

# 產品規格承認書

## Specification For Approval

日期： 2008 / 09 / 12

Date

編號： ASM-89121

File No.

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Revision

承認廠商： 錄森科技股份有限公司

Customer

製造廠商： 東莞康捷電子有限公司/英碩科技股份有限公司

Manufacturer

型號品名： **2.4 GHz Antenna**

Part Number

Description

**P/N: AB2400-4803RS**

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  
沙頭段咸西工業區  
Tel: 86-769-85388261 Fax: 86-769-85397133

Product Number: AB2400-4803RS

Product Name: 2.4 GHz Antenna



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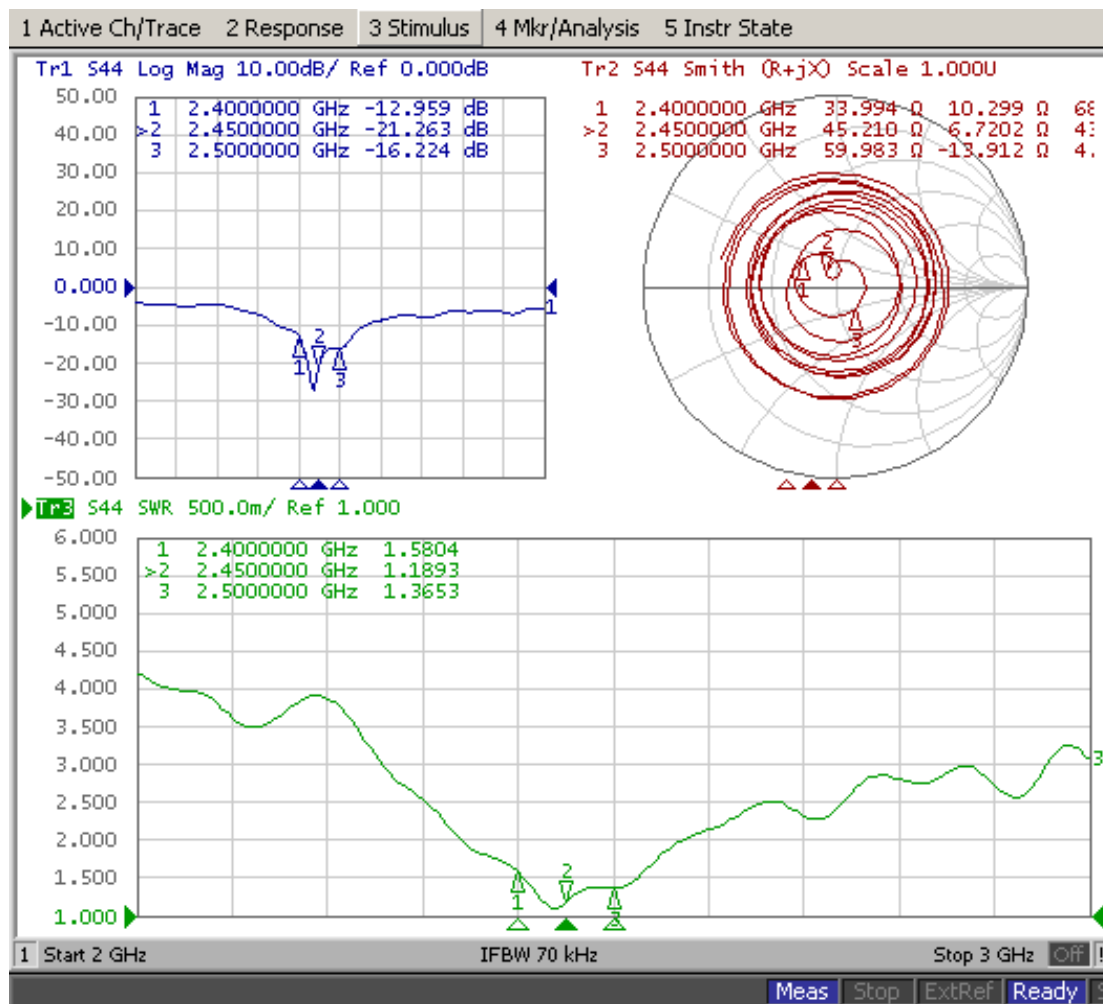
## 1. Reliability Testing

Test Item	Procedure	Requirement
<b>1. Visual inspection and Dimension Check</b>	Applicable methods using x5 magnification	follow specification
<b>2. Rapid Changing of Temperature</b>	-40°C (30minutes) to 90°C (30minutes); 24 cycles	After 2 hours recovery: 1. no visible damage 2. Freq. Tol.: < ±5%
<b>3. Damp Heat</b>	24 hours at 60°C; 90 ~ 95% RH	After 2 hours recovery: 1. no visible damage 2. Freq. Tol. : < ±5%
<b>4. Endurance</b>	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.	$\leq 2.0$ @ 2400 ~ 2500 MHz
Antenna Gain (*Typical*)	1.75 dBi (*Depends on Product Mechanical Environment*)
Impedance	50 Ohm
B. Material	
Material of Radiator	Cu (Plated)
Material of Coaxial Cable	RG-174 / 1000 mm 1M cable loss: 1.7dB @ 2.45GHz
Material of Connector	SMA Male Reverse
C. Environmental	
Operation Temperature	- 30 °C ~ + 85 °C
Storage Temperature	- 30 °C ~ + 85 °C

## 3. S Parameter Test Data



Product Number: AB2400-4803RS

Product Name: 2.4 GHz Antenna



#### 4. Antenna Radiation Pattern

##### Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

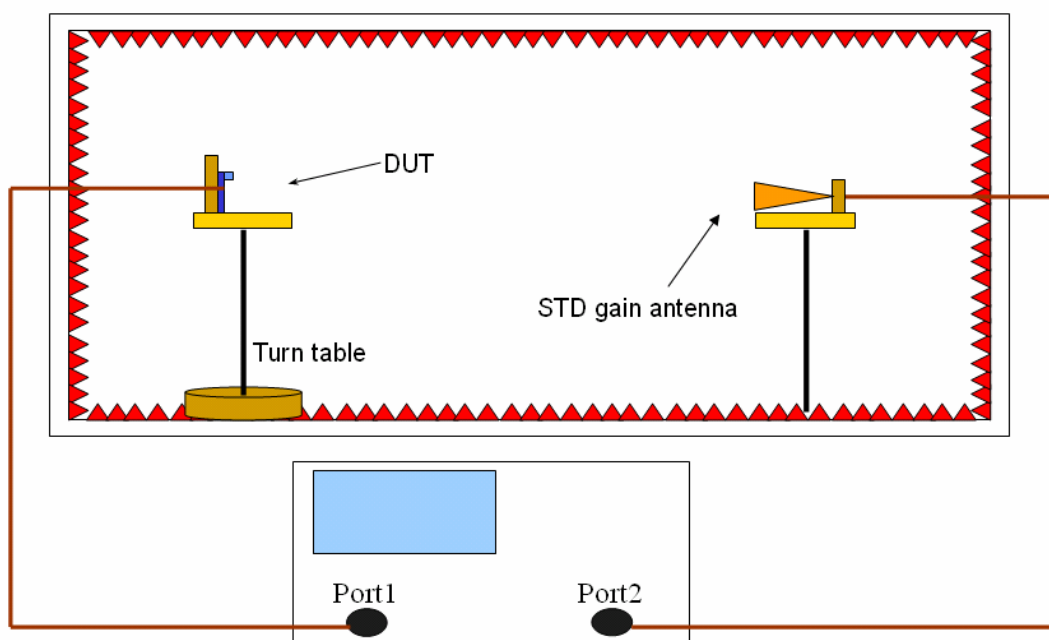
Quiet Zone: 600mm @1 GHz

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



# Cortec Technology Inc.

广东省东莞市长安镇振安路沙头段咸西工业区

Model : 2.4G Antenna // 48 Type  
Remark : H-Plane // Vertical Polarization  
Tested by : CORTEC Antenna 3D Lab // Xiang Zhi Rong

Location: Chamber

Temperature (°C): 22.00

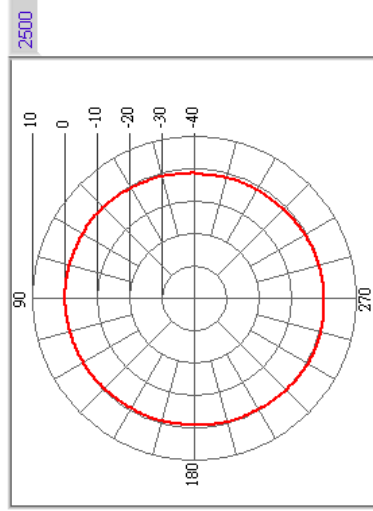
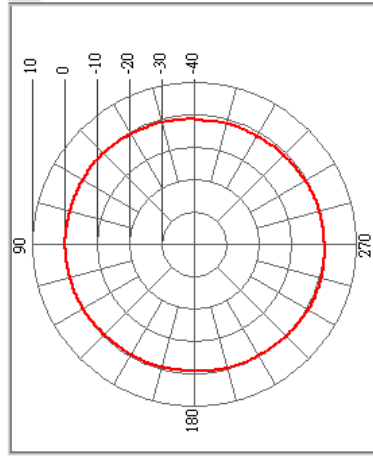
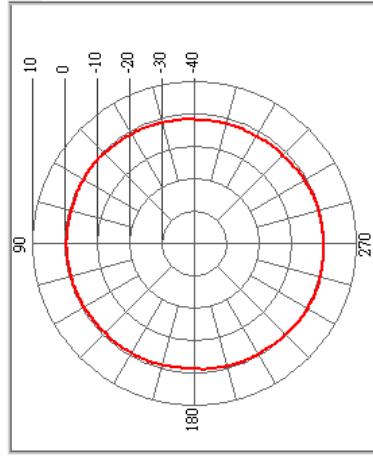
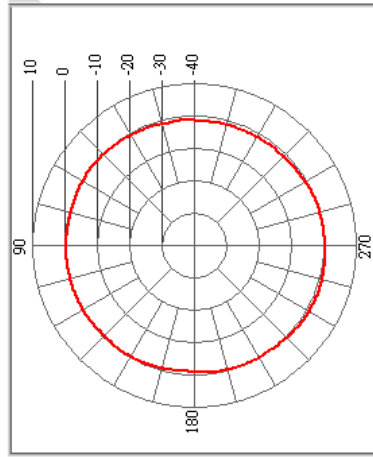
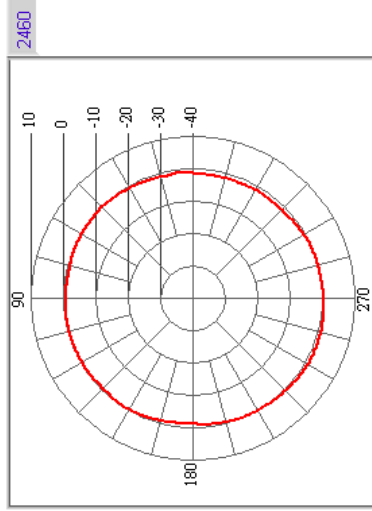
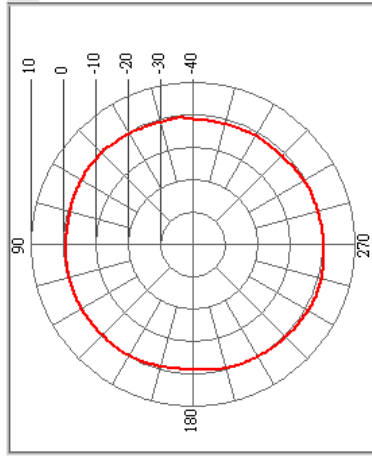
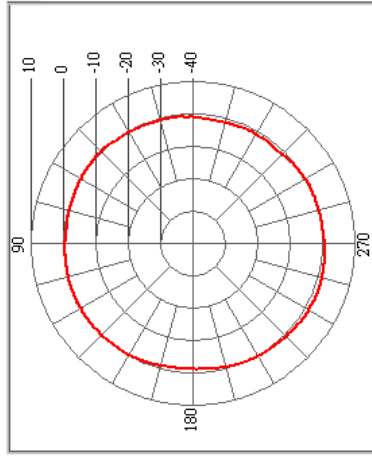
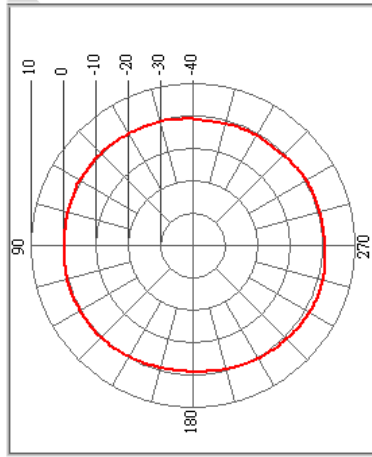
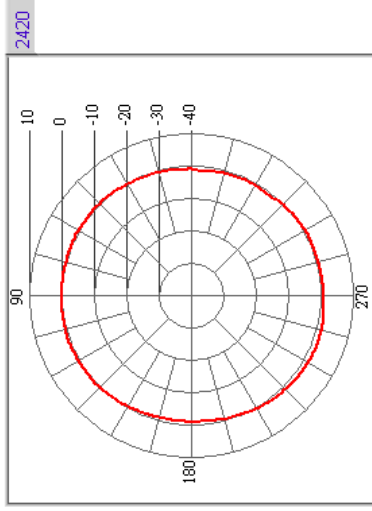
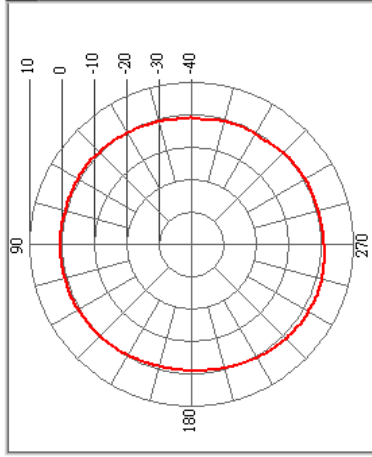
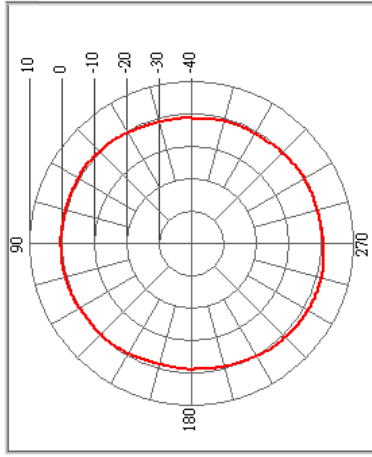
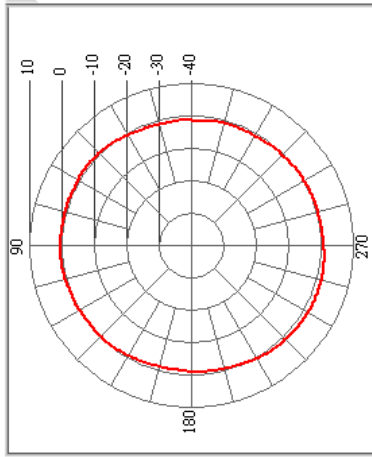
Date: 2007/11/3

Humidity (%): 55.00

Time: 上午 10:30:36

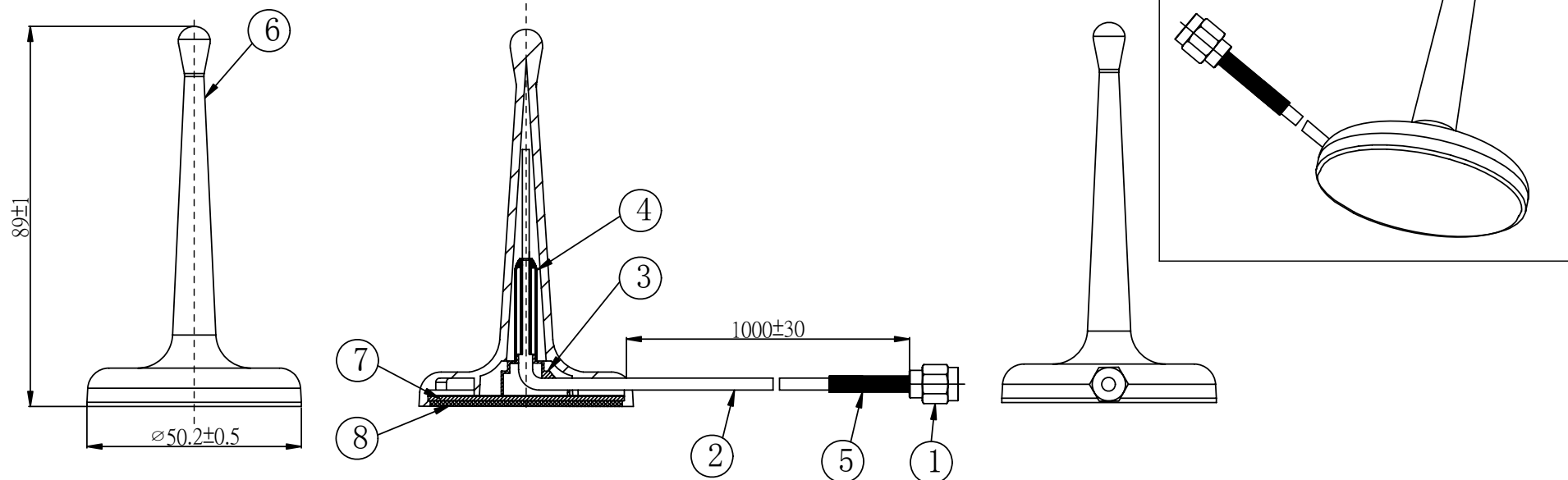
Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	1.55	1.5	1.75	1.62	1.61	1.38	1.15	0.95	0.89	0.37	0.56	0.45
Peak Degree	252	246	246	246	252	252	252	246	246	246	252	246
AV Gain (dBi)	0.01	-0.04	0.19	0.08	0.03	-0.17	-0.37	-0.44	-0.37	-0.74	-0.43	-0.47



# RoHS Compatible

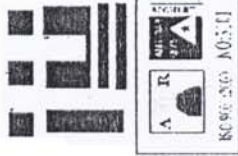
SIGN	DATE	DESCRIPTION	APPROVER
△			
△			
△			



8	R-AN48-02Z	SECC	Fe	∅46.25*1.3mm	1
7	R-AN48-03	Buble		Black	2
6	R-48-01	Plastic Body	TPE	Black	1
5	R-HSTUBE-004T	Hot Shrink Tube		∅4.0*20mm	1
4	R-AN01-1113S	TUBE	Cu (Tin Plated)	∅5.0*4.3*19.5mm	1
3	R-AN02-03	Position Block	ABS	Black	1
2	R-RG174H	Cable	R-RG174	L=1080mm	1
1	R-SMA285-CG8MN174	SMA Male Reverse	Bronze	Au Platade	1
NO	Material Number	Name	Material	Finish	QTY

Invax System Group.			Cortec Technology Inc.		
<b>Cortec</b>			<a href="http://www.invaxsystem.com">Http://www.invaxsystem.com</a> E-mail: info@invax.com.tw		
			Tel: 886-2-27885218 Fax: 886-2-27831658		
TITLE: 2.4GHZ Antenna					
PART NO.: AB2400-4803RS			DWG NAME: AB2400-4803RS.DWG		
APPROVED BY	CHECKED BY	DESIGNED BY		Tolerance	
Grant 2007.09.21	Jack 2007.09.21	Kabala 2007.09.21		UNITS: mm	X.X ±0.1
				SCALE: 1/1	X.XX ±0.05
			REVISION: A	X° ±1°	





SHIYANG (ZHONG SHAN) METAL PRODUCTS CO.,LTD

世扬金属制品有限公司  
TEST CERTIFICATE  
材質证明书



CLIENT 客户	天诚		certificate No. 证明书号	070127-15						
name article 品名	Brass									
LOT NO.	SIZE(MM) STANDARD	OUTW GT (KG)	DESIGNATION	Cu(%)	Pb(%)	Fe(%)	Fe+Sn(%)	Cd(%)	Zn(%)	REMARK
7916	14.5 φ		JISC3604 JISC3604	57~61 58.92	1.8~3.7 2.986	≤0.5 0.446	≤1.2 0.971	≤0.0075 0.0042	REM REM	
<p>兹证明本表所列产品,均依材料规格制造及试验,并符合规格之要求。          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.</p>										

MANAGER: **曾敦毅** PABLE: 李玉奎 DATE:2007/02/27

THE THREE INDUSTRIAL AREA NAN LANG TOWN ZHONG SHAN CITY TEL:0760-5214770 FAX:0760-5214769  
 中国广东省中山市南朗镇第三工业区 E-Mail:sales@shiyangmetal.com



## 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 <sup>3</sup>	D638	3.1
扭曲強度 Flexural Strength	Kg/ cm <sup>3</sup>	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 <sup>2</sup>	D1238	10
燃燒性 Flammability	---	UL94	HB
<p><b>Testing Data from</b></p> <p>東莞市合春塑料有限公司 Tel:86-0769-2774772</p> <p>台灣大雅國際股份有限公司 Tel:886-02-27775232</p>			

## Test Report

No. : CE/2006/96197B    Date : 2007/05/15    Page : 1 of 3

INVAX SYSTEM TECHNOLOGY CORP.  
CORTEC TECHNOLOGY INC.  
4F, NO. 815, CHUNG HSAIO EAST RD., SEC. 5, TAIPEI, TAIWAN  
XIANXI INDUSTRIAL, SHATOU ADMINISTRATION ZONE, CHANGAN  
TOWN, DONGGUAN GUANGDONG PROVINCE, CHINA



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

Sample Description : 磁吸盤天線  
Style/Item No. : AN-02, AN-19, AN-25, AN-29, AN-40, AN-98 SERIES  
Sample Receiving Date : 2006/9/22  
Testing Period : 2006/9/22 TO 2006/9/29

=====  
**Test Requested** : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.  
  
**Test Method** :  
(1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES.  
(2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES.  
(3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES.  
(4) With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.  
(5) With reference to US EPA 3540C for PBBs/PBDEs Content. Analysis was performed by GC/MS.  
  
**Test Result(s)** : Please refer to next page(s).

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

# Test Report

No. : CE/2006/96197B

Date : 2007/05/15

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INVAX SYSTEM TECHNOLOGY CORP.  
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TOWN, DONGGUAN GUANGDONG PROVINCE, CHINA



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

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	4.3	2
Lead (Pb)	(2)	4379.5	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2
<b>Sum of PBBs</b>	(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
<b>Sum of PBDEs (Mono to Nona) (Note 4)</b>		n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether	n.d.	5	
Decabromobiphenyl ether	n.d.	5	
<b>Sum of PBDEs (Mono to Deca)</b>	n.d.	-	

## TEST PART DESCRIPTION:

NO.1 : MIXED ALL PARTS

- Note :
1. mg/kg = ppm
  2. n.d. = Not Detected
  3. MDL = Method Detection Limit
  4. According to 2005/717/EC DecaBDE is exempt.
  5. "-" = Not Regulated

## Test Report

No. : CE/2006/96197B

Date : 2007/05/15

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\*\* End of Report \*\*