

Specification For Approval

Date: 2013 / 11 / 20

File No.: 13120009

Version: 1.0

Customer : WS

Customer P/N : /

INVAX P/N : AN2400-9298SM

Description : Antenna

Cortec Checked By:	R&D Dept 2013.11.20 Jack
Customer Approved By:	



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Taipei, TAIWAN

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1. Revision History

Revision	Date	Change Notification	Description
1.0			

Product Number: AN2400-9298SM

Product Name: Antenna



2. Specification

Sample Photo	
	
A. Electrical Characteristics	
Frequency	2400 ~ 2500 MHz
S.W.R.	≤ 2.0
Antenna Gain	5.0 $\pm$ 0.7dBi @ 2450 MHz
Polarization	Linear
Impedance	50 Ohm
B. Material & Mechanical Characteristics	
Material of Radiator	CU
Material of Plastic	Body: TPEE Hinge: ABS Holder: ABS
Cable Type	RG-178
Connector Type	SMA Male
Connector Pull Test	≥ 5 Kg
C. Environmental	
Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C
Antenna Color Storage life	< 2 year

Product Number: AN2400-9298SM

Product Name: Antenna



3. Characteristics and Reliability Test

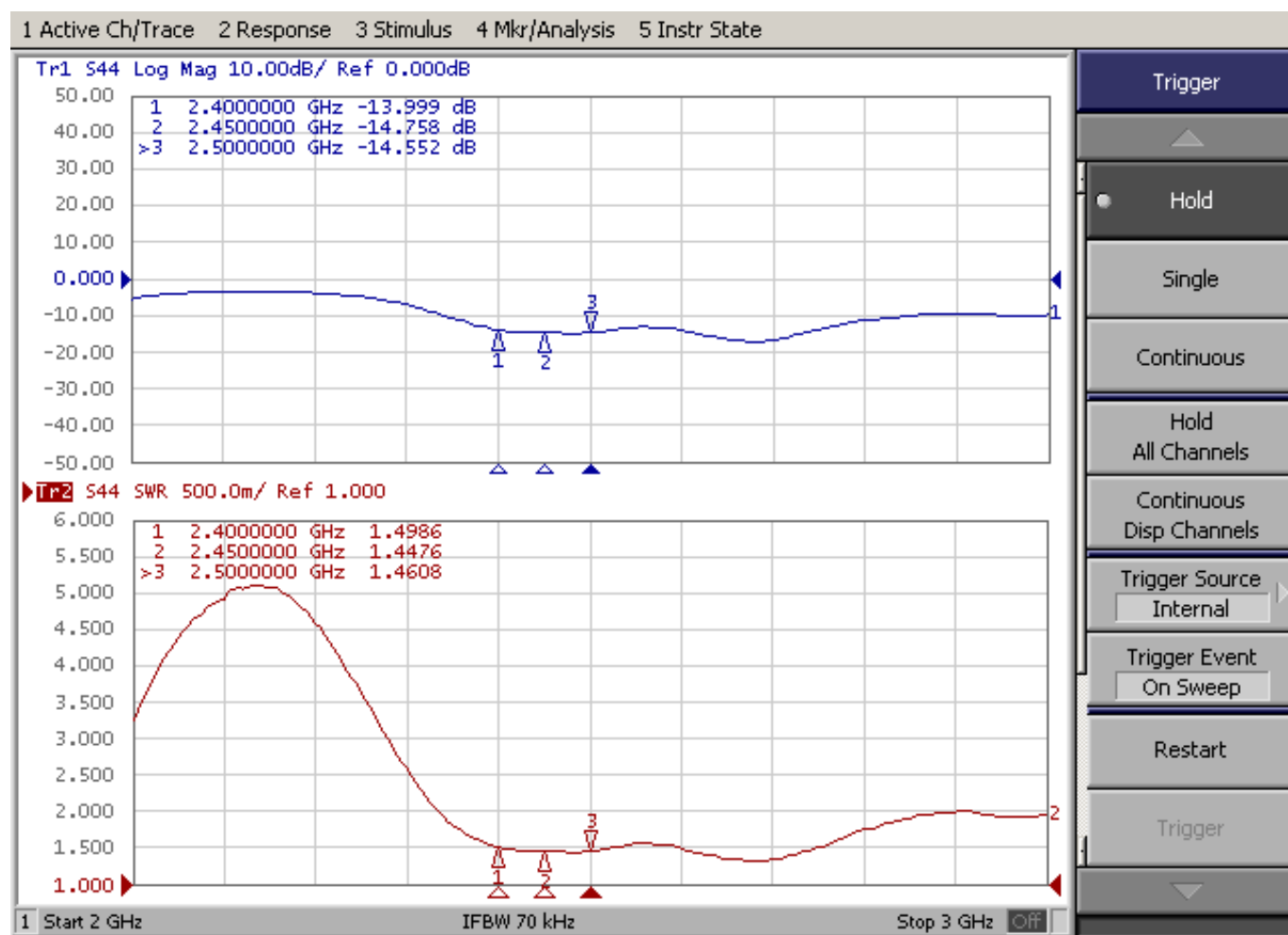
Test Items		Test Condition and Procedure	Requirements
C1	S.W.R.	Set DUT on Network Analyzer; make individual calibration to test	Directive DUT specification
C2	Antenna Gain	Set DUT on Antenna Chamber; make individual calibration to test	Directive DUT specification
M1	Vibration	GB / T2423 . 48-1997 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz 3 directions; 2 hours for each direction	1. No Visual Damage 2. Frequency Tol.<= 5%
M2	Random Drop	GB / T2423.8-1995 Height: 1.0 Meter; 3 directions; 1 time for each direction	1. No parts separated 2. Frequency Tol.<= 5%
M3	Solderability	GB 2423 . 28- 82 Solder iron: 260±5°C; Duration: 5 seconds	1. Mounted on PCB 2. No Visual Damage
M4	Terminal-Pull Test	Holding with individual specification; force applied to axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M5	Terminal-Torque Test	Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M6	Dimension	Inspection of dimension, color, material, package, surface process	Directive DUT specification
E1	Salt Spray	GB / T 2423 . 17- 93 Temp: 35°C; RH: >= 95%; NaCl solution: >= 5%; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E2	Humidity	GB / T 2423 . 4 - 93 Temp: 80°C / 12 H; -40°C / 12H RH: >= 90%; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E3	Thermal Shock	GB / T 2423 . 22 - 87 1 Cycle: - 40°C (30 minutes) to + 80°C (30 minutes) Cycles: 24	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E4	Life (High Temp.)	GB / T 2423 . 2 - 89 Temp: 80°C; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
R1	RoHS	With Reference to IEC 62321:2008 with flow chart	Directive RoHS 2011/65/EU
R2	PFOS	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC
R3	PFOA	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC

Product Number: AN2400-9298SM

Product Name: Antenna



4. Antenna - S Parameter Test Data



Product Number: AN2400-9298SM

Product Name: Antenna



5. Antenna - Radiation Pattern Test Data

Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

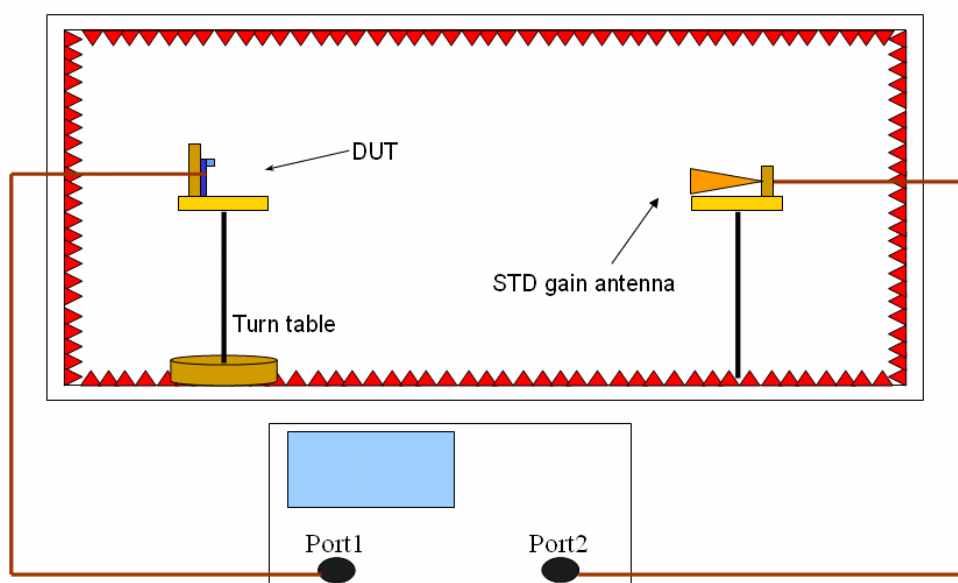
Quiet Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

Testing Equipment: Agilent 5071B

Received Antenna: 0.7 ~ 6.0 GHz for Gain Calibration

Double Ridged Horn Antenna



6. Mechanical Drawing

See attached files

7. Material Description and RoHS Test Report

See attached files



Cortec Technology Inc.

广东省东莞市长安镇振安路沙头段咸西工业区

Mode: 2.4GHz Antenna
Remark: H-Plane\ V-Pol

Tested by: CORTEC Antenna 3D Lab

Location: **Chamber**

Date: **2013/5/13**

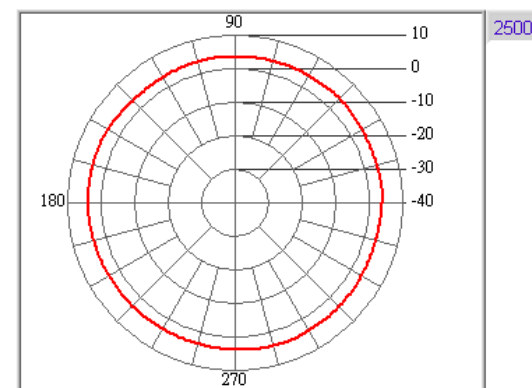
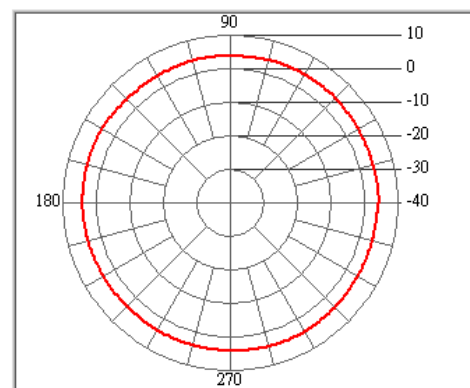
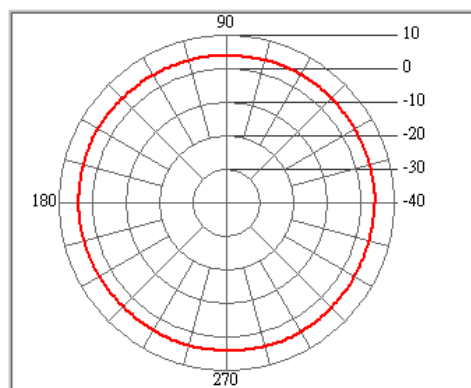
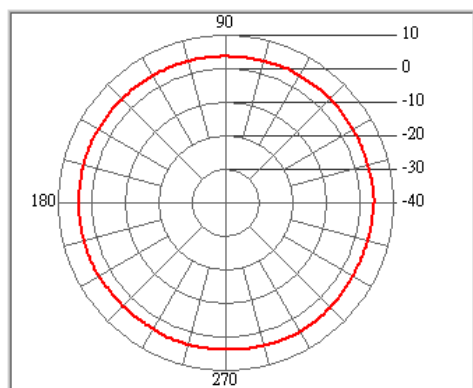
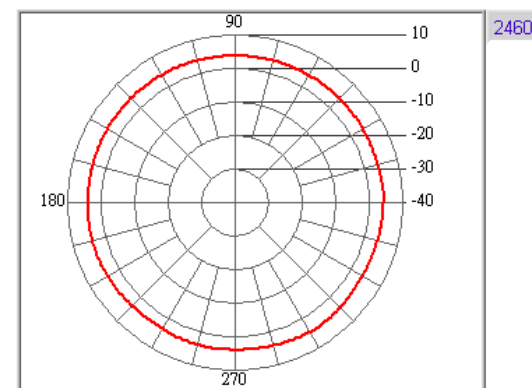
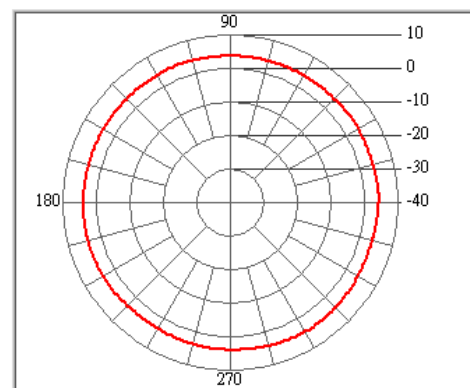
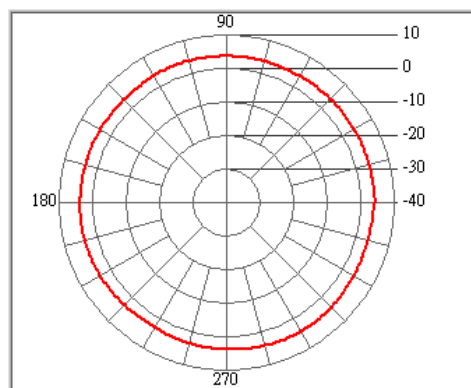
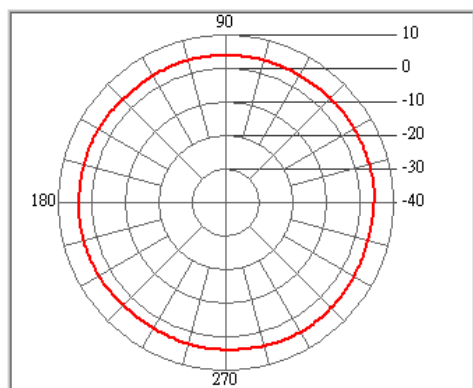
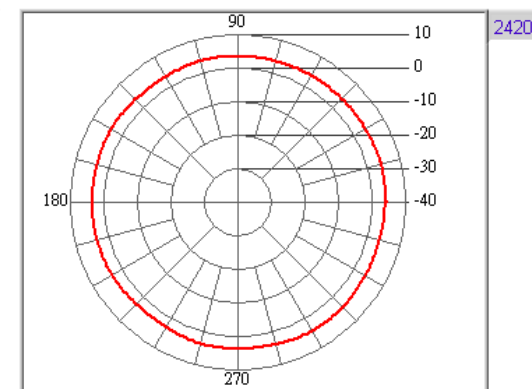
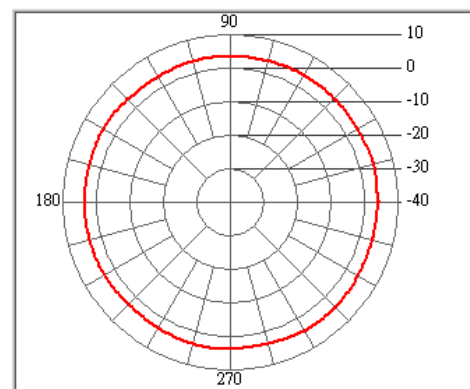
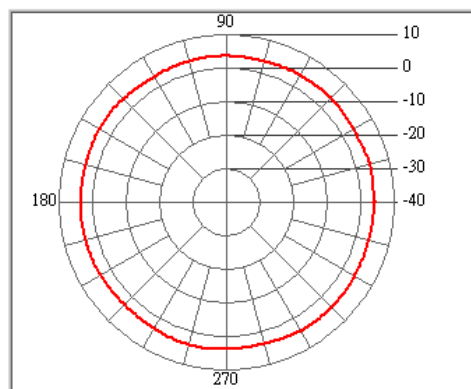
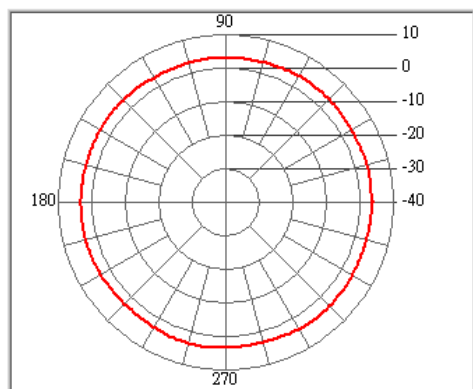
Time: **上午 09:01:59**

Temperatuer (°C): **25.00**

Humidity (%): **65.00**

Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	3.79	4.4	4.39	4.34	4.59	4.44	4.61	4.61	4.46	4.54	4.44	4.2
Peak Degree	312	14	14	14	302	0	0	0	0	0	0	291
AV Gain (dBi)	3.32	3.75	3.67	3.67	3.95	3.73	3.91	3.98	3.86	4.09	4	3.7





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广东省东莞市长安镇振安路沙头段咸西工业区

Mode: 2.4GHz Antenna
Remark: E-Plane\H-Pol

Tested by: CORTEC Antenna 3D Lab

Location: **Chamber**

Date: **2013/5/13**

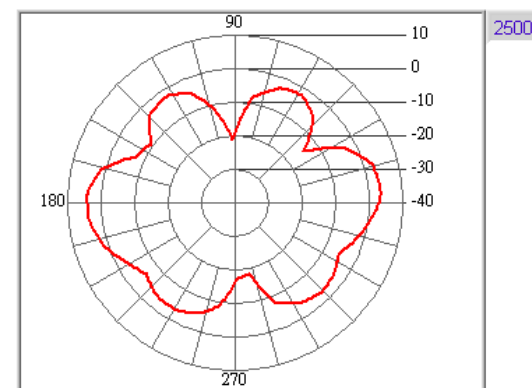
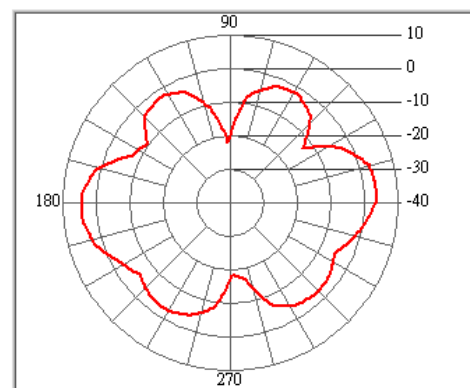
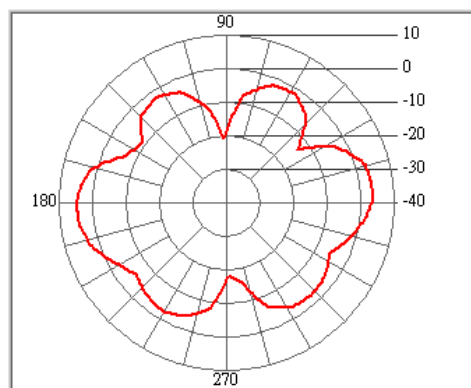
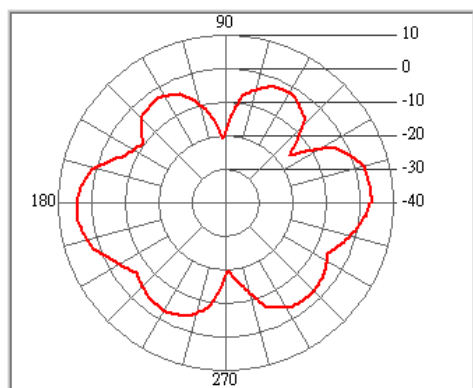
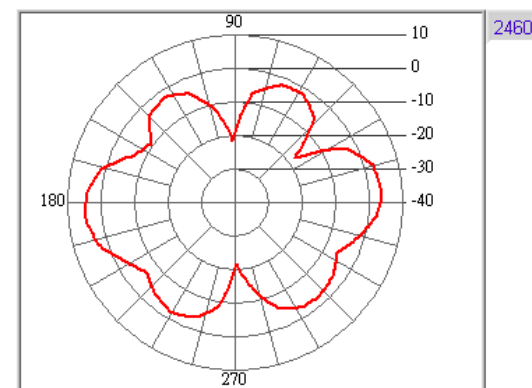
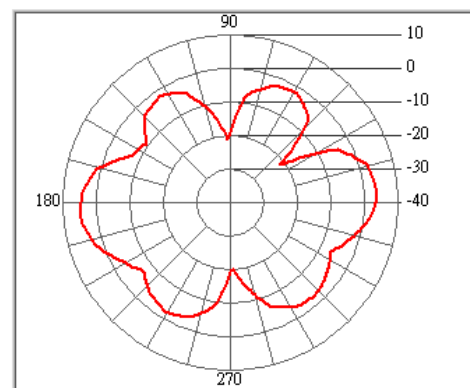
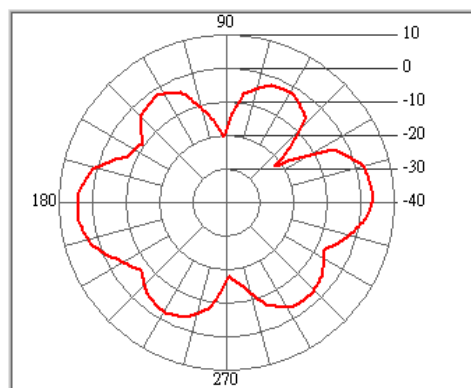
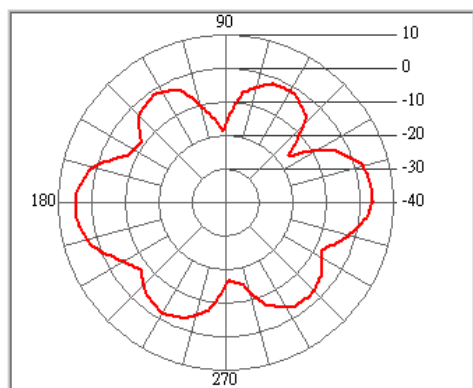
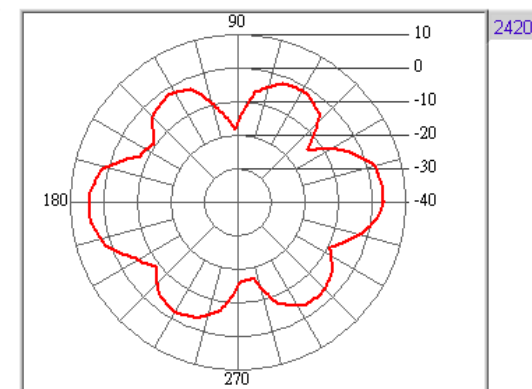
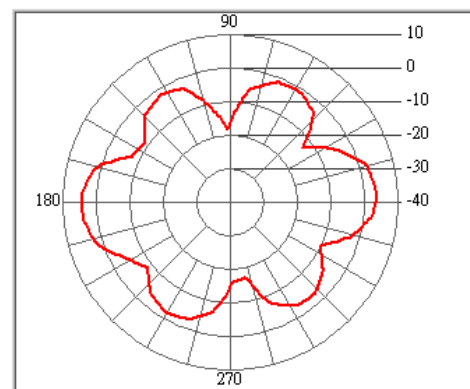
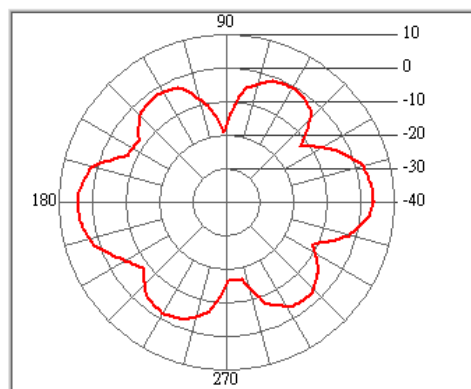
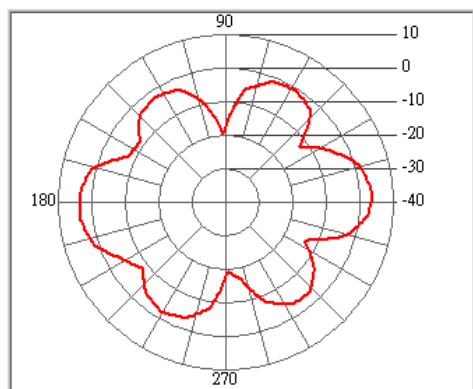
Time: **上午 09:08:56**

Temperatuer (°C): **25.00**

Humidity (%): **65.00**

Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	3.65	4.14	4.2	4.25	4.63	4.42	4.68	4.68	4.37	4.5	4.25	4.08
Peak Degree	4	177	177	186	186	186	187	187	187	186	177	177
AV Gain (dBi)	-2.26	-1.8	-1.98	-2.07	-1.76	-2.01	-1.88	-1.78	-1.96	-1.7	-1.83	-2.17

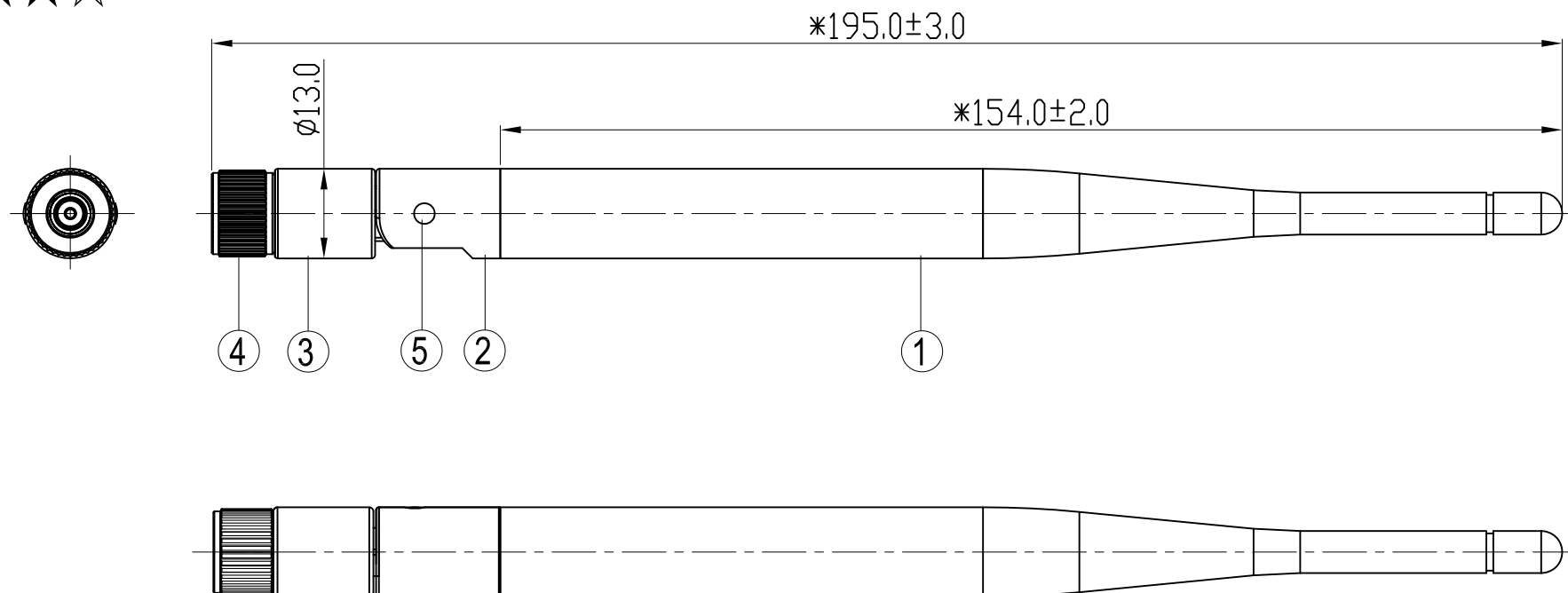


RoHS

Compatible



SIGN	DATE	DESCRIPTION	APPROVER
△			
△			
△			



Note:

- 1.Take " * "is the important dimension.
- 2.Tolerance:Unmarked tolerance refer to the standard tolerance please.

4	AN03-514PB	定位柱	POM	Ø2.35, 黑色	2
4	SMA207-CCT5AN19-B	SMA公頭公針	POM	黑色	1
3	AN0304-T06B	連接頭	ABS	黑色	1
2	AN9203-02B	連接筒	ABS	黑色	1
1	AN9201-04B	天線塑膠外套	TPEE	黑色	1
No.	Part Number	Description	Material	Finished	Q'ty

Invax System Group.			Cortec Technology Inc.		
Cortec			Http://www.invaxsystem.com E-mail:info@invax.com.tw		Tel :886-2-27885218 Fax:886-2-27831658
TITLE: 2.4GHz 5dBi Antenna					
PART NO.: AN2400-9298SM			CUSTOMER P/N: /		
APP BY	CHK BY	RF BY	DES BY		Tolerance
Grant 2013.10.11	Jack 2013.10.21		wangwei 2013.10.21	UNITS: mm	X.X ±0.3
			SCALE: 1/1	X.XX ±0.2	
			REVISION: A	X° ±1	

Date: 2013.10.21

Page: 1 of 1

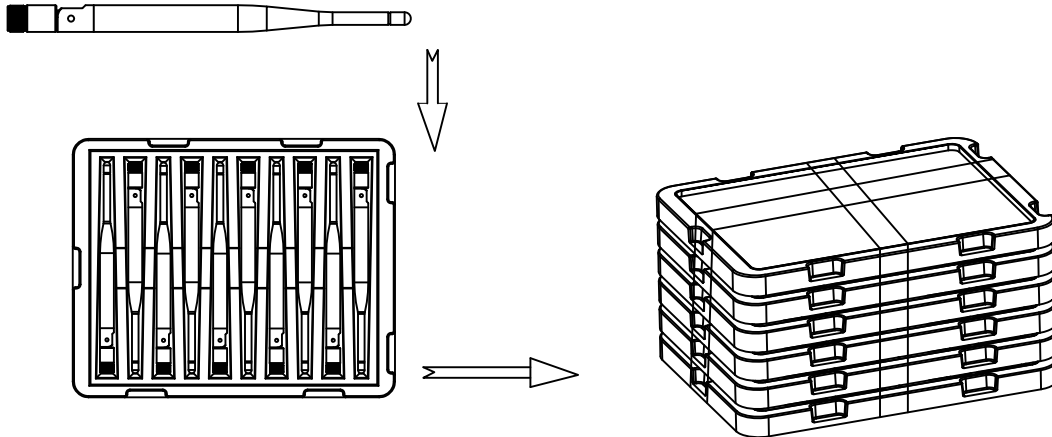
Part Number : AN2400-9298SM

Revision : A

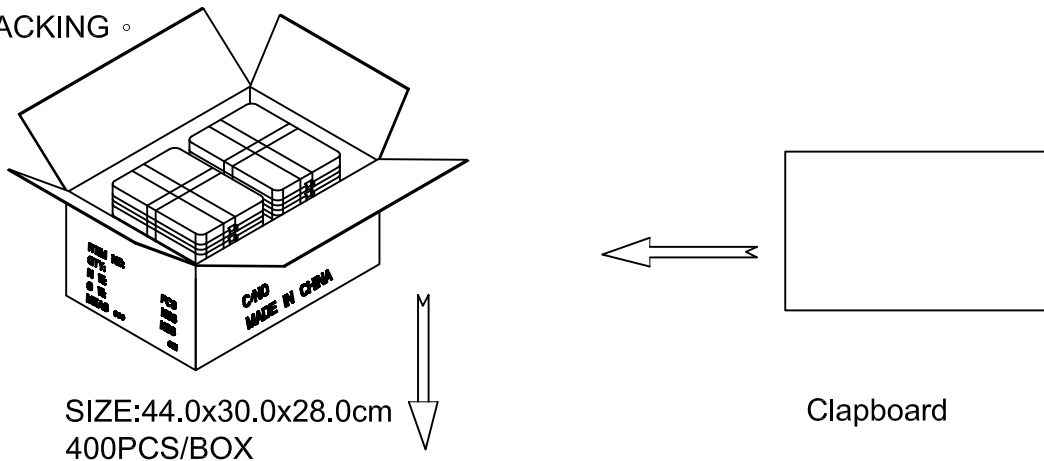
Name: 2.4GHz 5dBi Antenna

Customer : ALL

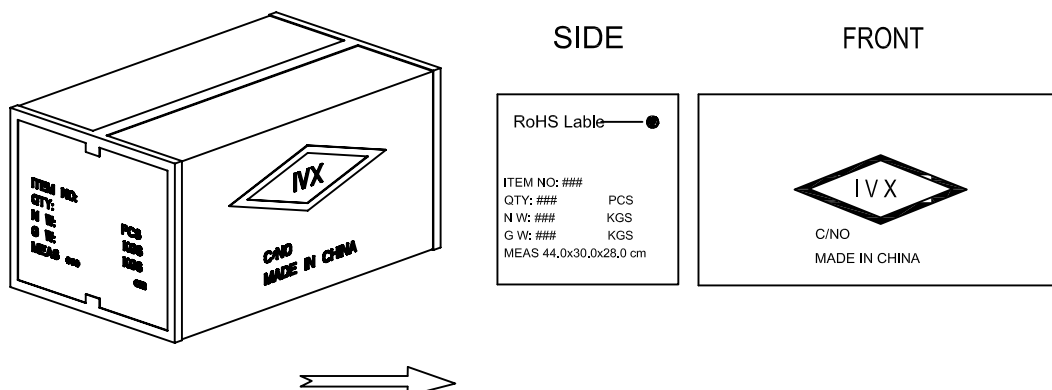
1.Enter the frame ◦



2.PACKING ◦



3. SEALING.

APPROVED BY : GrantCHECKED BY : JackDESIGNED BY : 王偉

SGS 台灣網站 → http://twap.sgs.com/sgsrsts/chn/cheres_tw.asp
 SGS 大陸網站 → http://rsts.cn.sgs.com/chn/cheres_cn.asp
 SGS 韓國網站 → http://rohs.kr.sgs.com/sgsrsts/en/cheres_en.asp

COR/F-G-47a

請輸入以下報告正確資料及檢查碼以便查核

1. 報告編號
2. 報告日期 (YYYY/MM/DD)
3. 產品名稱 (輸入前 10 個字不含空白)
4. 圖示檢查碼 (依指示畫面)



物料中HSF對象物質含量調查表

康捷電子有限公司	
填表：	時麗
部門：	研發部
職務：	文員

物料名稱：AN2400-9298SM

序號	物料型號	物料各構成名稱	各構成物料 的材質	測試報告裡RoHS對應物質測試結果						檢測報告編號	測試日期	測試名稱	測試機構名稱
				Cd	Pb	Hg	Cr(VI)	PBBs	PBDEs				
1	AN9201-04B AN9203-02B AN0304-T06B	Body1	TPEE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	CE201343303	2013.04.22	THERMOPLASTIC	SGS
2		Body2 Body3	ABS	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	KA/2012/C1575	2013.01.02	ACRYLONITRILE	SGS
3	AN03-514PB	Pin	POM	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	CANEC1302200001	2013.03.01	POM	SGS
4	R-RG-178U	Cable	FEP	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	RHS05F011891001E	2013.08.26	电线电缆料	CTI
5			PTFE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	RHS05F011891002E	2013.08.26	电线电缆料	CTI
6			鍍銀銅	N.D.	N.D.	N.D.	Negative	N.D.	N.D.	RHS05F011891004E	2013.08.26	电线电缆料	CTI
7	R-AN65-25	Plug	PE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	RHS01F007187001	2013.07.12	HDPE/XLPE/FPE	CTI
8	R-AN1901-05	Tube	CU	N.D.	14	N.D.	Negative	N.D.	N.D.	CANML1216541101	2012.12.05	C2700	SGS
9	AN1922-SPRING	Spring	CU	66	31000	N.D.	Negative			CE201314616	2013.01.28	FREECUTTINGBRASSBAR	SGS
10	R-HSTUBE-006N-1	HSTUBE	EVA	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	CANEC1303661001	2013.03.28	HEAT SHRINKABLE	SGS
11	SMA306-CPR5A03-H	SMA Male	CU	66	31000	N.D.	Negative			CE201314616	2013.01.28	FREECUTTINGBRASSBAR	SGS
12			POM	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	CANEC1302200001	2013.03.01	POM	SGS
13	R-AN5225013-Z	Tube	鋅合金	N.D.	15	N.D.	Negative	N.D.	N.D.	A001R121106068001-1	2012.11.09	鋅合金錠	AOV

根據測試報告如實填寫鉛、鎘、汞、六價鉻、PBBs和PBDEs六項禁用物質的含量

包裝材料中鉛、鎘、汞、六價鉻總含量不超過100ppm，鎘的允許濃度為5ppm

歐盟ROHS指令豁免條款2009/95/BC、鋼中合金元素中的鉛含量達0.35%、鉛含量達0.4%、銅合金中的鉛含量達4%