

產品規格承認書

Specification For Approval

日期： 2007 / 12 / 07

Date

編號： 0712070001

File No.

版本： 2.0

Revision

承認廠商： 研華科技股份有限公司

Manufacturer

製造廠商： 英碩科技股份有限公司

Manufacturer

型號品名： 2.4 / 5.0 GHz External Antenna

Part Number

Description

INVAX P/N: AN2450-5706RS

廠商審核：

Approved By

Invax

英碩科技股份有限公司
台北市忠孝東路五段 815 號 4 樓
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Cortec

東莞康捷電子有限公司
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沙頭段咸西工業區
Tel: 86-769-85388261 Fax: 86-769-85397133

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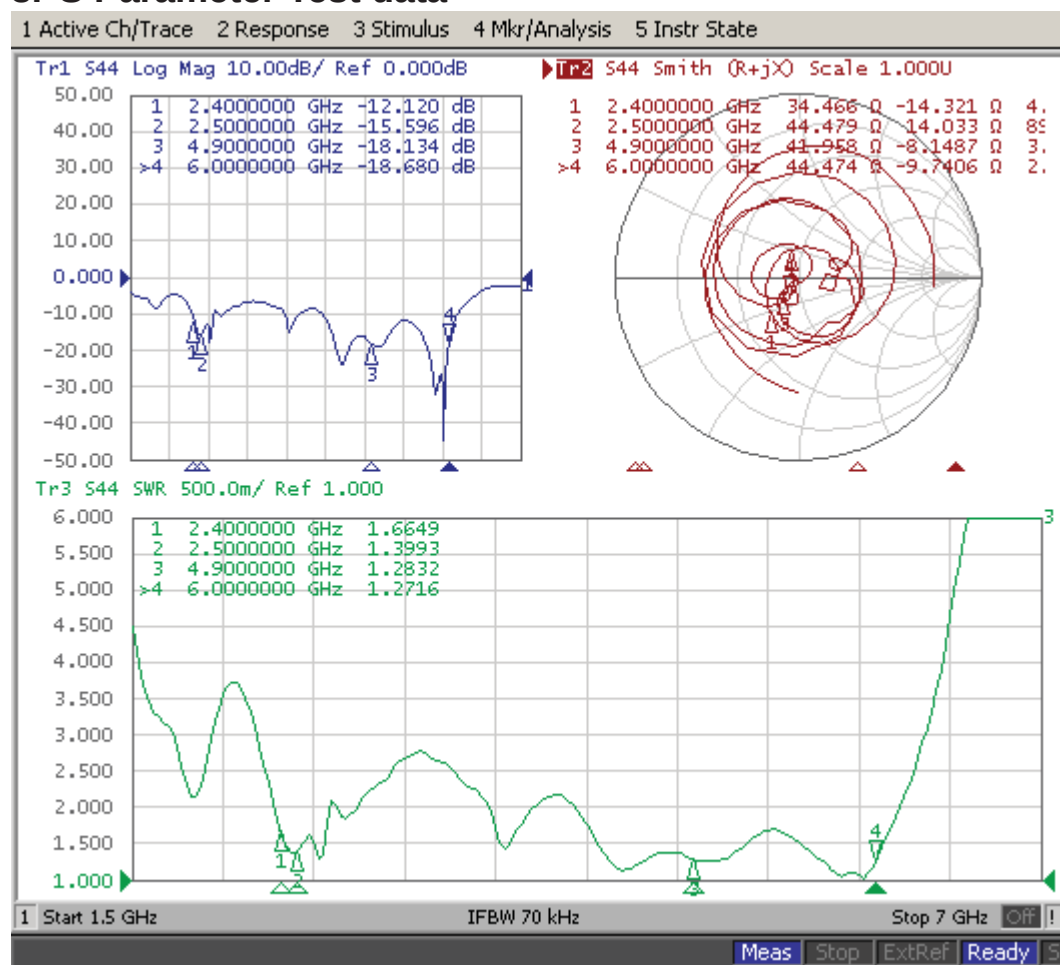
1. Reliability Testing

Test Item	Procedure	Requirement
1. Visual inspection and Dimension Check	Applicable methods using x5 magnification	follow specification
2. Rapid Changing of Temperature	-40°C (30minutes) to 90°C (30minutes); 24 cycles	After 2 hours recovery: 1. no visible damage 2. Freq. Tol.: < ±5%
3. Damp Heat	24 hours at 60°C; 90 ~ 95% RH	After 2 hours recovery: 1. no visible damage 2. Freq. Tol. : < ±5%
4. Endurance	24 hours at 90°C	After 2 hours recovery: 1. no visible damage 2. Freq Tol.: < ±5%

2. Specification

A. Electrical Characteristics	
S.W.R.	≤ 2.0 @ 2400~2500 MHz ≤ 2.0 @ 4900~6000 MHz
Antenna Gain	$+2.0 \pm 0.7$ dBi @ 2450 MHz -1.0 ± 0.7 dBi @ 5400 MHz
Impedance	50 Ohm
B. Material	
Material of Radiator	Cu (Plated)
Connector Type	SMA Male Reverse
C. Environmental	
Operation Temperature	- 30 °C ~ + 85 °C
Storage Temperature	- 30 °C ~ + 85 °C

3. S Parameter Test data



4. Antenna Radiation Pattern

Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

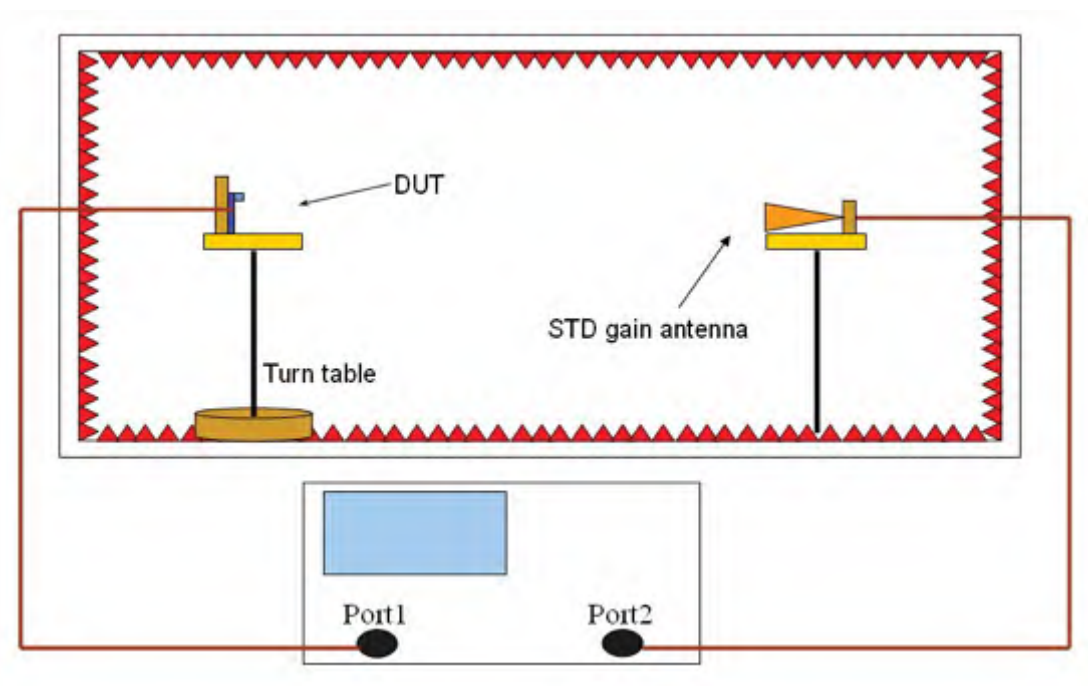
Quiet Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

Testing Equipment: Agilent 5071B

Received Antenna: 0.7 ~ 6.0 GHz for Gain Calibration

Double Ridged Horn Antenna



5. Mechanical Drawing

6. MSDS & SGS Report

Model : 2450-57RS
Remark : H-Plane // Vertical Polarization
Tested by : CORTEC Antenna 2D Chamber // Zhao Yao Rong

Location: **Chamber**

Temperature (°C): **22.00**

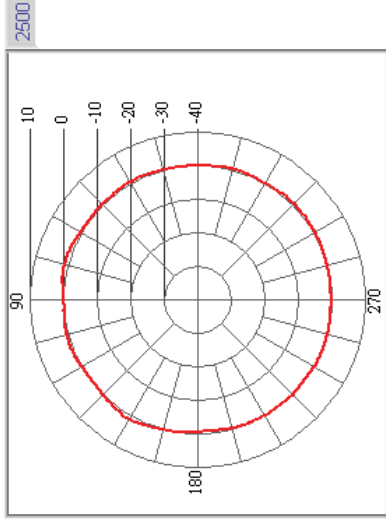
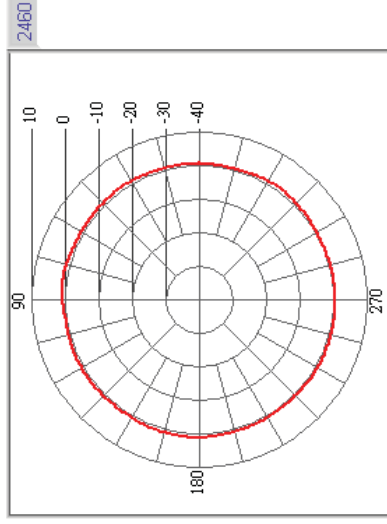
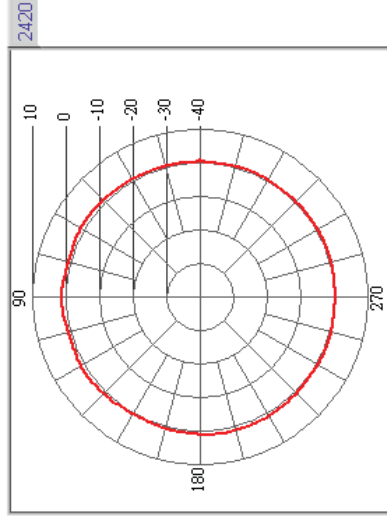
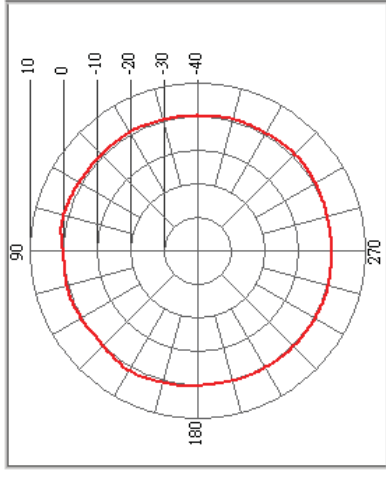
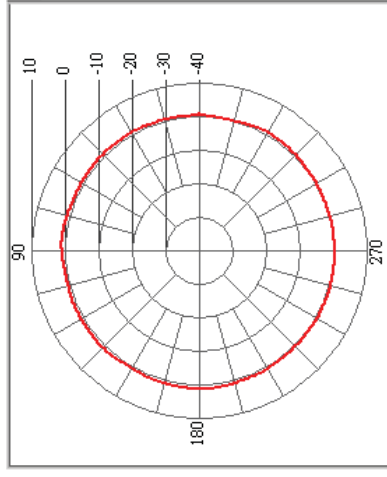
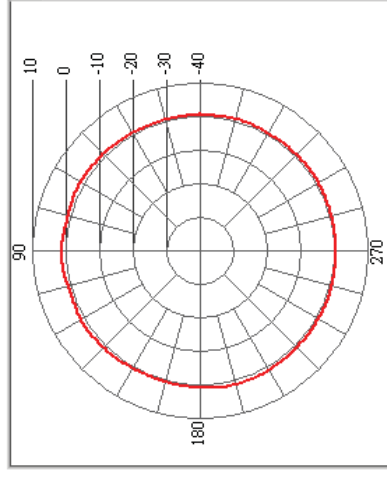
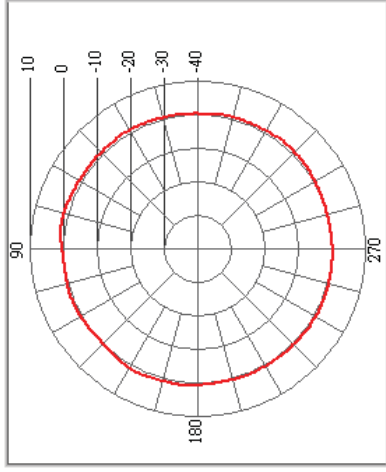
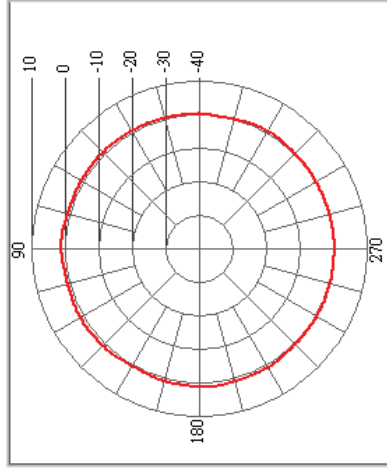
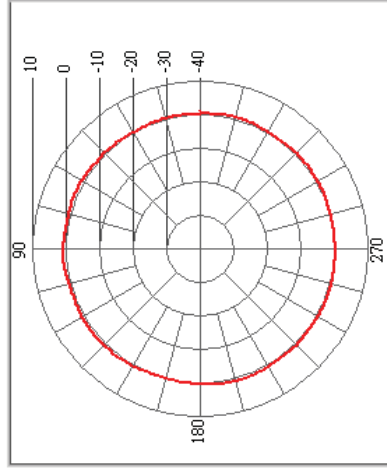
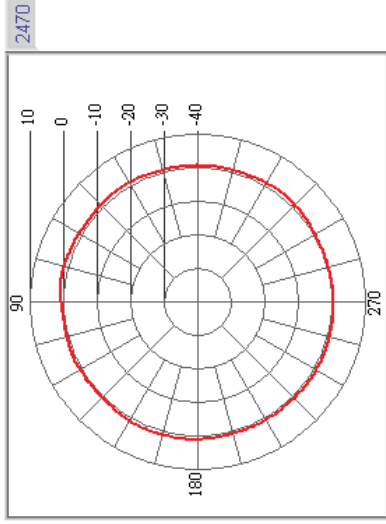
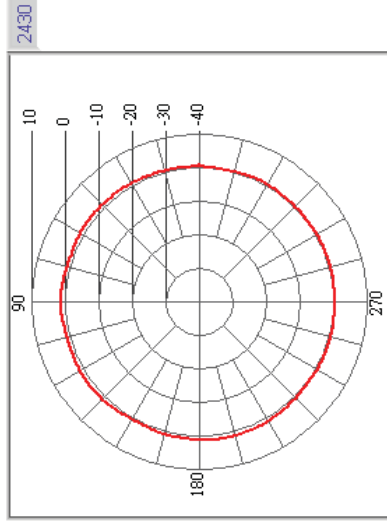
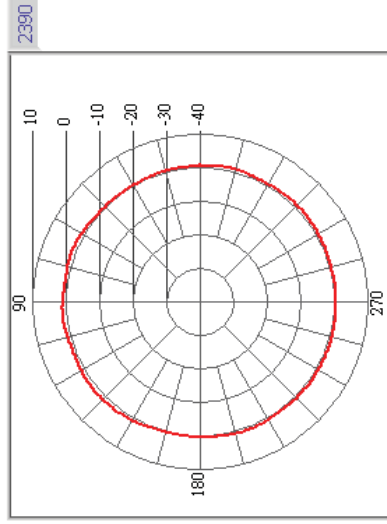
Date: **2007/9/21**

Humidity (%): **55.00**

Time: **下午 02:47:36**

Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	1.23	1.01	1.35	1.29	1.39	1.2	1.17	1.25	1.38	1.37	1.49	1.19
Peak Degree	130	93	93	92	87	87	86	81	80	74	74	74
AV Gain (dBi)	0.64	0.46	0.76	0.63	0.73	0.56	0.61	0.67	0.74	0.55	0.47	0.2



Model : 2450-57RS

Remark : E-Plane // Horizontal Polarization

Tested by : CORTEC Antenna 2D Chamber // Zhao Yao Rong

Location: **Chamber**

Temperature (°C): **22.00**

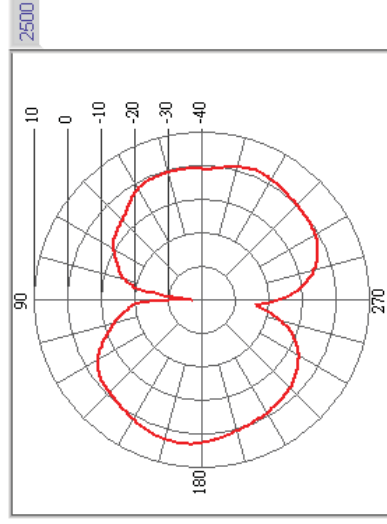
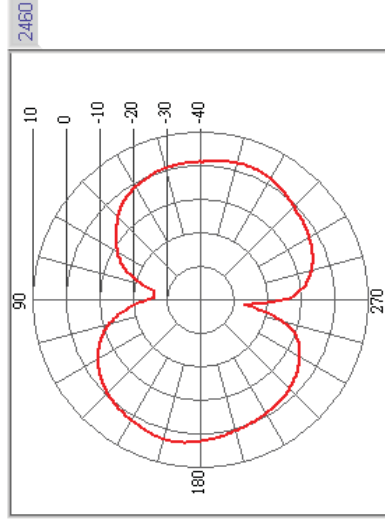
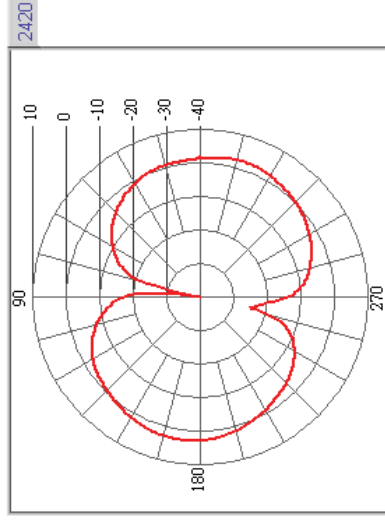
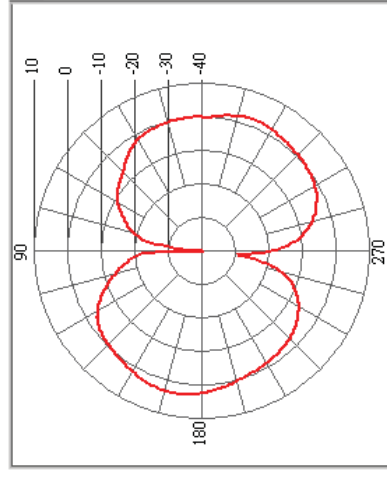
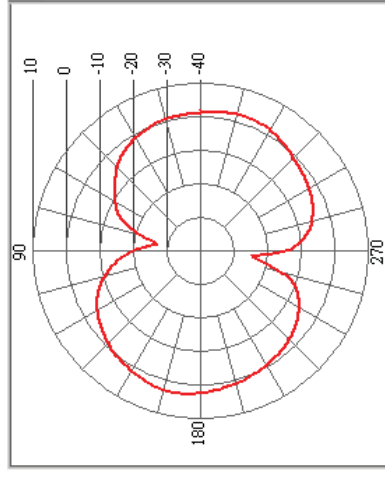
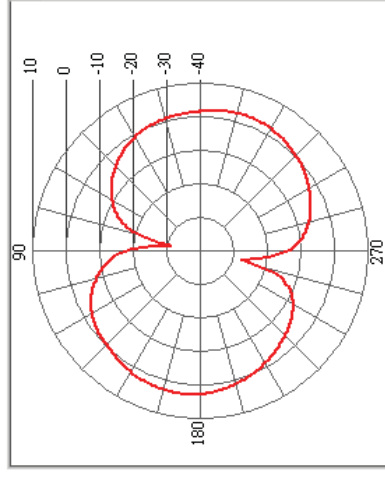
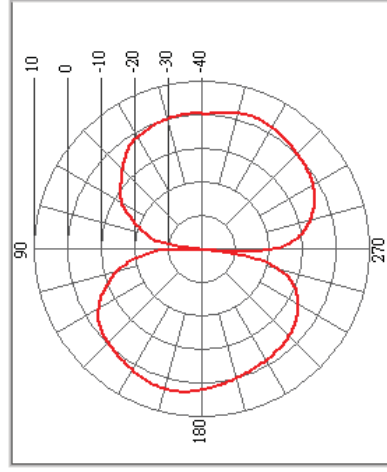
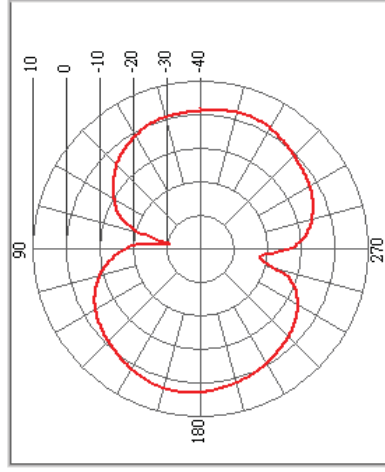
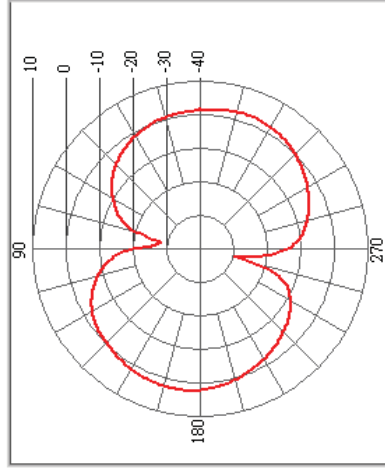
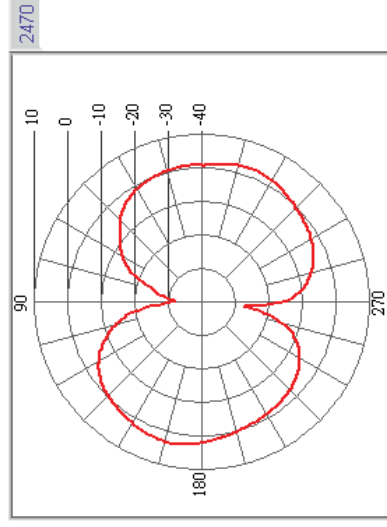
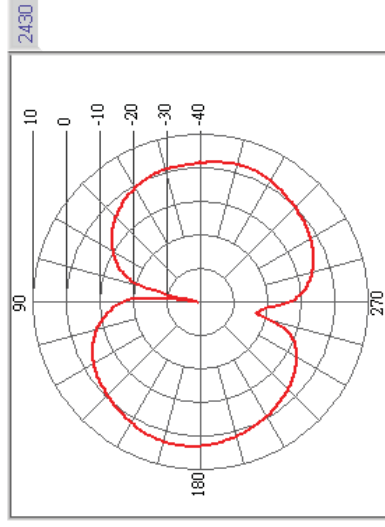
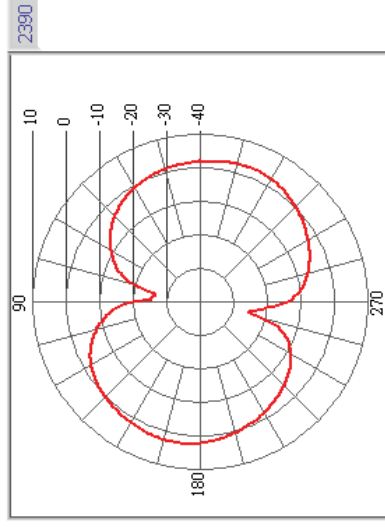
Date: **2007/9/21**

Humidity (%): **55.00**

Time: **下午 02:41:39**

Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	2.88	2.51	2.75	2.74	3.03	2.89	2.9	2.94	3.06	3.03	3.08	3.04
Peak Degree	339	339	344	172	172	172	166	166	166	166	166	172
AV Gain (dBi)	-1.14	-1.41	-1.07	-1.15	-0.99	-1.2	-1.31	-1.34	-1.39	-1.49	-1.46	-1.63



Model : 2450-57RS

Remark : H-Plane // Vertical Polarization

Tested by : CORTEC Antenna 2D Chamber // Zhao Yao Rong

Location: **Chamber**

Temperatuer (°C): **22.00**

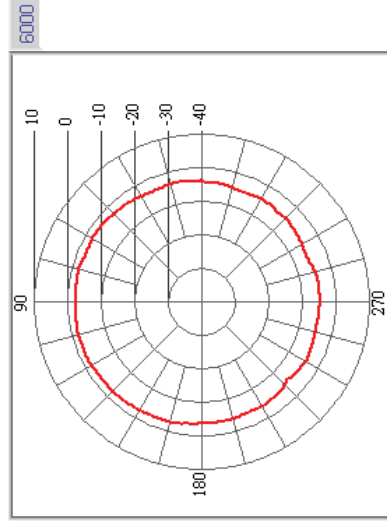
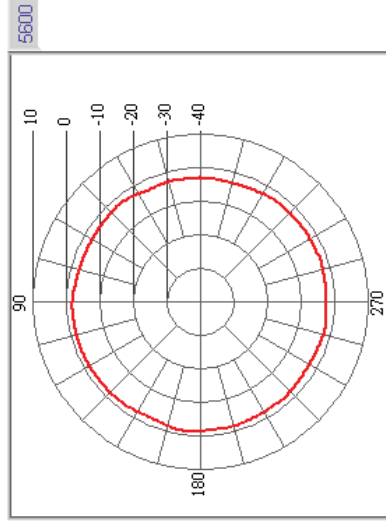
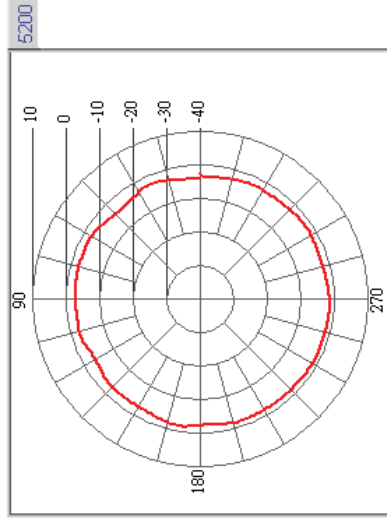
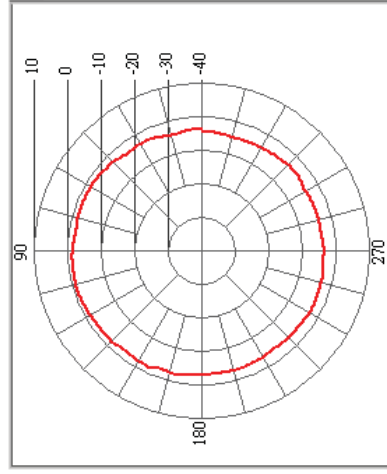
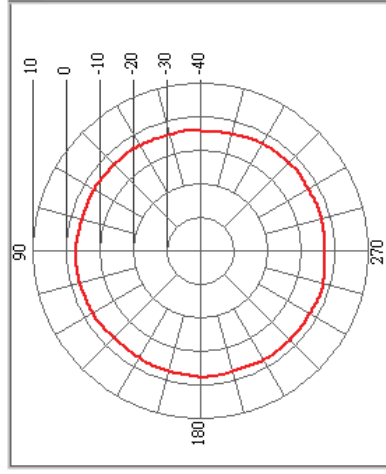
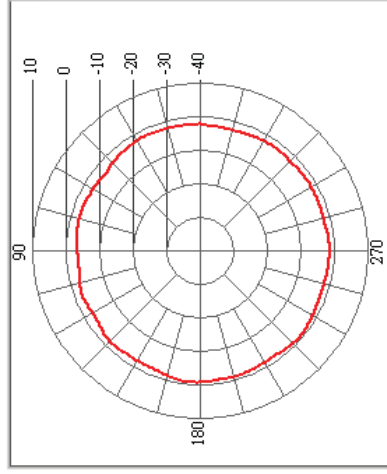
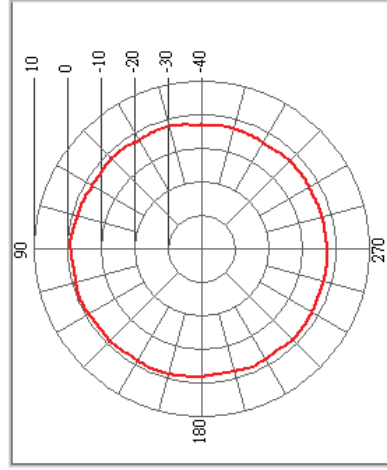
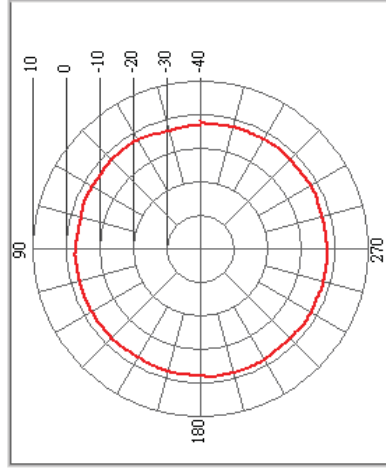
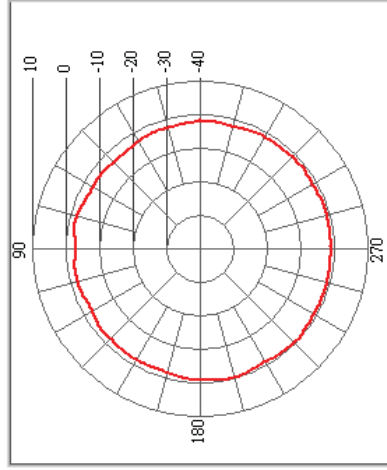
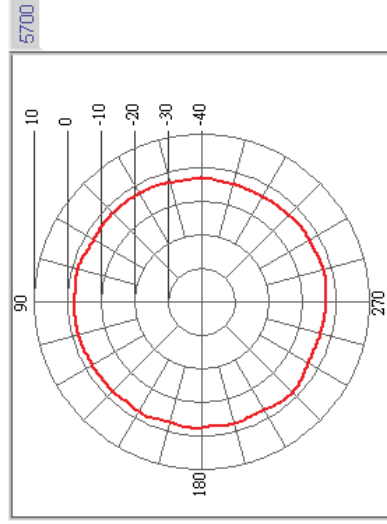
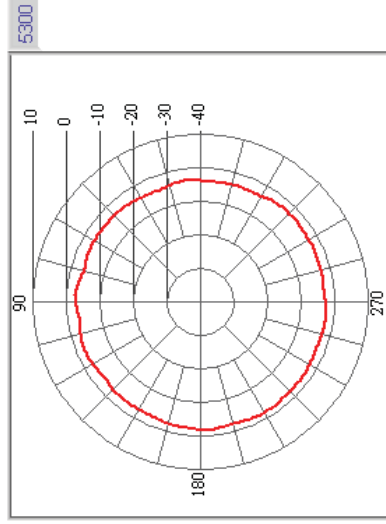
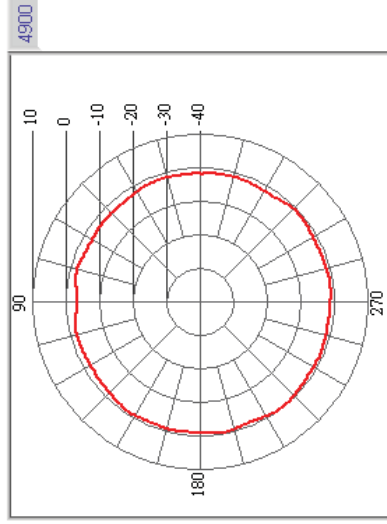
Date: **2007/9/21**

Humidity (%): **55.00**

Time: **下午 02:35:58**

Approved by:

Freq. (MHz)	4900	5000	5100	5200	5300	5400	5500	5600	5700	5800	5900	6000
Peak Gain (dBi)	-0.33	-0.43	-0.82	-1.26	-1.96	-1.87	-2.02	-1.37	-1.72	-0.74	-1.14	-1.87
Peak Degree	216	228	228	265	210	185	253	173	75	112	111	105
AV Gain (dBi)	-1.45	-1.66	-2.03	-2.47	-2.95	-2.42	-3.03	-2.27	-2.69	-2.11	-2.92	-3.57



Model : 2450-57RS

Remark : E-Plane // Horizontal Polarization

Tested by : CORTEC Antenna 2D Chamber // Zhao Yao Rong

Location: **Chamber**

Temperature (°C): **22.00**

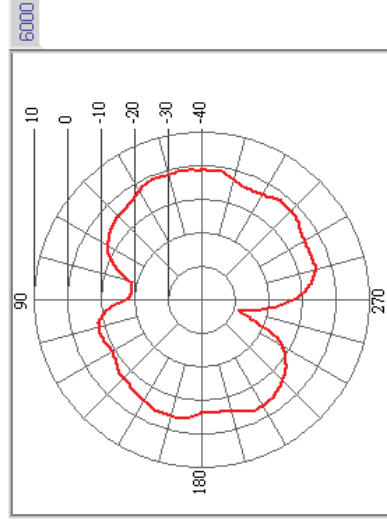
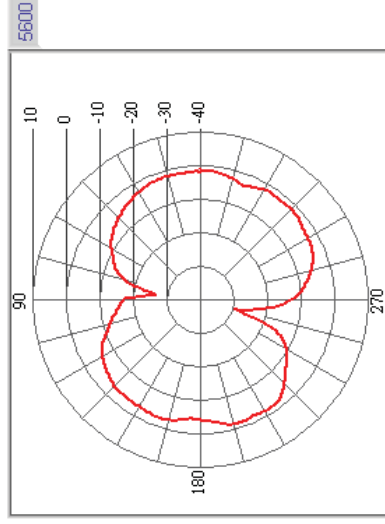
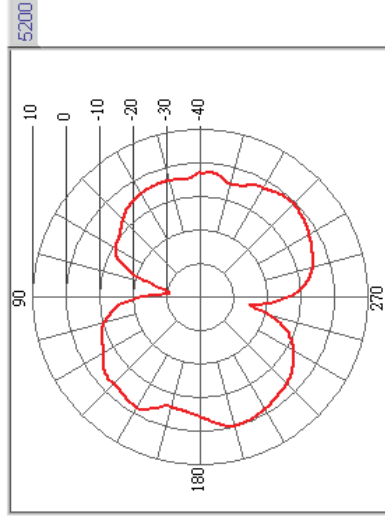
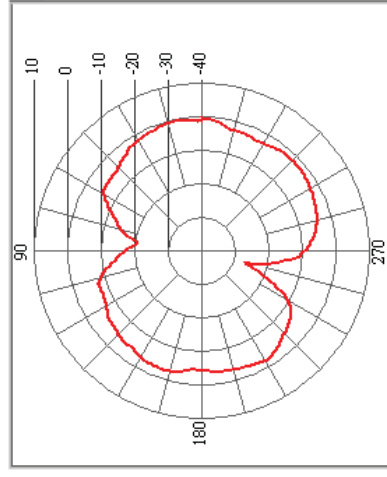
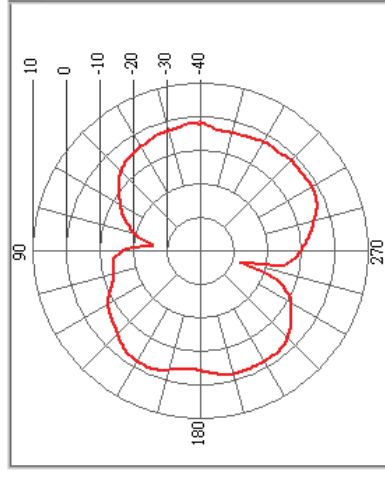
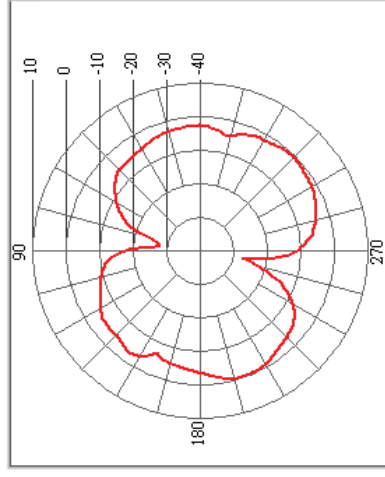
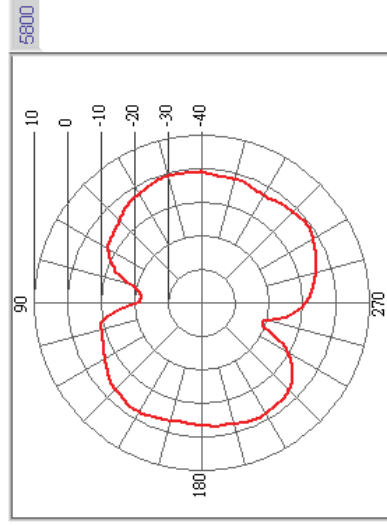
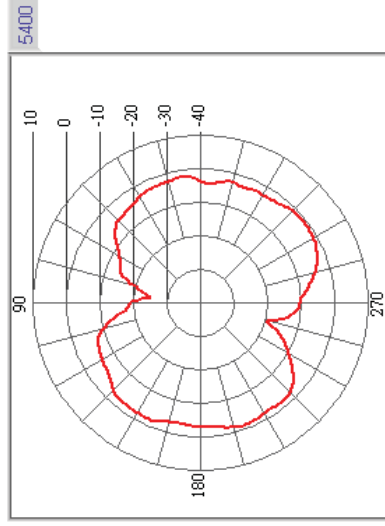
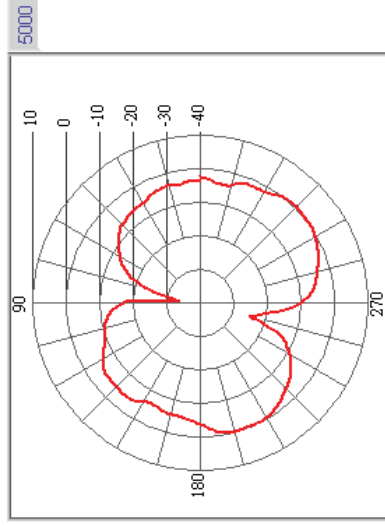
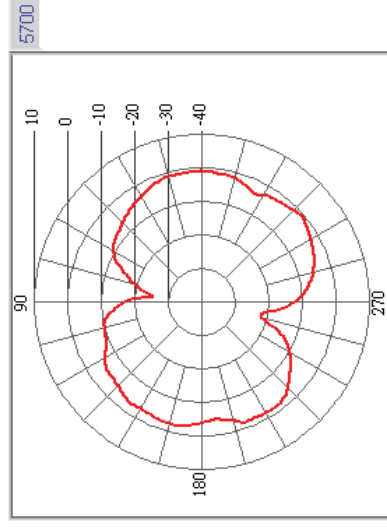
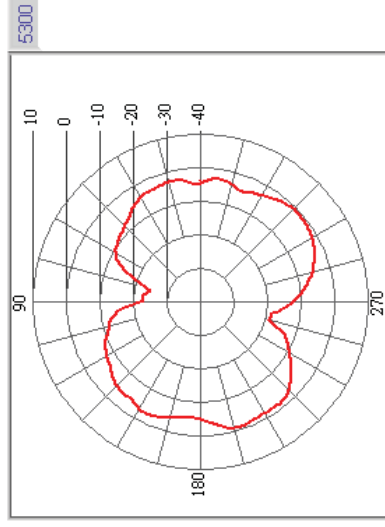
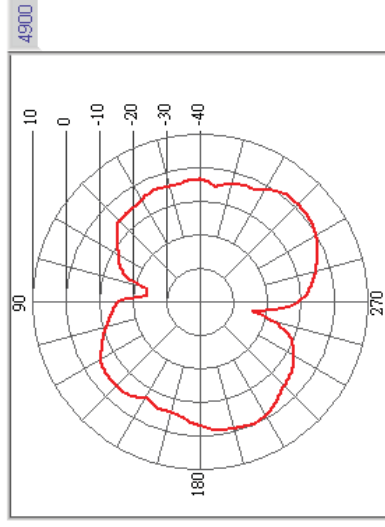
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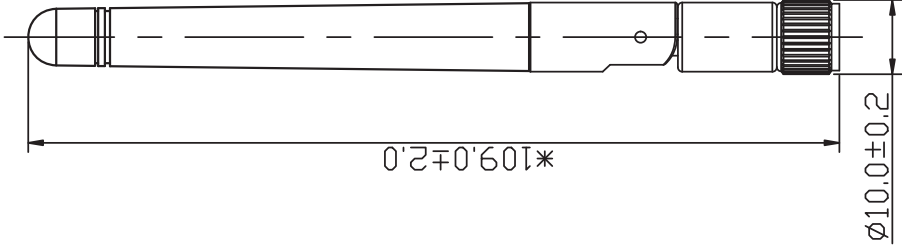
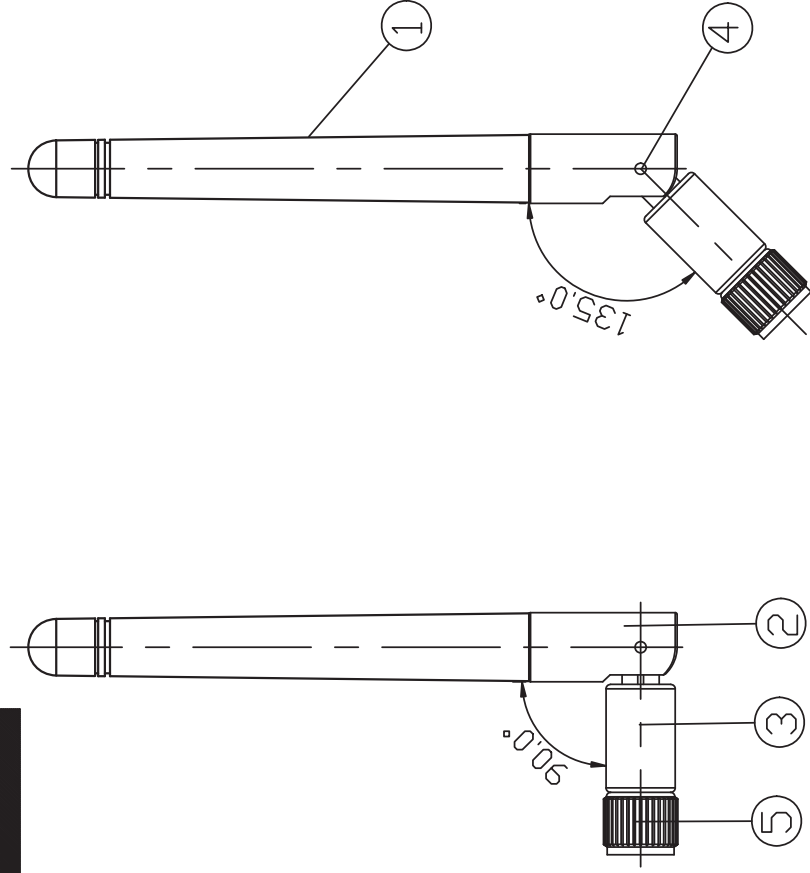
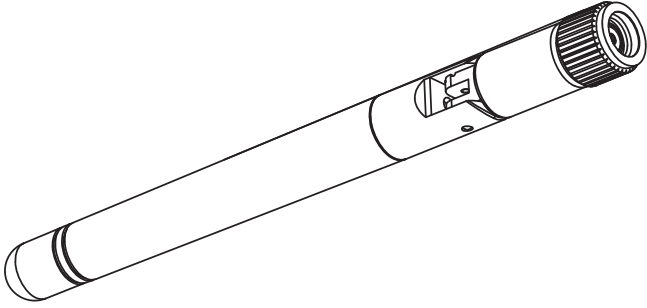
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Approved by:

Freq. (MHz)	4900	5000	5100	5200	5300	5400	5500	5600	5700	5800	5900	6000
Peak Gain (dBi)	1.13	0.52	-0.41	-0.4	-0.77	-0.98	-1.53	-1.05	-0.7	-0.56	-0.22	-0.76
Peak Degree	316	316	316	199	315	309	4	357	4	15	360	9
AV Gain (dBi)	-4.13	-4.13	-4.31	-4.55	-4.75	-4.17	-4.57	-4.36	-4.27	-3.93	-4.18	-5.12



RoHS
Compatible



Noted :

- 1.Unmarked tolerance refer to the standard tolerance please.
- 2.Taked*dimension is important dimension.

5	R-SMA260-ZC8MRANT	SMA Male Reverse	Zn Alloy	Electrodeposition	1
4	R-AN01-1213Z	Rivet	Bronze	Electrodeposition	2
3	R-AN57-01	Base	PA+ABS	Black	1
2	R-AN57-02	Hinge	PA+ABS	Black	1
1	R-AN57-03	Body	TPE	Black	1
NO.	Part Number	Name	Material	Finish	Q'ty

Invox System Group.

Cortec

Cortec Technology Inc.

Tel: 886-2-2786218
Http://www.invoxsystem.com
E-mail:info@invox.com.tw

TITLE: AP Antenna

PART NO.: AN2450-5706RS

DWG NAME: AN2450-5706RS.dwg

APPROVED BY	CHECKED BY	DESIGNED BY	Tolerance
Grant 2007/11/27	liukui 2007/11/27	yangxiaosu 2007/11/27	UNITS: mm SCALE: 1/1 REVISION: A
			X.X ±0.10 X.XX ±0.05 X° ±1°



SHIYANG (ZHONG SHAN) METAL PRODUCTS CO.,LTD

世扬金属制品有限公司

TEST CERTIFICATE

材質證明書



CLIENT 客户		天诚						certificate NO. 证明书号		070127-15	
name article 品名		Brass									
LOT NO.	SIZE(MM)	OUTW GT	DESIGNATION	Cu(%)	Pb(%)	Fe(%)	Fe+Sn(%)	Cd(%)	Zn(%)	REMARK	
	STANDARD	(KG)	JISC3604	57~61	1.8~3.7	≤0.5	≤1.2	≤0.0075	REM		
7916	14.5 φ		JISC3604	58.92	2.986	0.446	0.971	0.0042	REM		
茲證明本表所列產品,均依材料規格製造及試驗,并符合規格之要求。 WE HEREBY CERTIFY THAT MATERIAL DESCRIBED JERE IN MAS BEEN MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENT OF THE ABOVE MATERIAL SPECIFICATION.											

MANAGER: 曾敦義

PABLE: 李玉奎

DATE:2007/02/27

THE THREE INDUSTRIAL AREA NAN LANG TOWN ZHONG SHAN CITY
中国广东省中山市南朗镇第三工业区

TEL:0760-5214770 FAX:0760-5214769
E-Mail:sales@shiyangmetal.com

Zn-Alloy

禧福工業股份有限公司
材質分析報告

化學成份 Chemical Composition

元素	Element	國際標準	ASTM B240
鋁	(Al)		3.804%
鎂	(Mg)		0.0327%
銅	(Cu)		0.384%
鐵	(Fe)		0.0015%
鉛	(Pb)		0.0091%
錫	(Sn)		0.0017%
鎘	(Cd)		0.0010%
錳	(Mn)		0.00071%
鎳	(Ni)		0.0057%
矽	(Si)		0.0056%
鉻	(Cr)		0.0011%
鉍	(Bi)		0.00040%
鋅	(Zn)		95.8%

物理性能 Physical Properties

密度	Density(g/cm ³ @21°C)	6.60
溶點範圍	Melting Range	381-387 °C
凝固收縮	Solidification Shrinkage	1.17%
熱膨脹率	Thermal Expansion(m/mm/°C @20-100°C)	274
比熱	Specific Heat Capacity(J/g/°C @20-100°C)	418.7
導熱率	Thermal Conductivity(W/m²·bt/m²/°C @70-140°C)	1130
導電率	Electrical Conductivity(%IACS)	2.0*10 ⁷
電阻率	Electrical Resistivity (μohm-cm@20°C)	6.3694

機械性能 Mechanical Properties

極限抗拉強度	Ultimate Tensile Strength	283 MPa
延伸率	Elongation(% in 51mm)	10%
硬度	Hardness(Brinell 500 kg)	82
抗剪強度	Sheet Strength	214 MPa
抗壓屈服強度	Compressive Yield Strength	414 MPa
抗衝擊強度	Impact Energy(Un-notched Bar 6.35*6.35mm)	58
疲勞強度	Fatigue Strength(5*10 ⁶ Cycles)	48 MPa

TPE Datasheet

物性項目 Property	單位 Unit	ASTM 試驗法 Test Method	TPE
比重 Specific Gravity	---	D792	0.88
模具收縮率 Shrinkage	%	D955	0.8-2.5
斷裂拉伸強度 Tensile Strength	Kg/ cm ²	D638	3.1
扭曲強度 Flexural Strength	Kg/ cm ²	D790	---
衝擊強度缺口 23°C Impact Strength	Kg cm/cm	D256	---
硬度 Hardness	A Shore	---	13
熱變形溫度 0.45 MPa Heat Deflection Temp.	°C	D648	80
熔融指數 Melt Flow Index	G/ min ²	D1238	10
燃燒性 Flammability	---	UL94	HB

Testing Data from

東莞市合春塑料有限公司 Tel:86-0769-2774772

台灣大雅國際股份有限公司 Tel:886-02-27775232

Coaxial Cable Datasheet

RG-178 Coaxial Cable Specification		
1. Cable Type	MIL – C – 17 / RG-178	
2. Impedance	50 ± 3 ohm	
3. Inner Conductor	Material	silver-coated copper
	Conductor Numbers	7
	Conductor Size	0.102 mm
	Outer Diameter	0.3 mm
4. Dielectric Layer	Material	FEP
	Color	Clear
	Average Thickness	0.28 mm
	Diameter	0.86 mm
5. Braid (Shielding)	Material	silver-coated copper
	Construction	16-3-0.1 mm
	Coverage	95 %
6. Outer Cover	Material	FEP
	Color	Brown
	Average Thickness	0.25 mm
	Diameter	1.80 ± 0.05 mm
7. V.S.W.R Testing	< 1.3 (DC ~ 6.0 GHz)	
8. Attenuation (dB / 100 meter)	100 MHz	46
	900 MHz	155
	1800 MHz	295
	2400 MHz	340
	5200 MHz	505
	6000 MHz	550
9. Capacitance	97 ± 3 (pF / meter)	
10. Maximum Power	30 dBm	
11. Spark Test	2.0 KV	
12. Rating Temp. and Volt.	200°C / 30V	
13. Conductor Resistance	335 ohm / KM / 20°C max.	
14. Dielectric Resistance	3 G ohm / KM / 20°C min.	

物料中RoHS对象物质含量调查表

填表说明：

- 1. 根据测试报告如实填写铅、镉、汞、六价铬、PBBs和PBDEs六项禁用物质的含量
- 2. 对构成物料及制造工艺相同的系列产品,可以系列描述
- 3. 物料各构成名称需根据提供的测试报告来填写,如测试报告未区分则不填写,只填写整体测试
- 4. 各构成物料的材质根据物料各构成来填写,特别是合金类和塑胶类
- 5. 请在“备注”栏里注明是否有豁免项或者对有颜色区别请注明适用我司的颜色

序号	物料名称	报告适用的规格型号	物料各构成名称	各构成物料的材质	测试报告里RoHS对应物质测试结果						检测报告编号	测试日期	测试机构名称	备注
					Cd	Pb	Hg	Cr(VI)	PBBs	PBDEs				
1	AN2450-5706RS	R-AN01-1213Z	Rivet	Cu	21	29238	N.D.	Negative			GZ0702022704/CHEM	2007/2/25	SGS	15~17
2	AN2450-5706RS	R-SMA260-ZC8MRANT	Connector	Zn-Alloy	9	30	N.D.	Negative	N.D.	N.D.	GZ0701003806/CEHM	2007/1/16	SGS	18~21
3	AN2450-5706RS	R-504806PCB	PCB	FR-4	N.D.	N.D.	N.D.	Negative	N.D.	N.D.	GZ0703043762/CHEM	2007/4/3	SGS	22~25
4	AN2450-5706RS	R-AN57-03	Body	TPE	4	15	N.D.	N.D.	N.D.	N.D.	GZ0701016735/CHEM	2007/2/6	SGS	26~28
5	AN2450-5706RS	R-AN57-02	Hinge	PA+ABS	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	CE/2007/B2671A	2007/11/21	SGS	29~32
6	AN2450-5706RS	R-AN57-01	Base	PA+ABS	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	CE/2007/B2671A	2007/11/21	SGS	29~32
7	AN2450-5706RS	R-RG-178U	線材	RG178	N.D.	N.D.	N.D.	Negative	N.D.	N.D.	SH70825181/CHEM	2007/8/1	SGS	33~37

注1: 对于电源适配器、分离器、RJ45网线、电话线等成品其包装材料中铅、铬（VI）、汞和镉总含量不超过100ppm, 镉的允许浓度为5ppm

注2: 贵公司必须对此6种物质含量进行检测, 且物质含量值都需提供第三方的检测报告支持, 并将测量值填入调查表

注3: 填写表格时请勿手写, 当填写行不够时, 可适当追加后填写

注4: 请在公司名称上加盖公司公章

公司名称：東莞康捷電子有限公司

填表人姓名：王章蓮

所属部门：

研發部

职务：

文員

联系电话：0769-85388261

Test Report

No.: GZ0702022704/CHEM

Date: FEB 25, 2007

Page 1 of 3

SHENZHEN CITY LONGGANG DISTRICT PING HU TOWN TIAN CHENG HARDWARE GONG MU PRODUCTS SHOP
2/F NO.88, EAST ROAD PING LONG DA CAO PU, XIN NAN VILLAGE, PING HU TOWN, LONG GANG DISTRICT, SHEN ZHEN CITY

The following sample(s) was/were submitted and identified on behalf of the applicant as Ø2.0 C3604

SGS Ref No. : SZ10265950

Sample Receiving Date : FEB 13, 2007

Testing Period : FEB 13, 2007 TO FEB 25, 2007

Test Requested : To determine the Cadmium, Lead, Mercury & Hexavalent Chromium content in the submitted sample.

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.
(2) Determination of Lead by ICP.
(3) Determination of Mercury by ICP.
(4) Determination of Hexavalent Chromium by Colorimetric Method.

Test Results : Please refer to next page.

Signed for and on behalf of
SGS-CSTC Ltd.


Huang Fang, Sunny
Sr. Engineer

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SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch Chemical Laboratory

198 Kexu Road SCIENTECH Park Guangzhou Economic & Technology Development District Guangzhou China 510663
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GZCM 1233844

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

Test Item(s):	Method (refer to)	No.1	MDL
Cadmium(Cd)	(1)	21	2
Lead (Pb)	(2)	29238	2
Mercury (Hg)	(3)	N.D.	2
Hexavalent Chromium (CrVI) by Spot test	(4)	Negative	See Note 4

Test Part Description:

No.1 Brassy metal rod

Note : 1. mg/kg = ppm

2. N.D. = Not Detected (< MDL)

3. MDL = Method Detection Limit

4. **Spot-test:**

Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)

Boiling-water-extraction:

Negative = Absence of CrVI coating

Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

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Sample photo :



SGS authenticate the photo on original report only

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测试报告

编号: GZ0701003806/CHEM

日期: 2007年1月16日 页码 1 of 4

肇庆市永业金属实业有限公司
广东省肇庆市高新区大旺工业园环市西路

以下测试之样品是由申请者所提供及确认: 锌合金 GZ3

SGS 参考编号 : GC070100166

收展日期 : 2007年1月10日

测试日期 : 2007年1月10日至2007年1月16日

测试要求 : 按照 RoHS 指令 2002/95/EC 及其修订文件要求进行测试。

测试方法 : 参照 IEC 62321 Ed.1 111/54/CDV 电子电器产品中限制物质含量的测试程序

- (1) 用 ICP 测定镉的含量
- (2) 用 ICP&AAS 测定铅的含量
- (3) 用 ICP 测定汞的含量
- (4) 用比色法测定六价铬的含量
- (5) 用 GC-MS 测定 PBBs(多溴联苯)和 PBDEs(多溴联苯醚)的含量

测试结果 : 请参见下一页

测试结论 : 基于所送样品进行的测试, 测试结果与欧盟 RoHS 指令 2002/95/EC 以及后续修正指令的要求相符。

Signed for and on behalf of
SGS-CSTC Ltd.

Jiang YongPing, Terry
Sr. Engineer

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SGS-CSTC
Suzhou Institute
Suzhou, China

SGS-CSTC (China) Co., Ltd.
Suzhou Institute
中国·广州·经济技术开发区科学城科丰路100号 邮编: 510663

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测试报告

编号: GZ0701003806/CHEM

日期: 2007年11月16日 页码 3 of 4

注: 1. 毫克/千克 = ppm

2. N.D. = 未检出 (< MDL)

3. MDL = 方法检测限

4. 溴联苯醚到九溴联苯醚之和, 按照 2005/717/EC 十溴联苯醚可豁免。

5. 点测试:

Negative = 未检测到六价铬, Positive = 检测到六价铬:

(如果点测试结果不能确认, 测试样品将进一步由沸水萃取法进行测试)。

沸水萃取法:

Negative = 未检测到六价铬

Positive = 检测到六价铬: 每 50cm² 表面面积的被测试样品的沸水萃取液中六价铬的浓度等于或大于 0.02mg/kg。

6. # Positive = 阳性, 表示结果与 RoHS 要求相抵触

Negative = 阴性, 表示结果与 RoHS 要求不相抵触

7. "-" = 未规定

8. 本测试报告内容是参照报告编号为 GZ0701003805/CHEM 的中文译本, 中英文版上如有差异, 概以英文版为准。

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Suzhou Branch

SGS (Shanghai) Technical Service Co., Ltd.
Suzhou Branch

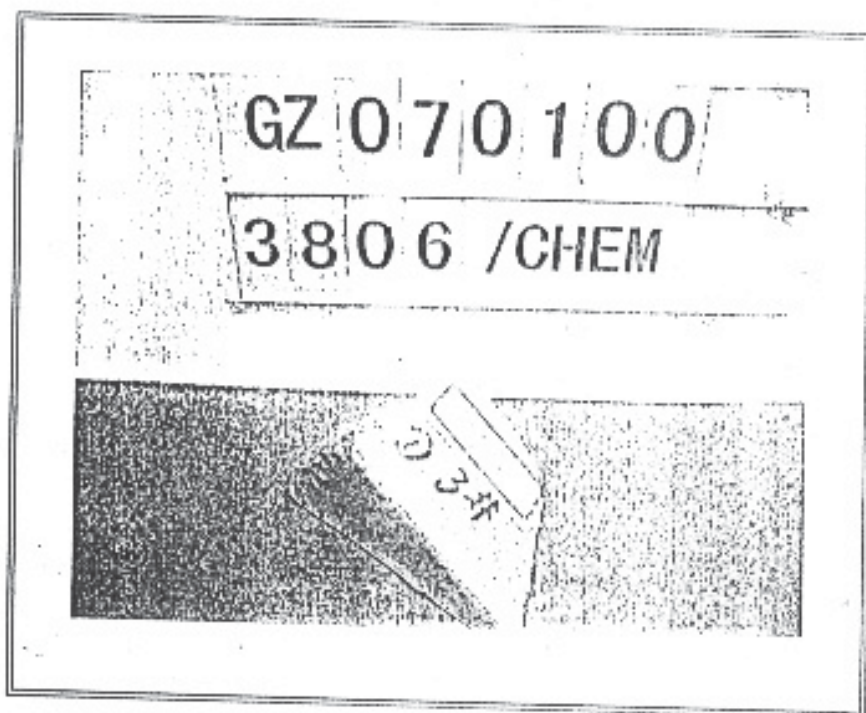
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金鸡湖东

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金鸡湖东

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*** 报告完 ***

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SGS China (Shanghai) General Services Co. Ltd.
Sample Entry Chemical Laboratory

中国·广州·经济技术开发学院路100号 邮编: 510663
电话: 020-38131000 传真: 020-38131001

1. 001 200701003806 1. 001 200701003806 1. 001 200701003806
1. 001 200701003806 1. 001 200701003806 1. 001 200701003806

Member of the SGS Group (S-123456789)

Test Report

No.: GZ0703043762/CHEM

Date: APR 03, 2007

Page 1 of 4

SHENZHEN BENCHUANG ELECTRONIC CO., LTD
NO.50 INDUSTRIAL ROAD, FENGHUANG INDUSTRIAL ZONE, FUYONG TOWN, BAOAN, SHENZHEN, P.R.C

The following sample(s) was/were submitted and identified on behalf of the applicant as Plate PCB P6256

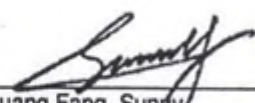
SGS Ref No. : SZ10306887-2.2
Buyer : FOXCONN
Sample Receiving Date : MAR 28, 2007
Testing Period : MAR 28, 2007 TO APR 03, 2007

Test Requested : To determine the Cadmium, Lead, Mercury, Hexavalent Chromium, PBBs (Polybrominated Biphenyls) & PBDEs (Polybrominated Diphenylethers) content in the submitted sample.

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.
(2) Determination of Lead by ICP.
(3) Determination of Mercury by ICP.
(4) Determination of Hexavalent Chromium by Colorimetric Method.
(5) Determination of PBBs and PBDEs by GC-MS.

Test Results : Please refer to next page.

Signed for and on behalf of
SGS-CSTC Ltd.


Huang Fang, Senior
Sr. Engineer

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Test Report

No.: GZ0703043762/CHEM

Date: APR 03, 2007

Page 2 of 4

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

Test Item(s):	Method (refer to)	No.1	MDL
Cadmium(Cd)	(1)	N.D.	2
Lead (Pb)	(2)	7	2
Mercury (Hg)	(3)	N.D.	2
Hexavalent Chromium (CrVI) by alkaline extraction	(4)	N.D.	2
Sum of PBBs	(5)	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		N.D.	-
Monobromodiphenyl ether		N.D.	5
Dibromodiphenyl ether		N.D.	5
Tribromodiphenyl ether		N.D.	5
Tetrabromodiphenyl ether		N.D.	5
Pentabromodiphenyl ether		N.D.	5
Hexabromodiphenyl ether		N.D.	5
Heptabromodiphenyl ether		N.D.	5
Octabromodiphenyl ether		N.D.	5
Nonabromodiphenyl ether		N.D.	5
Decabromodiphenyl ether		N.D.	5

Test Part Description:

No.1 Green "PCB"(mixed)

Note : 1. mg/kg = ppm

2. N.D. = Not Detected (< MDL)

3. MDL = Method Detection Limit

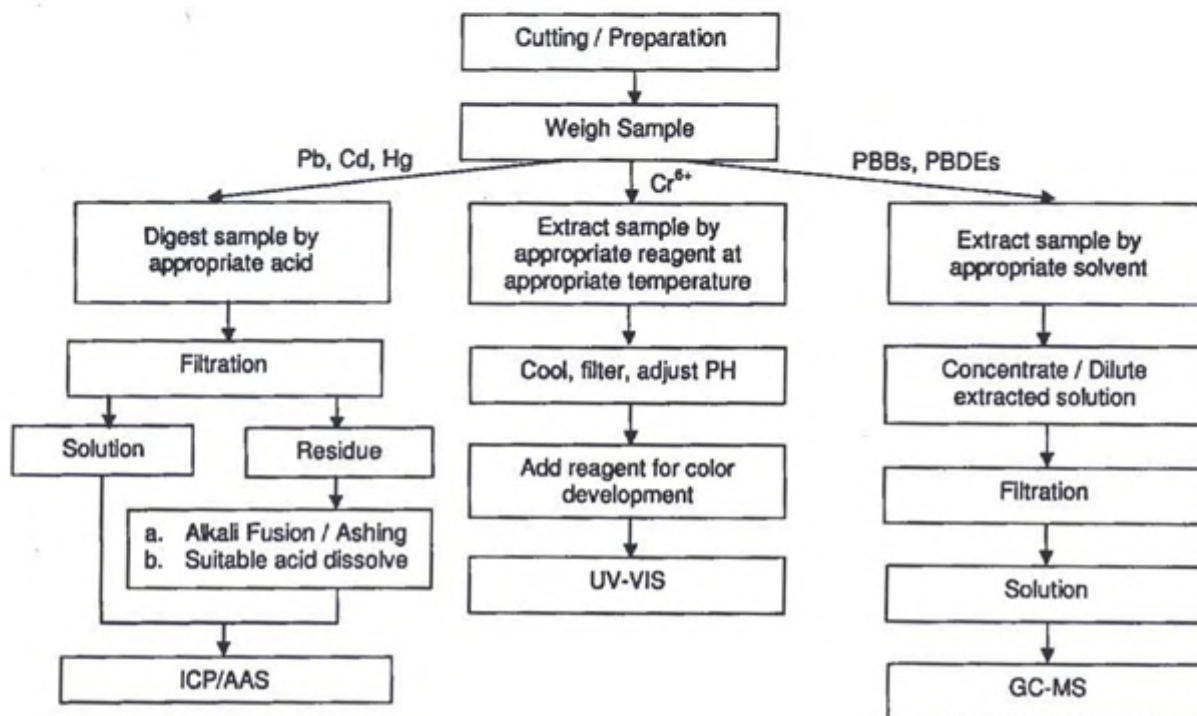
4. "-" = Not regulated

Remark: As requested by client, the test was conducted as whole / part sample.

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ATTACHMENTS

Flow chart of test:



Note: For Cr(VI), we also use spot test method for metal sample.

Operator : David Shen
Leader : Emily Feng

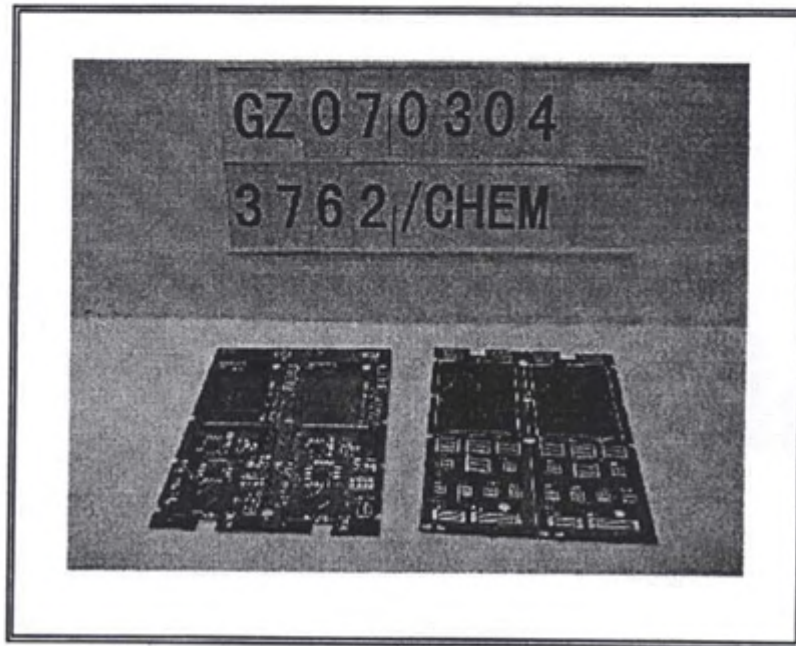
Test Report

No.: GZ0703043762/CHEM

Date: APR 03, 2007

Page 4 of 4

Sample photo :



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Test Report

No.: GZ0701016735/CHEM

Date: FEB 06, 2007

Page 1 of 3

DONGGUAN CHANGPING ZHIHE PLASTIC MATERIAL MANAGEMENT DEPARTMENT
NO.151, SU WANG DONG ROAD, DAJINGJIU, CHANGPING TOWN, DONGGUAN CITY

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

SGS Ref No : SZ10250628
Sample Receiving Date : JAN 31, 2007
Testing Period : JAN 31, 2007 TO FEB 06, 2007

Test Requested : To determine the Cadmium, Lead, Mercury, Hexavalent Chromium, PBBs (Polybrominated Biphenyls) & PBDEs (Polybrominated Diphenylethers) content in the submitted sample.

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
(2) Determination of Lead by ICP.
(3) Determination of Mercury by ICP.
(4) Determination of Hexavalent Chromium by Colorimetric Method.
(5) Determination of PBBs and PBDEs by GC-MS.

Test Results : Please refer to next page.

Signed for and on behalf of
SGS-CSTC Ltd.

Jiang YongPing, Terry
SGS Engineer

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SGS Standards Technical Services Co., Ltd.
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GZCM1157482

Member of the SGS Group (SGS SA)

Test Report

No.: GZ0701016735/CHEM

Date: FEB 06, 2007

Page 2 of 3

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

Test Item(s)	Method (refer to)	No.1	MDL
Cadmium(Cd)	(1)	4	2
Lead (Pb)	(2)	15	2
Mercury (Hg)	(3)	N.D.	2
Hexavalent Chromium (CrVI) by alkaline extraction	(4)	N.D.	2
Sum of PBBs	(5)	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		N.D.	-
Monobromodiphenyl ether		N.D.	5
Dibromodiphenyl ether		N.D.	5
Tribromodiphenyl ether		N.D.	5
Tetrabromodiphenyl ether		N.D.	5
Pentabromodiphenyl ether		N.D.	5
Hexabromodiphenyl ether		N.D.	5
Heptabromodiphenyl ether		N.D.	5
Octabromodiphenyl ether		N.D.	5
Nonabromodiphenyl ether		N.D.	5
Decabromodiphenyl ether		N.D.	5

Test Part Description:

No.1 Black plastic grains

Note : 1. mg/kg = ppm

2. N.D. = Not Detected (< MDL)

3. MDL = Method Detection Limit

4. "-" = Not regulated

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t (86-20) 82155555

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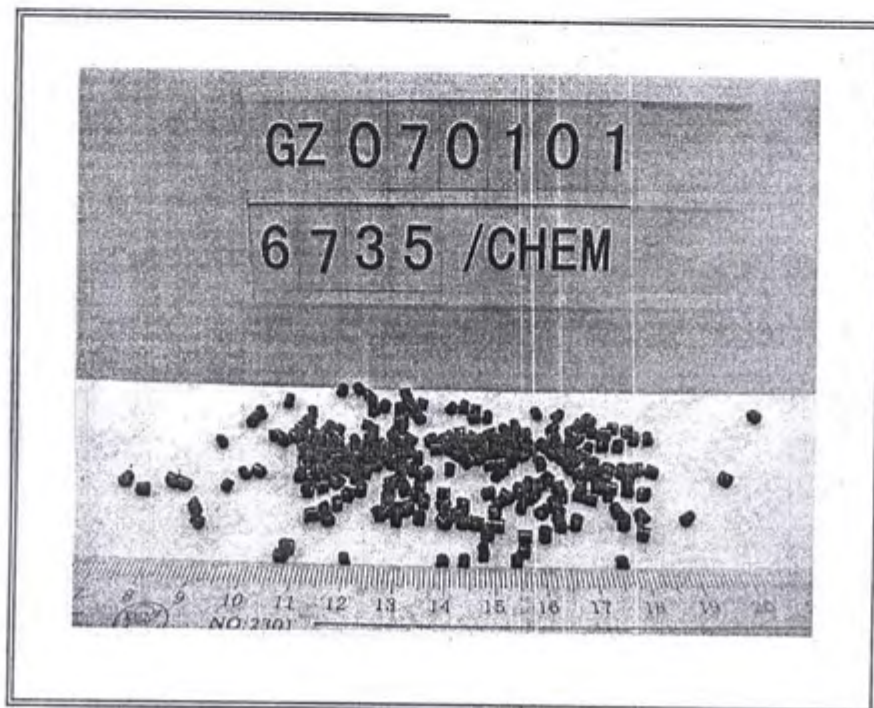
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GZCM1157481

Sample photo



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測試報告 Test Report

號碼(No.): CE/2007/B2671A

日期(Date): 2007/11/21

頁數(Page): 1 of 4

倡業有限公司

HIGH PERFORMANCE CO., LTD.

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328-NO. 5, CHING-CHIEN 1ST RD., KUAN-YIN IND. PARK, TAO-YUAN COUNTY,

TAIWAN

以下測試樣品係由客戶送樣, 且由客戶聲稱並經客戶確認如下 (The following samples was/were submitted and identified by/on behalf of the client as):

樣品名稱(Sample Description) : PA+ABS ALLOY
樣品型號(Style/Item No.) : MA 730-NC
收件日期(Sample Receiving Date) : 2007/11/12
測試期間(Testing Period) : 2007/11/12 TO 2007/11/15

測試需求(Test Requested) : 參照 RoHS 2002/95/EC 及其修定指令要求. (In accordance with the RoHS Directive 2002/95/EC, and its amendment directives).

測試方法(Test Method) : 參考 IEC 62321, Ed. 1 111/54/CDV 方法檢測. (With reference to IEC 62321, Ed.1 111/54/CDV, Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products).

- (1) 用感應耦合電漿原子發射光譜儀檢測鎘含量. / Determination of Cadmium by ICP-AES.
- (2) 用感應耦合電漿原子發射光譜儀檢測鉛含量. / Determination of Lead by ICP-AES.
- (3) 用感應耦合電漿原子發射光譜儀檢測汞含量. / Determination of Mercury by ICP-AES.
- (4) 針對非金屬材質之樣品, 用 UV-VIS 檢測六價鉻含量. / Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.
- (5) 以氣相層析儀/質譜儀檢測多溴聯苯和多溴聯苯醚含量. / Determination of PBB and PBDE by GC/MS.

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).

結論(Conclusion) : 根據客戶所提供樣品的測試結果, 符合 RoHS(2002/95/EC) 及其修定指令之要求 (Based on the performed tests on submitted samples, the test results are compliant with the limits of RoHS Directive 2002/95/EC and its subsequent amendments).



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

測試報告

Test Report

號碼(No.): CE/2007/B2671A

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TAIWAN

測試結果(Test Results) 單位(Unit): mg/kg

測試項目 (Test Items)	測試方法 Method (Refer to)	結果 (Result)	方法偵測 極限值 (MDL)	RoHS 限值 (Limit)
		No.1		
鎘 / Cadmium (Cd)	(1)	n.d.	2	100
鉛 / Lead (Pb)	(2)	n.d.	2	1000
汞 / Mercury (Hg)	(3)	n.d.	2	1000
六價鉻 / Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2	1000
多溴聯苯總和 / Sum of PBBs	(5)	n.d.	-	1000
一溴聯苯 / Monobromobiphenyl		n.d.	5	-
二溴聯苯 / Dibromobiphenyl		n.d.	5	-
三溴聯苯 / Tribromobiphenyl		n.d.	5	-
四溴聯苯 / Tetrabromobiphenyl		n.d.	5	-
五溴聯苯 / Pentabromobiphenyl		n.d.	5	-
六溴聯苯 / Hexabromobiphenyl		n.d.	5	-
七溴聯苯 / Heptabromobiphenyl		n.d.	5	-
八溴聯苯 / Octabromobiphenyl		n.d.	5	-
九溴聯苯 / Nonabromobiphenyl		n.d.	5	-
十溴聯苯 / Decabromobiphenyl		n.d.	5	-
多溴聯苯醚總和 (一至九溴) / Sum of PBDEs (Mono to Nona) (Note 4)		n.d.	-	1000
一溴聯苯醚 / Monobromobiphenyl ether		n.d.	5	-
二溴聯苯醚 / Dibromobiphenyl ether		n.d.	5	-
三溴聯苯醚 / Tribromobiphenyl ether		n.d.	5	-
四溴聯苯醚 / Tetrabromobiphenyl ether		n.d.	5	-
五溴聯苯醚 / Pentabromobiphenyl ether		n.d.	5	-
六溴聯苯醚 / Hexabromobiphenyl ether		n.d.	5	-
七溴聯苯醚 / Heptabromobiphenyl ether		n.d.	5	-
八溴聯苯醚 / Octabromobiphenyl ether		n.d.	5	-
九溴聯苯醚 / Nonabromobiphenyl ether		n.d.	5	-
十溴聯苯醚 / Decabromobiphenyl ether		n.d.	5	-
多溴聯苯醚總和 (一至十溴) / Sum of PBDEs (Mono to Deca)		n.d.	-	-

測試部位描述 (TEST PART DESCRIPTION):

NO.1 : 白色塑膠粒 (WHITE PLASTIC PELLETS)

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Test Report

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TAIWAN



備註(Note):

1. mg/kg = ppm
2. n.d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. 根據2005年10月13日歐盟會議公佈2005/717/EC, 修訂2002/95/EC內容, 通過解除高分子材質中十溴聯苯醚之使用限制. (According to 2005/717/EC DecaBDE is exempt.)
5. "-" = Not Regulated (無規格值)

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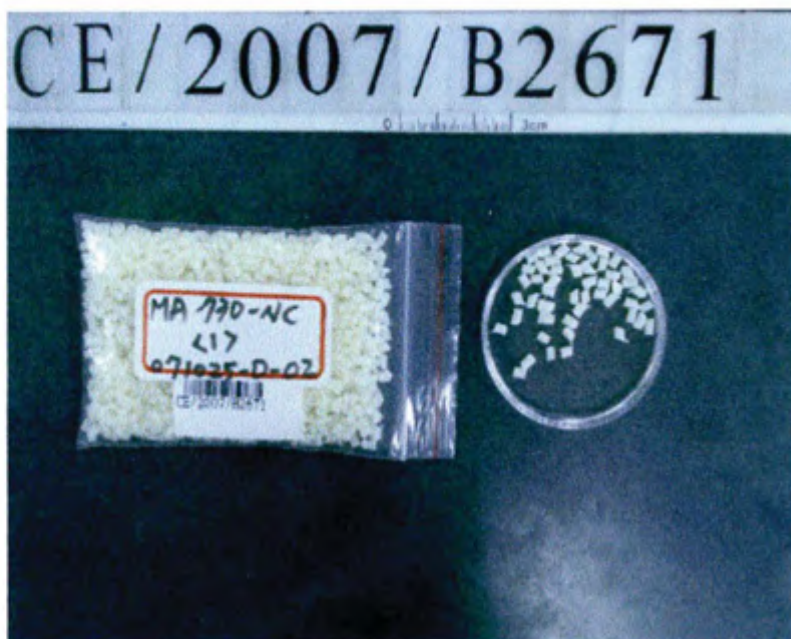
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** 報告結尾 **

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Test Report

No. SH7082518/CHEM

Date: Aug. 1, 2007

Page 1 of 5

SUZHOU XIANGCHENG ZHENGXU WIRES AND CABLES CO., LTD
SUZHOU XIANGCHENG YANGCHENGHU

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

Sample Name : COAXIAL CABLE
SGS Ref No. : 10489611
Model No : RG316
Model may be covered : RG178, RG145, RG179, RG142, RG141
Lot No : 2X07R316
Main Substance : 1. SILVER PLATING COPPER; 2. PTFE; 3. FEP
Supplier : 1. HENGFENG; 2. 3. DAIKIN

Sample Receiving Date : Jul.27, 2007
Testing Period : Jul.27 - 31, 2007

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

Test Method : (1) With reference to IEC 62321 Ed.1 111/54/CDV for Cadmium content.
Analysis was performed by ICP.
(2) With reference to IEC 62321 Ed.1 111/54/CDV for Lead content.
Analysis was performed by ICP and AAS.
(3) With reference to IEC 62321 Ed.1 111/54/CDV for Mercury content.
Analysis was performed by ICP.
(4) With reference to IEC 62321 Ed.1 111/54/CDV for Hexavalent Chromium by
spot test / Colorimetric Method.
(5) Alkali Fusion Method for Cadmium, Lead content.
Analysis was performed by AAS.
(6) With reference to US EPA 7473 for Mercury content.
Analysis was performed by Mercury Analyzer.
(7) With reference to IEC 62321 Ed.1 111/54/CDV for PBB / PBDE Content.
Analysis was performed by GC-MS.

Test Results : Please refer to next pages

Signed for and on behalf of
SGS-CSTC Chemical Laboratory

Ella Zhang
Sr. Section Head

Signed for and on behalf of
SGS-CSTC Chemical Laboratory

Sandy Hao
Sandy Hao
Lab Manager

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SHCHEM1310007

Test Report

No. SH7082518/CHEM

Date: Aug. 1, 2007

Page 2 of 5

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

Test Item(s):	Method (refer to)	1	MDL	RoHS Limit
Cadmium(Cd)	(1)	ND	2	100
Lead (Pb)	(2)	ND	2	1000
Mercury (Hg)	(3)	ND	2	1000
Hexavalent Chromium (CrVI) by Spot test / boiling water extraction	(4)	Negative	See Note (5)	#

Test Item(s):	Method (refer to)	2	3	MDL	RoHS Limit
Cadmium (Cd)	(5)	ND	ND	5	100
Lead (Pb)		ND	ND	10	1000
Mercury (Hg)	(6)	ND	ND	2	1000
Hexavalent Chromium (Cr VI)	(4)	ND	ND	2	1000
Sum of PBBs	(7)	ND	ND	-	1000
Monobromobiphenyl		ND	ND	5	-
Dibromobiphenyl		ND	ND	5	-
Tri bromobiphenyl		ND	ND	5	-
Tetrabromobiphenyl		ND	ND	5	-
Hexabromobiphenyl		ND	ND	5	-
Pentabromobiphenyl		ND	ND	5	-
Heptabromobiphenyl		ND	ND	5	-
Octabromobiphenyl		ND	ND	5	-
Nonabromobiphenyl		ND	ND	5	-
Decabromobiphenyl		ND	ND	5	-
Sum of PBDEs (Note 4)		ND	ND	-	1000
Monobromodiphenyl ether		ND	ND	5	-
Dibromodiphenyl ether		ND	ND	5	-
Tri bromodiphenyl ether		ND	ND	5	-
Tetrabromodiphenyl ether		ND	ND	5	-
Pentabromodiphenyl ether		ND	ND	5	-
Hexabromodiphenyl ether		ND	ND	5	-
Heptabromodiphenyl ether		ND	ND	5	-
Octabromodiphenyl ether		ND	ND	5	-
Nonabromodiphenyl ether		ND	ND	5	-
Decabromodiphenyl ether		ND	ND	5	-
Sum of PBDEs (Mono to Deca)		ND	ND	-	-

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SHCHEM1309212

Test Report

No. SH7082518/CHEM

Date: Aug. 1, 2007

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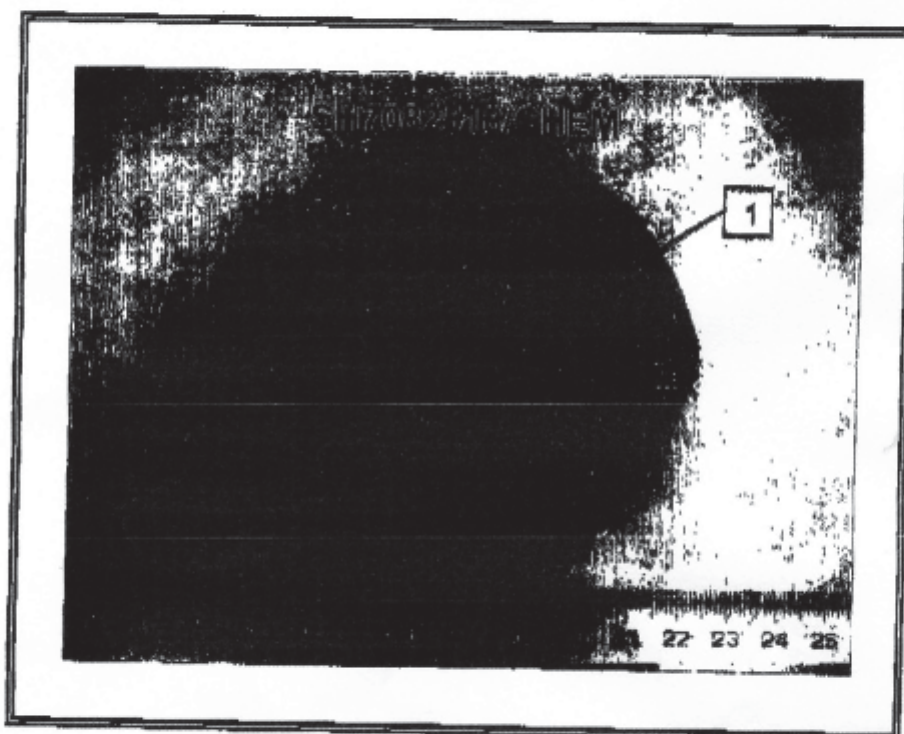
Test Part Description:

1. Silvery metal wire
2. White plastic thread
3. Brown plastic thread

Note:

- (1) mg/kg = ppm
- (2) ND = Not Detected
- (3) MDL = Method Detection Limit
- (4) Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.
- (5) Spot-test:
Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;
(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)
Boiling-water-extraction:
Negative = Absence of CrVI coating
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.
- (6) # = Positive indicates the presence of Hexavalent Chromium on the tested areas
Negative indicates the absence of CrVI on the tested areas.
- (7) "-" = Not Regulated
- (8) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC

Sample photo:



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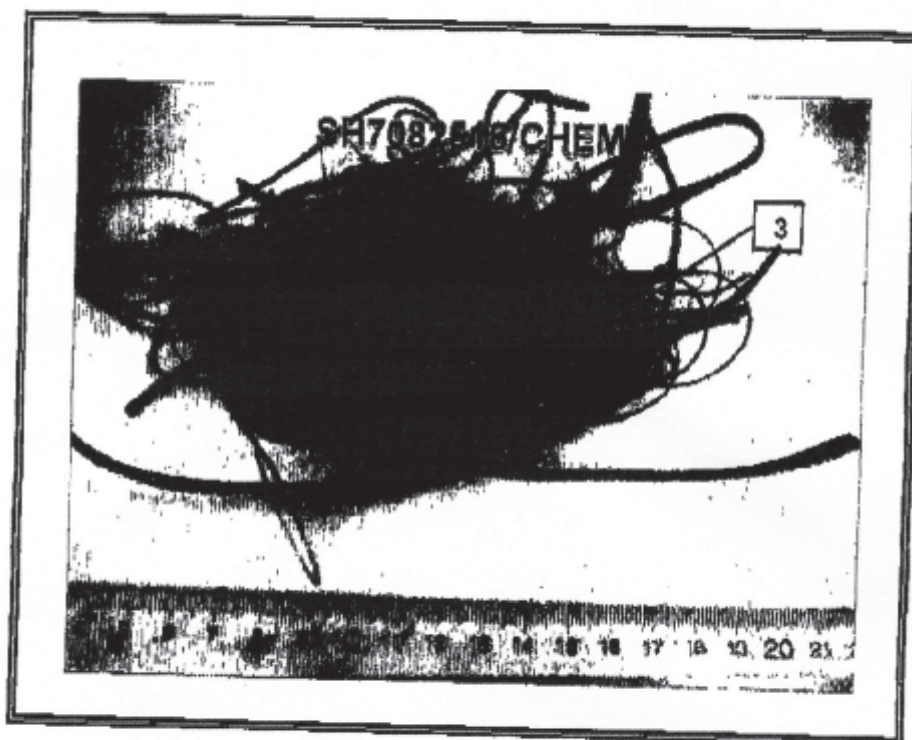
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