAS No:002268-46-4)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-215(CAS No:000076-17-5)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-216(CAS No:001652-80-8)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.
Chlorofluorocarbon-217(CAS No:000422-86-6)	ppm	Analysis was performed by GC/MS. [CFC's (Chlorofluorocarbons)]	1	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
Chlorinated Paraffin (C10~C13) (CAS NO:010871-26-2)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by GC/MS or GC/ECD.	0.01	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
1,1,1-trichloroethane	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS.	1	N.D.

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 4 of 12

Test Item (s):	Unit	Method	MDL	Result
				No.1
Carbon tetrachloride	ppm	With reference to US EPA 8260. Analysis was performed by GC/MS linked Headspace.	1	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
Halon		With reference to US EPA 8260.		
Halon-1211(CAS No:000353-59-3)	ppm	Analysis was performed by GC/MS.	1	N.D.
Halon-1301(CAS No:000075-63-8)	ppm	Analysis was performed by GC/MS.	1	N.D.
Halon-2402(CAS No:000124-73-1)	ppm	Analysis was performed by GC/MS.	1	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
HCFC's(Hydrogenated chlorofluorocarbons)		With reference to US EPA 8260.		
Hydrochlorofluorocarbon-21(CAS No.:000075-43-4)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-22(CAS No.:000075-45-6)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-31(CAS No.:000593-70-4)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-121(CAS No.:000354-14-3)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 5 of 12

Test Item (s):	Unit	Method	MDL	Result
				No.1
Hydrochlorofluorocarbon-122(CAS No.:000354-21-2)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-123(CAS No.:000306-83-1)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-124(CAS No.:002837-89-0)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-131(CAS No.:000359-28-4)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-132b(CAS No.:000471-43-2)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-133a(CAS No.:000075-88-7)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-141b(CAS No.:001717-00-6)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-221	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 6 of 12

Test Item (s):	Unit	Method	MDL	Result
				No.1
Hydrochlorofluorocarbon-222(CAS No.:000422-30-0)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-223	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-224	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-225ca(CAS No.:000422-56-0)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-225cb(CAS No.:000507-55-1)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-226(CAS No.:000431-87-8)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-231	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-232	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 7 of 12

Test Item (s):	Unit	Method	MDL	Result
				No.1
Hydrochlorofluorocarbon-233	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-234	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-235(CAS No.:013838-16-9)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-241	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-242	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-243(CAS No.:000338-75-0)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-244	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-251	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 8 of 12

Test Item (s):	Unit	Method	MDL	Result
				No.1
Hydrochlorofluorocarbon-252	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-253(CAS No.:000354-06-1)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-261(CAS No.:000420-97-3)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-262(CAS No.:000420-97-3)	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.
Hydrochlorofluorocarbon-271	ppm	Analysis was performed by GC/MS. [HCFC's (Hydrogenated chlorofluorocarbons)]	1	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
PCBs(Polychlorinated Biphenyls)(CAS NO:001336-36-3)	ppm	With reference to USEPA 8082A. Analysis was performed by GC/MS or GC/ECD.	0.5	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
Polychlorinated Naphthalene	ppm	With reference to 83/264/EEC & EPA 8270D. Analysis was performed by GC/MS.	5	N.D.

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 9 of 12

Test Item (s):	Unit	Method	MDL	Result
				No.1
Halogen		As per EN14582 method B.		
Halogen-Chlorine (Cl)(CAS No:007782-50-5)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	N.D.
Halogen-Fluorine (F)(CAS No:007782-41-4)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	1960.0
Halogen-Bromine (Br)(CAS No:007726-95-6)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	36390.0
Halogen-Iodine (I)(CAS No:007553-56-2)	ppm	Filling the oxygen and absorb solution in the flask and take sample in the flask and burn it, the absorb solution was analyzed by IC method.	50	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
PVC (CAS No:9002-86-2)	%	With reference to ASTM E1252 method. Analysis was performed by FTIR/ATR and Pyrolyzer-GC/MS.	1	Negative

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 10 of 12

Test Item (s):	Unit	Method	MDL	Result
				No.1
PCTs(Polychlorinated Terphenyls)	ppm	With reference to USEPA 8082A. Analysis was performed by GC/MS or GC/ECD.	0.5	N.D.

Test Item (s):	Unit	Method	MDL	Result
				No.1
Monobromobiphenyl	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl	%		0.0005	N.D.
Tribromobiphenyl	%		0.0005	N.D.
Tetrabromobiphenyl	%		0.0005	N.D.
Pentabromobiphenyl	%		0.0005	N.D.
Hexabromobiphenyl	%		0.0005	N.D.
Heptabromobiphenyl	%		0.0005	N.D.
Octabromobiphenyl	%		0.0005	N.D.
Nonabromobiphenyl	%		0.0005	N.D.
Decabromobiphenyl	%		0.0005	N.D.
Total PBBs (Polybrominated biphenyls)/Sum of above	%		-	N.D.
Monobromobiphenyl ether	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.
Dibromobiphenyl ether	%		0.0005	N.D.
Tribromobiphenyl ether	%		0.0005	N.D.
Tetrabromobiphenyl ether	%		0.0005	N.D.
Pentabromobiphenyl ether	%		0.0005	N.D.
Hexabromobiphenyl ether	%		0.0005	N.D.
Heptabromobiphenyl ether	%		0.0005	N.D.
Octabromobiphenyl ether	%		0.0005	N.D.
Nonabromobiphenyl ether	%		0.0005	N.D.
Decabromobiphenyl ether	%		0.0005	N.D.
Total PBBEs(PBDEs) (Polybrominated biphenyl ethers)/Sum of above	%		-	N.D.
Total of Mono to Nona-brominated biphenyl ether. (Note 4)	%		-	N.D.

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 11 of 12

Test Item (s):	Unit	Method	MDL	Result
				No.1
Chromium VI (Cr+6)	ppm	UV-VIS(US EPA 7196A) after reference to US EPA 3060A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	8.3

- NOTE: (1) N.D. = Not detected (<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit
 (4) Decabromobiphenyl ether (DecaBDE) in polymeric applications is exempted by
 Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified
 under document 2005/717/EC.
 (5) PBBEs=PBDEs=Polybrominated Diphenyl Ethers=PBDOs=PBBOs.
 (6) " - " = Not Regulation
 (7) The MDL is 5ppm for the single compound of CP

Test Report

CHANT SINCERE CO., LTD.
7F-2, NO. 188, SEC. 3, TA TUNG ROAD, HIS CHIH CITY,
TAIPEI HSIEN, TAIWAN, R. O. C.

Report No. : CE/2006/44760
Date : 2006/04/24
Page : 12 of 12



Certificate of Non-use for The Controlled Substances/不使用禁用物質證明書
(For approval/承認用)

Date/日期: 2006 / 12 / 20

Vendor code/供應商編號: 4138

Company name/公司名稱: 詮欣股份有限公司

Responsible-person name/負責人姓名: 吳榮春

E-mail/電子郵件: jameslai@coxoc.com.tw



(Responsible-person seal/負責人
簽名或蓋章)



(Company stamp/公司章)

We hereby declare this "Product" that all substances of combinations classified at level 1 (the management standard specified in CMCQC03, issued by ASKEY) are not used for the following materials and substances [1] the materials used for parts to be sold to your company; [2] Packaging materials; and [3] other substances used in manufacturing and reworking processes. Regarding the above-mentioned materials and substances, we notify that they are composed of the ingredients given at the composition table or MSDS.

我們公司在此宣告此「產品」之所有組成物質，在第1級管理物質之分類中(亞旭 CMCQC03 所訂定之管理標準)皆沒有使用到下列之材料和物質：包含(1)出售至貴公司零件的材質；(2)包裝材料；以及(3)在所有生產及重工過程中所使用的其他物質。關於上述提及的材質與組成物質，我們將在成分表或 MSDS 中完整告知產品之所有組成成份。

Part name/零件品名: Chip Antenna for 2.4GHz

Part No/零件廠商料號: 920D07E15225013

ASKEY P/N 亞旭料號: 3907-002450

Production plant/生產地點: Taiwan

<Substances Prohibited as per CMCQC03/在 CMCQC03 所明列之禁用物質>

1. Heavy metals/重金屬
 - a. Cadmium and cadmium compounds/鎘以及鎘化合物
 - b. Lead and lead compounds/鉛以及鉛化合物
 - c. Mercury and mercury compounds/汞以及汞化合物
 - d. Hexavalent chromium compounds/六價鉻化合物
 - e. Nickel and Nickel compounds/鎳以及鎳化合物
2. Brominated organic compounds/有機溴化合物
 - a. Polybrominated biphenyls (PBB)/多溴聯苯
 - b. Polybrominated diphenylethers (PBDE)/多溴二苯醚
 - c. Other brominated organic compounds/其他有機溴化合物
3. Chlorinated organic compounds/有機氯化合物
 - a. Polychlorinated biphenyls (PCB)/多氯聯苯
 - b. Polychlorinated naphthalenes (PCN)/多氯化萘
 - c. Polychlorinated terphenyls (PCT)/聚氯三聯苯
 - d. Chlorinated paraffins (CP)/氯化烷烴
 - e. Other chlorinated organic compounds/其他有機氯化合物
4. Organic tin compounds/有機錫化合物
5. Asbestos/石棉
6. Specific Azo compounds/特定偶氮化合物
7. Formaldehyde/甲醛
8. Polyvinyl chloride (PVC) and PVC blends/聚氯乙烯以及聚氯乙烯混合物
9. Ozone depleting substances/臭氧危害物質
10. Radioactive substances/放射性物質

*If any required items cannot be written on this above sheet, write necessary items on the below remark/
如有任何重要事項未能填寫在此上述表單，請書寫在註記欄位中。

Remarks/註記:



亞旭公司

RoHS 環保限用物質分解含量統計表

ASKEY Part Number 亞旭零件料號 / 品名		3907-002450			Brand Part Number : 零件型號 / 品名			Chip Antenna for 2.45GHz						
Parts Brand : (零件廠牌)		COXOC			Report Date : (填表日期)			2006/11/20						
Report By : (填表人姓名)		賴俊男			Approved By : (主管簽核)									
Telephone : (聯絡電話)		02-86471251			E-mail:									
Weight (mg) : (重量(毫克))		50 mg												
No.	零部件組成成分 (Homogeneous Material)	原材料型號 (Part No.)	重量(毫克) (Weight (mg))	原材料品牌 (Material Vendor)	RoHS 測試結果 ppm (mg / Kg)						第三方測試報告編號 (3rd Party Test Report #)	第三方測試實驗室名稱 (3rd Party)	第三方測試日期 (3rd Party Test Date)	測試結果 Pass /NG
					Pb (鉛)	Cd (鎘)	Hg (汞)	Cr+6 (六價鉻)	PPBs (多溴聯苯)	PBDEs (溴聯苯醚)				
1	Chip antenna	920D	50	Coxoc	8.3	ND	ND	ND	ND	ND	CE/2006/44760	SGS Taiwan	2006/4/24	Pass
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
最大值					8.3	0	0	0	0	0	最早測試時間			-