

產 品 規 格 承 認 書

Specification For Approval

日 期 : 2006 / 04 / 21

Date _____

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File No. _____

版 本 : A

Revision _____

承認廠商 : 突破通訊科技股份有限公司
Customer _____

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 : R-AN2450-1901RS**

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
Tel: 886-2-2788-5218 Fax: 886-2-2783-1658

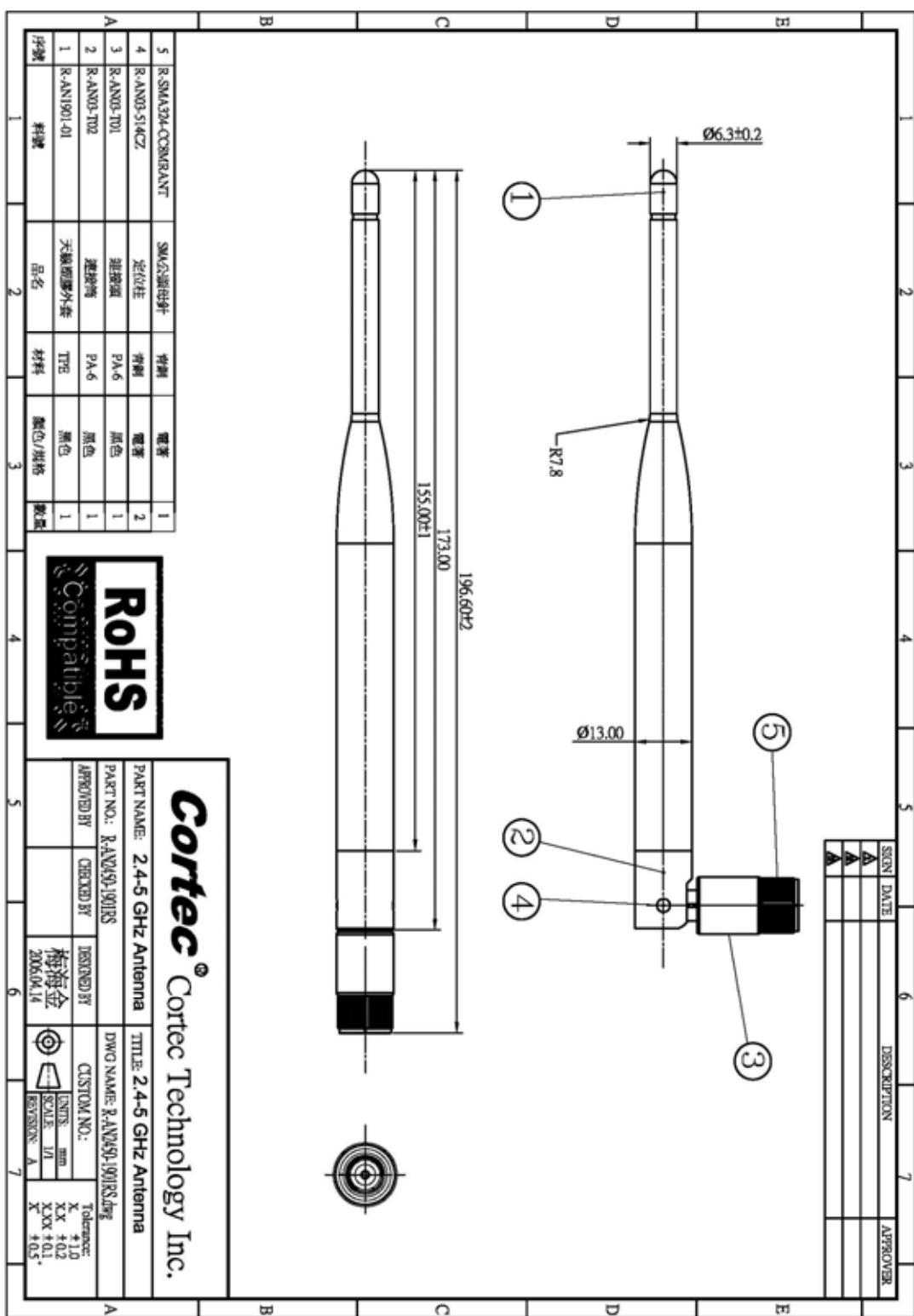
Cortec

東 莞 康 捷 電 子 有 限 公 司
廣 東 省 東 莞 市 長 安 鎮 振 安 路
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Index:

- 1. Mechanical Dimension Drawing**
- 2. Technical Specification**
- 3. S11 Return Loss / S.W.R. / Impedance Testing Result**
- 4. Antenna Radiation Pattern**
- 5. Plastic Parts Material Datasheet**
- 6. Metal Parts Material Datasheet**
- 7. Coaxial Cable Datasheet**
- 8. Reliability Testing**
- 9. SGS Testing Report**

1. Mechanical Dimension Drawing



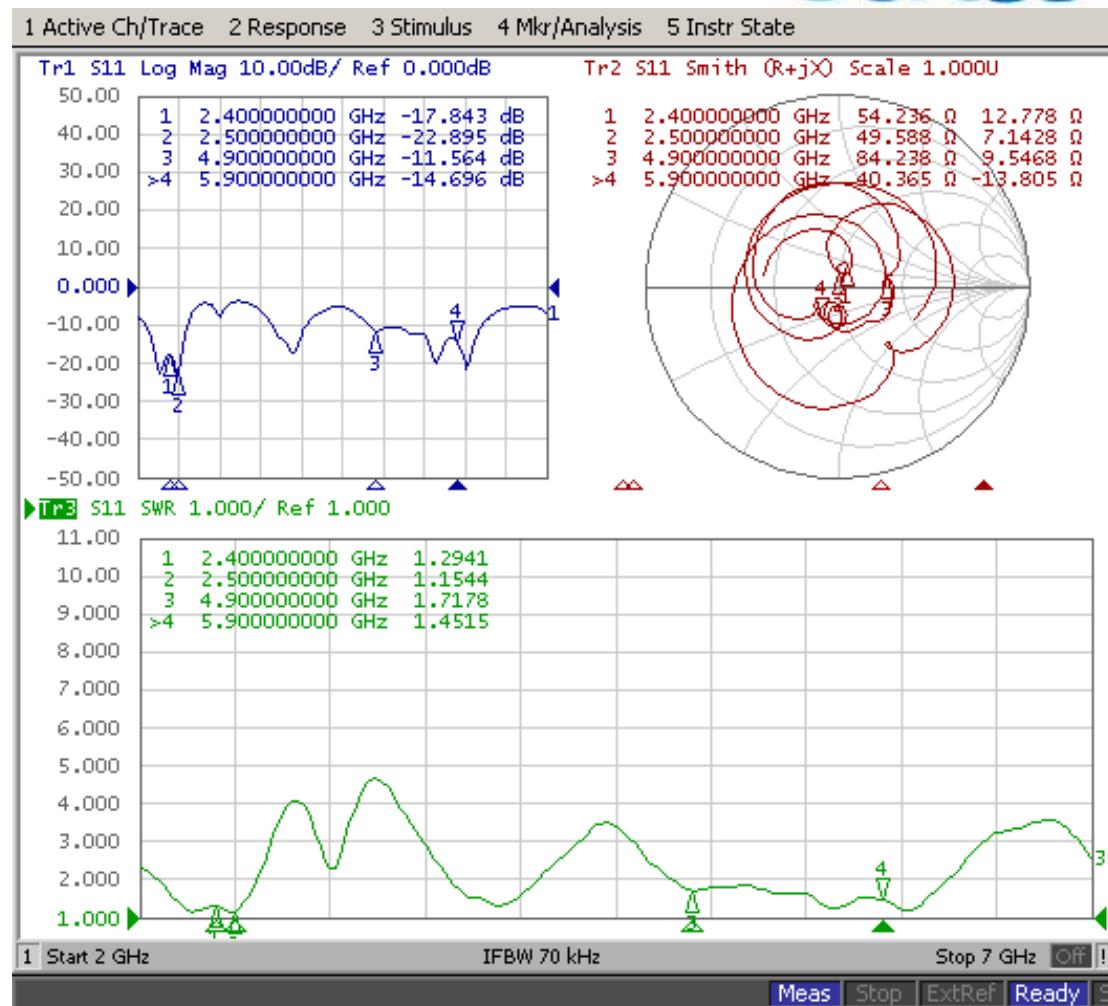
Product Number: R-AN2450-1901RS
Product Name: 2.4 / 5.0 GHz External Antenna



2. Technical Specification

A. Electrical Characteristics	
S.W.R.	2400 ~ 2500 MHz: < 2.0 4900 ~ 5900 MHz: < 2.0
Antenna Average Gain	3.9 dBi
Antenna Radiation Pattern	Omni-directional
Impedance	50 Ohm
Connector	SMA Male Reverse
B. Mechanical Dimension	
Total Length	196 mm
C. Material	
Color	Black
Material of Outer Cover	TPE (Color: Black)
Material of Hinge	PA-6 (Color: Black)
Material of Base	Pa-6 (Color: Black)
Material of Connector	Copper
Material of Tube	Copper
D. Environmental	
Operation Temperature	- 30 °C ~ + 80 °C
Storage Temperature	- 30 °C ~ + 80 °C

3. S11 Return Loss / S.W.R. / Impedance Testing Result



4. Antenna Radiation Pattern

Testing Equipment Specification:

Product Number: R-AN2450-1901RS

Product Name: 2.4 / 5.0 GHz External Antenna

Cortec®

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

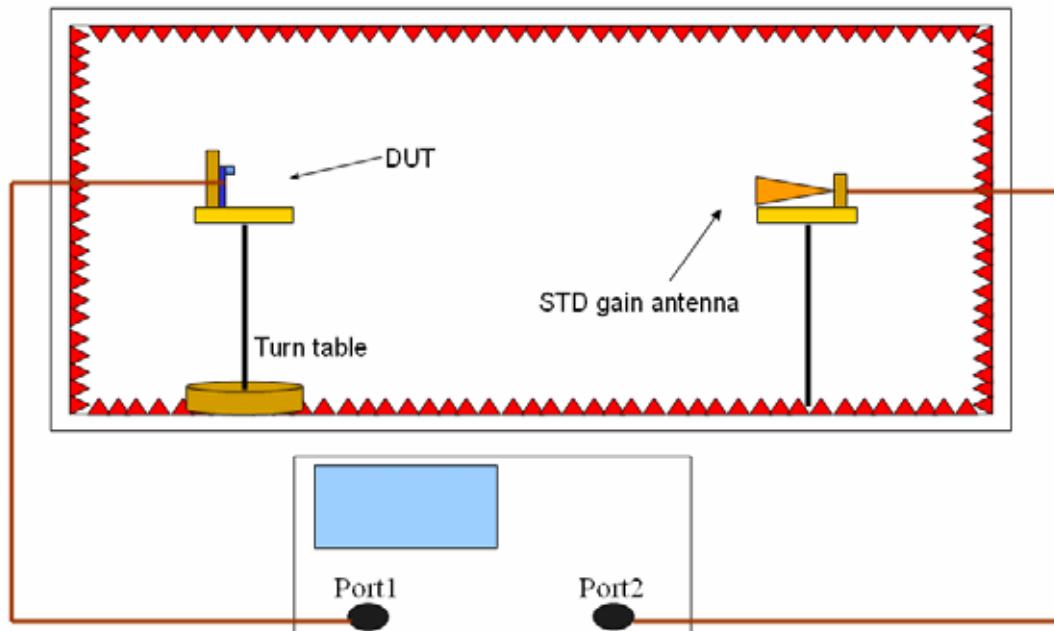
Quite Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

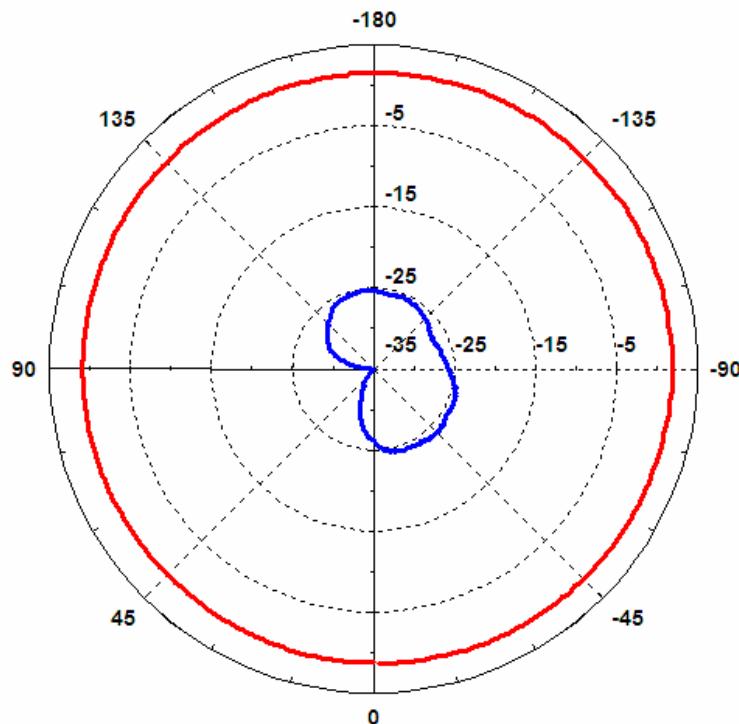
Testing Equipment: Agilent 8720D

Received Antenna: 0.7~6.0 GHz for Gain Calibration

Double Ridged Horn Antenna



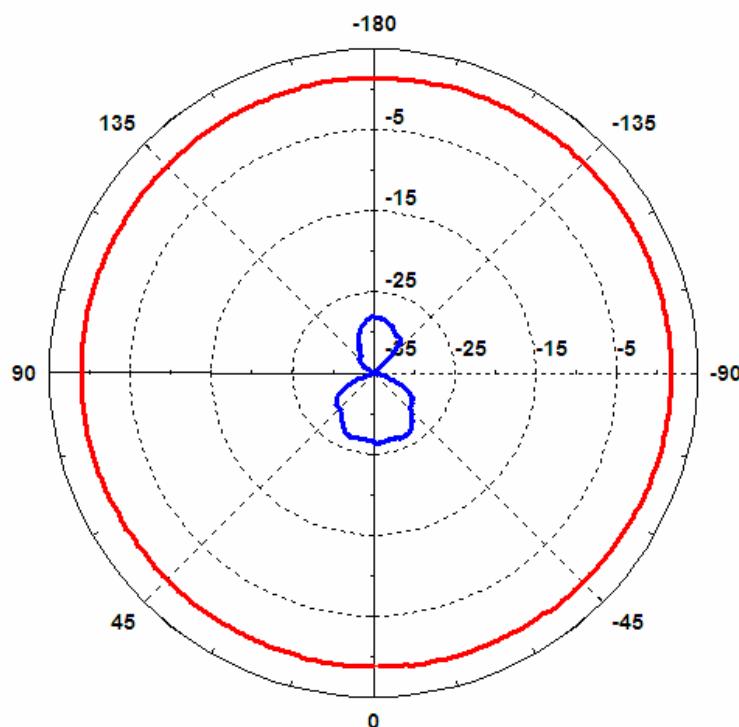
2400MHz Radiation Pattern



Ver. Pol. (max.)=	3.9
Ver. Pol. (avg.)=	3.3
Hor. Pol. (max.)=	-13.3
Hor. Pol. (avg.)=	-24.7
Tol. Gain (max.)=	3.9
Tol. Gain (avg.)=	3.3

Unit: dBi

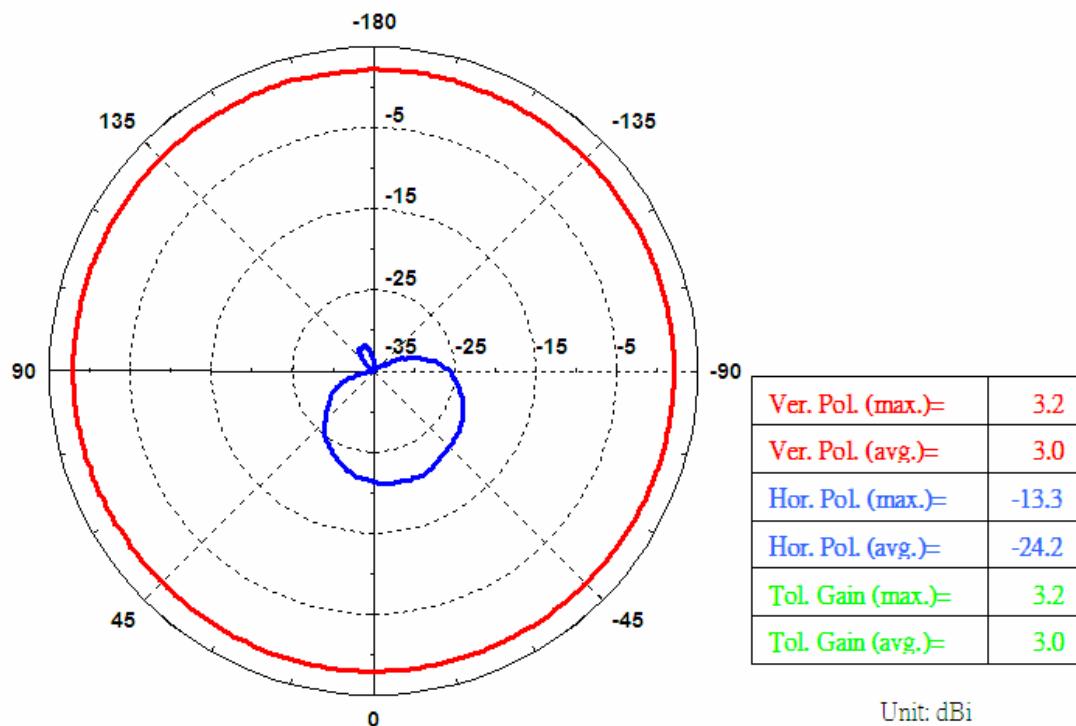
2450MHz Radiation Pattern



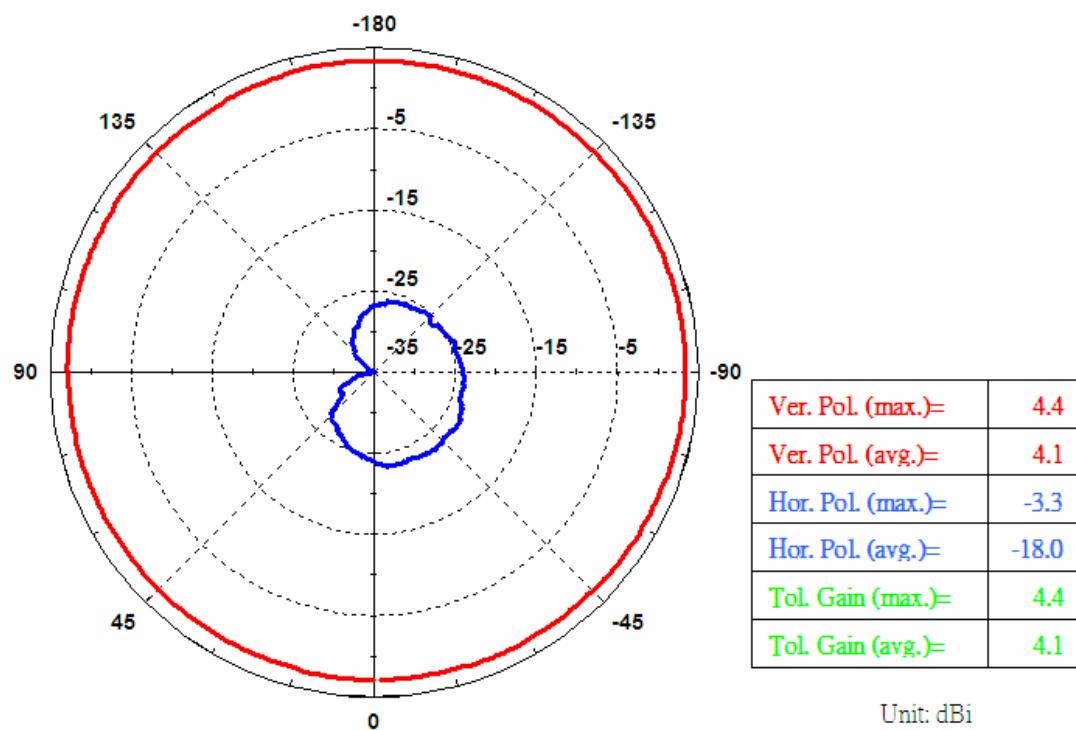
Ver. Pol. (max.)=	3.7
Ver. Pol. (avg.)=	3.2
Hor. Pol. (max.)=	-13.3
Hor. Pol. (avg.)=	-26.3
Tol. Gain (max.)=	3.7
Tol. Gain (avg.)=	3.2

Unit: dBi

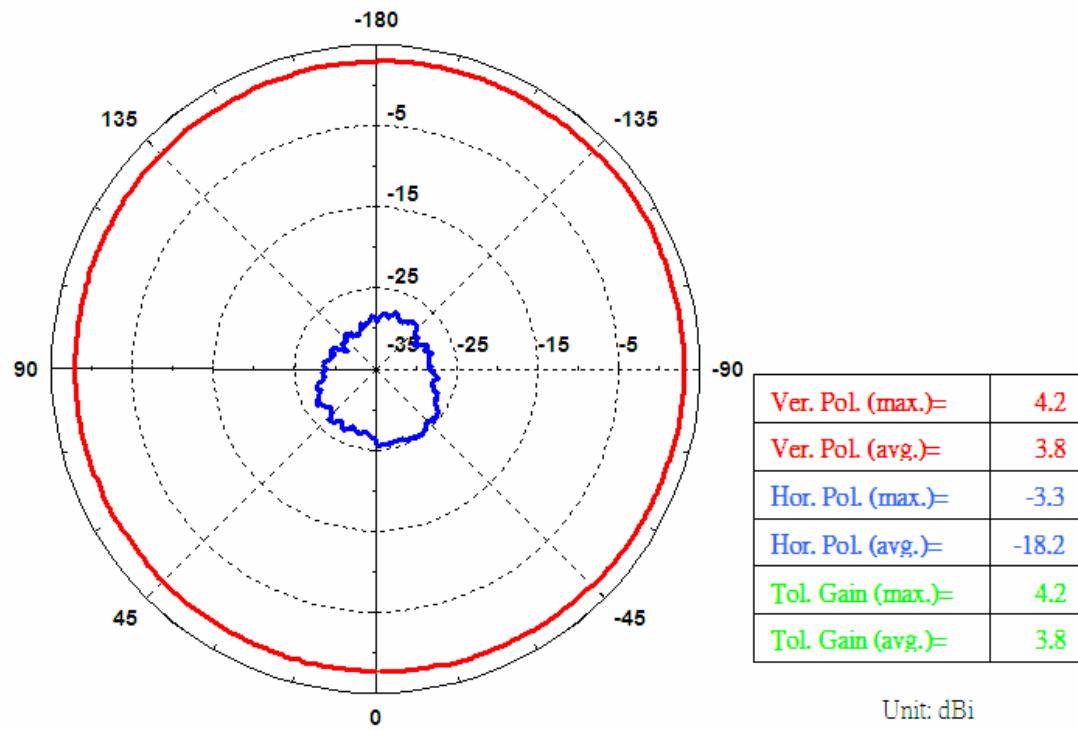
2500MHz Radiation Pattern



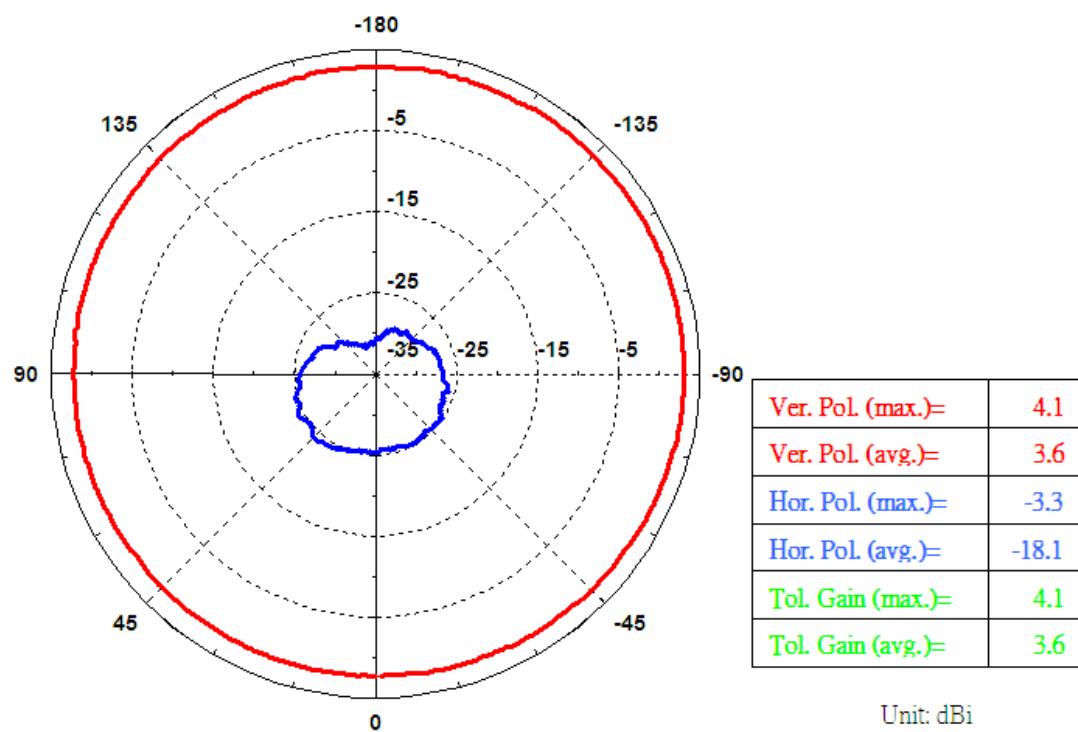
4900MHz Radiation Pattern



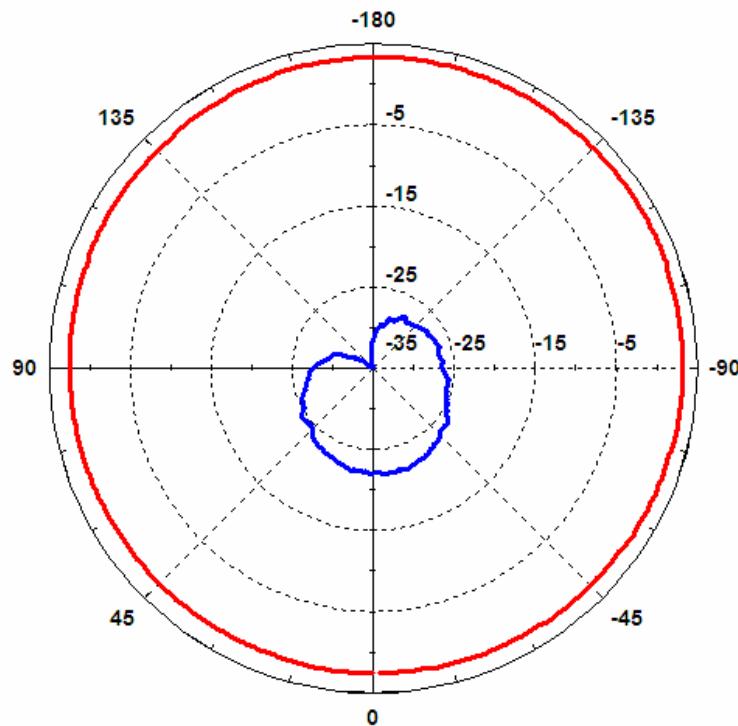
5150MHz Radiation Pattern



5350MHz Radiation Pattern



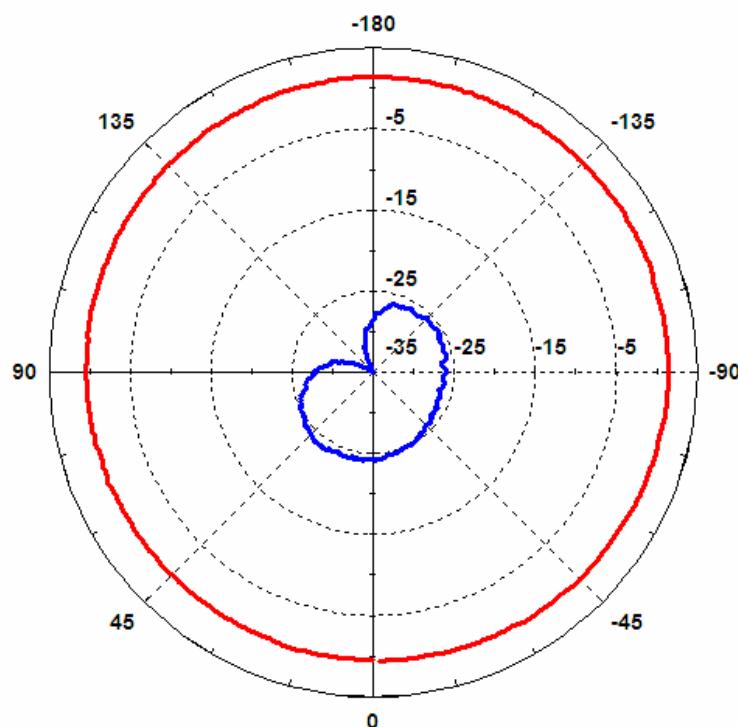
5470MHz Radiation Pattern



Ver. Pol. (max.)=	4.4
Ver. Pol. (avg.)=	3.9
Hor. Pol. (max.)=	-3.3
Hor. Pol. (avg.)=	-18.0
Tol. Gain (max.)=	4.4
Tol. Gain (avg.)=	3.9

Unit: dBi

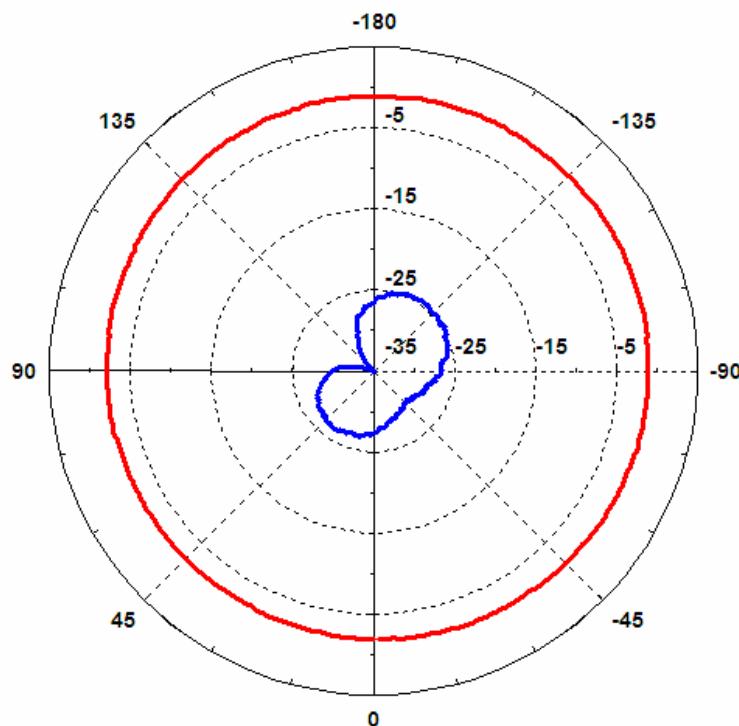
5725MHz Radiation Pattern



Ver. Pol. (max.)=	4.1
Ver. Pol. (avg.)=	3.8
Hor. Pol. (max.)=	-3.3
Hor. Pol. (avg.)=	-18.1
Tol. Gain (max.)=	4.1
Tol. Gain (avg.)=	3.8

Unit: dBi

5900MHz Radiation Pattern



Ver. Pol. (max.)=	3.6
Ver. Pol. (avg.)=	3.3
Hor. Pol. (max.)=	-3.3
Hor. Pol. (avg.)=	-18.2
Tol. Gain (max.)=	3.7
Tol. Gain (avg.)=	3.3

Unit: dBi

5. Plastic Parts Material 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 ³	D638	3.1
扭曲強度 Flexural Strength	Kg/ cm ³	D790	---
衝擊強度缺口 23°C Impact Strength	Kg om/om	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

6. Metal Parts Material Datasheet

Copper Datasheet

合金編號 Copper Alloy CN & JIS No.	化學成分 Composition (%)									
	銅 Cu	鉛 Pb	鐵 Fe	錫 Sn	鋅 Zn	鋁 Al	錳 Mn	鎳 Ni	磷 P	銅+鋁+鐵 +錳+鎳 Cu+Al+Fe +Mn+Ni
C3501	60.0~64.0	0.7~1.7	0.2 以下 0.2max	Fe+Sn 0.4 以下 0.4max	殘余 Rem					
C3601	59.0~63.0	1.8~3.7	0.3 以下 0.3max	Fe+Sn 0.5 以下 0.5max	殘余 Rem					
C3602	59.0~63.0	1.8~3.7	0.5 以下 0.5max	Fe+Sn 1.2 以下 1.2max	殘余 Rem					
C3603	57.0~61.0	1.8~3.7	0.35 以下 0.35max	Fe+Sn 0.6 以下 0.6max	殘余 Rem					
C3604	57.0~61.0	1.8~3.7	0.5 以下 0.5max	Fe+Sn 1.2 以下 1.2max	殘余 Rem					
C3605	57.0~60.0	3.5~4.5	0.5 以下 0.5max	Fe+Sn 1.2 以下 1.2max	殘余 Rem					
C3712	58.0~62.0	0.26~1.2	Fe+Sn 0.8 以下 0.8max		殘余 Rem					
C3771	57.0~61.0	1.0~2.5	Fe+Sn 1.0 以下 1.0max		殘余 Rem					
合金種類 Alloy CN & JIS No.	符號 Symbol	別類 Name	特性用途 Specialty and Utilities							
C3501	線(B)	Nipple 用黃銅 Nipple Using Brass	切削性、冷間鍛造性良好 機車、腳踏車、腳踏車用接頭螺帽 Excellent Cold Forging and Good Machine-ability Use Motorcycle and Bicycle Join Nut...							
C3601	(B)	快削黃銅 Free Cutting Brass	切削性良好，C3601,C3602 延展性也良好，電腦、電子、釣具、筆、 燈飾、螺絲、小螺帽、齒輪、凡而、照相機各種五金零件 Excellent Machine-ability and C3601, C3602 Good Excellent to Use Computer, Electronic, Clock, Pen, Light and Fishing, Nut, Gear, Valve Camera Parts, Hardware Parts...							
C3602	(A)									
C3603	(B)									
C3604	(A)									
C3605	(B)									
C3712	(A)		熱間性良好，精密鍛造亦適合機械零組件。 熱間鍛造性和切削性均佳，凡而，表殼，機械零件等 Excellent Hot Forging Uses Precision Forging, Machine Parts, Excellent Hot Forging and Good Machine-ability . Using Value, Watch, Machine Parts...							
C3771	(B)									

7. 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 cooper
	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 cooper
	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 (DC ~ 6GHz)	< 1.3	
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 Voltage	200°C / 30V	
13. Conductor Resistance	335 ohm / KM / 20°C max.	
14. Dielectric Resistance	3 G ohm / KM / 20°C min.	

8. 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); 120 cycles	After 2 hours recovery: 1. no visible damage 2. bandwidth tolerance < ±5%
3. Damp Heat	500 hours at 60°C; 90 ~ 95% RH	After 2 hours recovery: 1. no visible damage 2. bandwidth tolerance < ±5%
4. Endurance	500 hours at 90°C	After 2 hours recovery: 1. no visible damage 2. bandwidth tolerance < ±5%

9. SGS Test Report



Test Report

INVAX SYSTEM & TRADING CORP.
CORTEC TECHNOLOGY INC.
4F, NO.815, CHUNG HSAIO EAST RE., SEC. 5, TAIPEI,
TAIWAN, R.O.C.

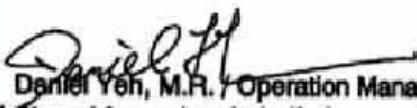
Report No. : CE/2005/40424
Date : 2005/04/04
Page : 1 of 5

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

Type of Product : COAXIAL CONNECTOR
Style/Item No : BNC SERIES; TNC SERIES; N SERIES; TWINAX SERIES; UHF SERIES; MINI UHF SERIES; F SERIES; PAL SERIES; RCA SERIES; FME SERIES; SMA SERIES; SMB SERIES; MCX SERIES; MMCX SERIES; SSMB SERIES; SMC SERIES; 7/16" SERIES; MINI
Sample Received : 2005/04/04
Testing Date : 2005/04/04 TO 2005/04/04

Test Result : - Please see the next page -

This report is combined with 4 copies of report which provides by client


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

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Test Report

INVAX SYSTEM & TRADING CORP.
CORTEC TECHNOLOGY INC.
4F, NO.815, CHUNG HSAIO EAST RE., SEC. 5, TAIPEI,
TAIWAN, R.O.C.

Report No. : CE/2005/40424
Date : 2005/04/04
Page : 2 of 5

Test Result

PART NAME NO.1 : WHITE PALSTIC(CE/2004/62767)
PART NAME NO.2 : GREEN LIQUID(GZSCR040413289/LP)
PART NAME NO.3 : TAN TRANSPARENT LIQUID(GZSCR04013274/LP)
PART NAME NO.4 : BRASSY COLOR METAL BAR(SZTYR050102512/LP)

Test Item (s):	Unit	Method	MDL	Result			
				No.1	No.2	No.3	No.4
AZO		As per LMBG 8202-2					
4-AMINODIPHENYL (CAS NO.92-67-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
BENZIDINE (CAS NO.92-87-5)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
4-CHLORO-O-TOLUIDINE (CAS NO.95-69-2)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
2-NAPHTHYLAMINE (CAS NO.91-59-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
O-AMINOAZOTOLUENE (CAS NO.97-56-3)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
2-AMINO-4-NITROTOLUENE (CAS NO.99-55-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
P-CHLOROANILINE (CAS NO.106-47-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
2,4-DIAMINOANISOLE (CAS NO.615-05-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
4,4-DIAMINODIPHENYLMETHANE (CAS NO.101-77-9)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
3,3-DICHLOROBENZIDINE (CAS NO.91-94-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
3,3-DIMETHOXYBENZIDINE (CAS NO.119-90-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---

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TAIWAN, R.O.C.

Report No. : CE/2005/40424
Date : 2005/04/04
Page : 3 of 5

Test Item (s):	Unit	Method	MDL	Result			
				No.1	No.2	No.3	No.4
3,3-DIMETHYLBENZIDINE (CAS NO.119-93-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
3,3-DIMETHYL-4,4-DIAMINODIPHENYLMETHANE (CAS NO.838-88-0)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
P-CRESIDINE(2-METHOXY-5-METHYLANILINE) (CAS NO.120-71-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
4,4-METHYLENE-BIS-(2-CHLORANILINE) (CAS NO.101-14-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
4,4-OXYDIANILINE (CAS NO.101-80-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
4,4-THIODIANILINE (CAS NO.139-65-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
O-TOLUIDINE (CAS NO.95-53-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
2,4-TOLUYLENDIAMINE (CAS NO.95-80-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
2,4,5-TRIMETHYLANILINE (CAS NO.137-17-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
O-ANISIDINE (CAS NO.90-04-0)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---
P-AMINOAZOBENZENE (CAS NO.60-09-3)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	---	---

Test Item (s):	Unit	Method	MDL	Result			
				No.1	No.2	No.3	No.4
Mirex(CAS NO:002385-85-5)	ppm	Analysis was performed by GC/MS.	4	N.D.	---	---	---

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Report No. : CE/2005/40424
Date : 2005/04/04
Page : 4 of 5

Test Item (s):	Unit	Method	MDL	Result			
				No.1	No.2	No.3	No.4
PCBs(Polychlorinated Biphenyls)(CAS NO:001336-36-3)	ppm	With reference to USEPA 8082A. Analysis was performed by GC/ECD/MS.	0.5	N.D.	---	---	---

Test Item (s):	Unit	Method	MDL	Result			
				No.1	No.2	No.3	No.4
PBBs(Polybrominated biphenyls)(CAS NO:059536-65-1)	%	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.	---	---	---
PBBEs(PBDEs)(Polybrominated biphenyl ethers)	%	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.	---	---	---

Test Item (s):	Unit	Method	MDL	Result			
				No.1	No.2	No.3	No.4
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	---	N.D.	N.D.	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.	N.D.	N.D.	---
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	---	N.D.	N.D.	---

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Test Report

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 TAIWAN, R.O.C.

Report No. : CE/2005/40424
 Date : 2005/04/04
 Page : 5 of 5

Test Item (s):	Unit	Method	MDL	Result			
				No.1	No.2	No.3	No.4
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	N.D.	N.D.	N.D.	---
Cadmium (Cd)	ppm	Analysis was performed by AAS and ICP-AES	2	---	---	---	22.0
Mercury (Hg)	ppm	Analysis was performed by AAS and ICP-AES	2	---	---	---	N.D.
Lead (Pb)	ppm	Analysis was performed by AAS and ICP-AES	2	---	---	---	24600.0

NOTE* •(1) N.D. = Not detected (<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit
 (4) " --- " = Not Applicable



Test Report

INVAX SYSTEM & TRADING CORP.
CORTEC TECHNOLOGY INC.
4F. No.815, CHUNG HSAIO EAST RD. SEC.5,
TAIPEI, TAIWAN, R.O.C.

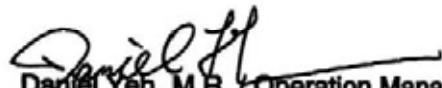
Report No. : CE/2004/C1640A
Date : 2004/12/16
Page : 1 of 8

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

Type of Product : ANTENNA
Style/Item No. : EM SERIES; IM SERIES; NB SERIES; AN SERIES
Sample Received : 2004/01/05 & 2004/04/23 & 2004/06/11 & 2004/06/24 &
2004/12/09 & 2005/01/26 & 2005/02/17
Testing Date : 2004/01/05 TO 2004/01/06 & 2004/04/23 TO 2004/04/28 &
2004/06/11 TO 2004/06/21 & 2004/06/24 TO 2004/07/01 &
2004/12/09 TO 2004/12/16 & 2005/01/26 TO 2005/01/28 &
2005/02/17 TO 2005/03/03

Test Result : - Please see the next page -

*This report is combined with reports of SZTYR050102512/LP & CE/2004/62767 &
GZSCR040100230/LP & CE/2004/61520 & GZSCR040413274/LP & GZSCR050207531/LP*


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

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Test Report

INVAX SYSTEM & TRADING CORP.
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 TAIPEI, TAIWAN, R.O.C.

Report No. : CE/2004/C1640A
 Date : 2004/12/16
 Page : 2 of 8

Test Result

PART NAME NO.1	:	BRASSY COLOR METAL BAR(SZTYR050102512/LP)
PART NAME NO.2	:	BLACK PLASTIC SHEET(GZSCR040100230/LP)
PART NAME NO.3	:	TAN TRANSPARENT LIQUID(GZSCR040413274/LP)
PART NAME NO.4	:	BLACK PLASTIC JACKET(KHCX-32AWG-SB-TA)(CE/2004/61520)
PART NAME NO.5	:	TRANSPARENT FEP JACKET(CE/2004/C1640)
PART NAME NO.6	:	WHITE PALSTIC(CE/2004/62767)
PART NAME NO.7	:	SILVER COLORED METAL WIRE(GZSCR050207531/LP NO. 1)
PART NAME NO.8	:	TRANSPARENT LT. BROWN PLASTIC(GZSCR050207531/LP NO. 2)

Test Item (s):	Unit	Method	MDL	Result				
				No.1	No.2	No.3	No.4	No.5
PBBs(Polybrominated biphenyls)(CAS NO:059536-65-1)	%	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.	N.D.
PBBEs(PBDEs)(Polybrominated biphenyl ethers)	%	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.	N.D.

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Test Report

INVAX SYSTEM & TRADING CORP.
 CORTEC TECHNOLOGY INC.
 4F. No.815, CHUNG HSAIO EAST RD. SEC.5,
 TAIPEI, TAIWAN, R.O.C.

Report No. : CE/2004/C1640A
 Date : 2004/12/16
 Page : 3 of 8

Test Item (s):	Unit	Method	MDL	Result				
				No.1	No.2	No.3	No.4	No.5
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	N.D.	---	N.D.	N.D.	N.D.
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	2	22.0	N.D.	N.D.	N.D.	N.D.
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	2	N.D.	---	N.D.	N.D.	N.D.
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	2	24600.0	6.0	N.D.	N.D.	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
PBBs(Polybrominated biphenyls)(CAS NO:059536-65-1)	%	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.	---	N.D.
PBBEs(PBDEs)(Polybrominated biphenyl ethers)	%	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.	---	N.D.

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Report No. : CE/2004/C1640A
 Date : 2004/12/16
 Page : 4 of 8

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	---	N.D.	N.D.
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	2	N.D.	N.D.	---
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	2	---	N.D.	---
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	2	N.D.	N.D.	---
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	15	---	---	N.D.
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	50	---	---	N.D.
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	15	---	---	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
AZO		As per LMBG 8202-2				
4-AMINODIPHENYL (CAS NO.92-67-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
BENZIDINE (CAS NO.92-87-5)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4-CHLORO-O-TOLUIDINE (CAS NO.95-69-2)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
2-NAPHTHYLAMINE (CAS NO.91-59-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
O-AMINOAZOTOLUENE (CAS NO.97-56-3)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.

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 4F. NO.815, CHUNG HSAIO EAST RD. SEC.5,
 TAIPEI, TAIWAN, R.O.C.

Report No. : CE/2004/C1640A
 Date : 2004/12/16
 Page : 5 of 8

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
2-AMINO-4-NITROTOLUENE (CAS NO.106-47-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
P-CHLOROANILINE (CAS NO.106-47-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
2,4-DIAMINOANISOLE (CAS NO.615-05-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4,4-DIAMINODIPHENYLMETHANE (CAS NO.101-77-9)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
3,3-DICHLOROBENZIDINE (CAS NO.91-94-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
3,3-DIMETHOXYBENZIDINE (CAS NO.119-90-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
3,3-DIMETHYLBENZIDINE (CAS NO.119-93-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
3,3-DIMETHYL-4,4-DIAMINODIPHENYLMETHANE (CAS NO.838-88-0)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
P-CRESIDINE(2-METHOXY-5-METHYLANILINE) (CAS NO.120-71-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4,4-METHYLENE-BIS-(2-CHLORANILINE) (CAS NO.101-14-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4,4-OXYDIANILINE (CAS NO.101-80-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4,4-THIODIANILINE (CAS NO.139-65-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
O-TOLUIDINE (CAS NO.95-53-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.

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4F. No.815, CHUNG HSAIO EAST RD. SEC.5,
TAIPEI, TAIWAN, R.O.C.

Report No. : CE/2004/C1640A
Date : 2004/12/16
Page : 6 of 8

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
2,4-TOLUYLENDIAMINE (CAS NO.95-80-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
2,4,5-TRIMETHYLANILINE (CAS NO.137-17-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
O-ANISIDINE (CAS NO.90-04-0)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
P-AMINOAZOBENZENE (CAS NO.60-09-3)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Mirex(CAS NO:002385-85-5)	ppm	Analysis was performed by GC/MS.	4	N.D.	---	---

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
PCBs(Polychlorinated Biphenyls)(CAS NO:001336-36-3)	ppm	With reference to USEPA 8082A. Analysis was performed by GC/ECD/MS.	0.5	N.D.	---	---

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Organic-tin compounds						
Triphenyl Tin(TPT)(CAS NO:000668-34-8)	ppm	With reference to 83/677/EEC & DIN 38407. Analysis was performed by GC/FPD.	0.03	---	---	N.D.
Tributyl Tin(TBT)	ppm	With reference to 83/677/EEC & DIN 38407. Analysis was performed by GC/FPD.	0.03	---	---	N.D.

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Test Report

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 CORTEC TECHNOLOGY INC.
 4F. No.815, CHUNG HSAIO EAST RD. SEC.5,
 TAIPEI, TAIWAN, R.O.C.

Report No. : CE/2004/C1640A
 Date : 2004/12/16
 Page : 7 of 8

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Asbestos						
Anthophyllite(CAS NO.017068-78-9)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Crocodolite(CAS NO.012001-28-4)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Amosite(CAS NO.012172-73-5)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Tremolite(CAS NO.014567-73-8)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Chrysotile(CAS NO.012001-29-5)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Actinolite(CAS NO.013768-00-8)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
PCBs(Polychlorinated Biphenyls)(CAS NO:001336-36-3)	ppm	With reference to USEPA 8082A. Analysis was performed by GC/ECD/MS.	0.5	---	---	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Polychlorinated Naphthalene	ppm	With reference to USEPA 8081B. Analysis was performed by GC/MS.	5	---	---	N.D.

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 TAIPEI, TAIWAN, R.O.C.

Report No. : CE/2004/C1640A
 Date : 2004/12/16
 Page : 8 of 8

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
PVC (CAS No:9002-86-2)	**	Analysis was performed by FTIR/ATR and Pyro-GC/MS.	-	---	---	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
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.6	No.7	No.8
Formaldehyde(CAS No:000050-00-0)	ppm	With reference to DIN 53315 & USEPA 8315A method. Analysis was performed by HPLC/DAD/MS	0.2	---	---	N.D.

NOTE: (1) N.D. = Not detected (<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit
 (4) " --- " = Not Applicable
 (5) " - " = No Regulation
 (6) * = Results shown are of the adjusted analytical results
 (7) ** = Qualitative analysis (No Unit)
 (8) Negative = Undetectable / Positive = Detectable
 (9) The MDL is 5ppm for the single compound of CP