

DATE : SEP.20.2006

CUSTOMER: Uniwill Computer, INC

# APPROVAL SHEET

<b>MODEL</b>	<b>L51-LEFT ANTENNA</b>
<b>DESCRIPTION</b>	<b>PIFA For Wireless LAN Antenna 2.4~2.5GHZ /4.9~5.875GHZ</b>
<b>SUPPLIER P/N</b>	<b>K05008003651</b>
<b>CUSTOMER P/N</b>	<b>22G600820-00</b>
<b>FILE P/N</b>	

<b>FAVORTRON</b>			<b>Customer</b>	
<b>Manager</b>	<b>Supervisor</b>	<b>Engineer</b>		
Nick	Lun	Kristy		

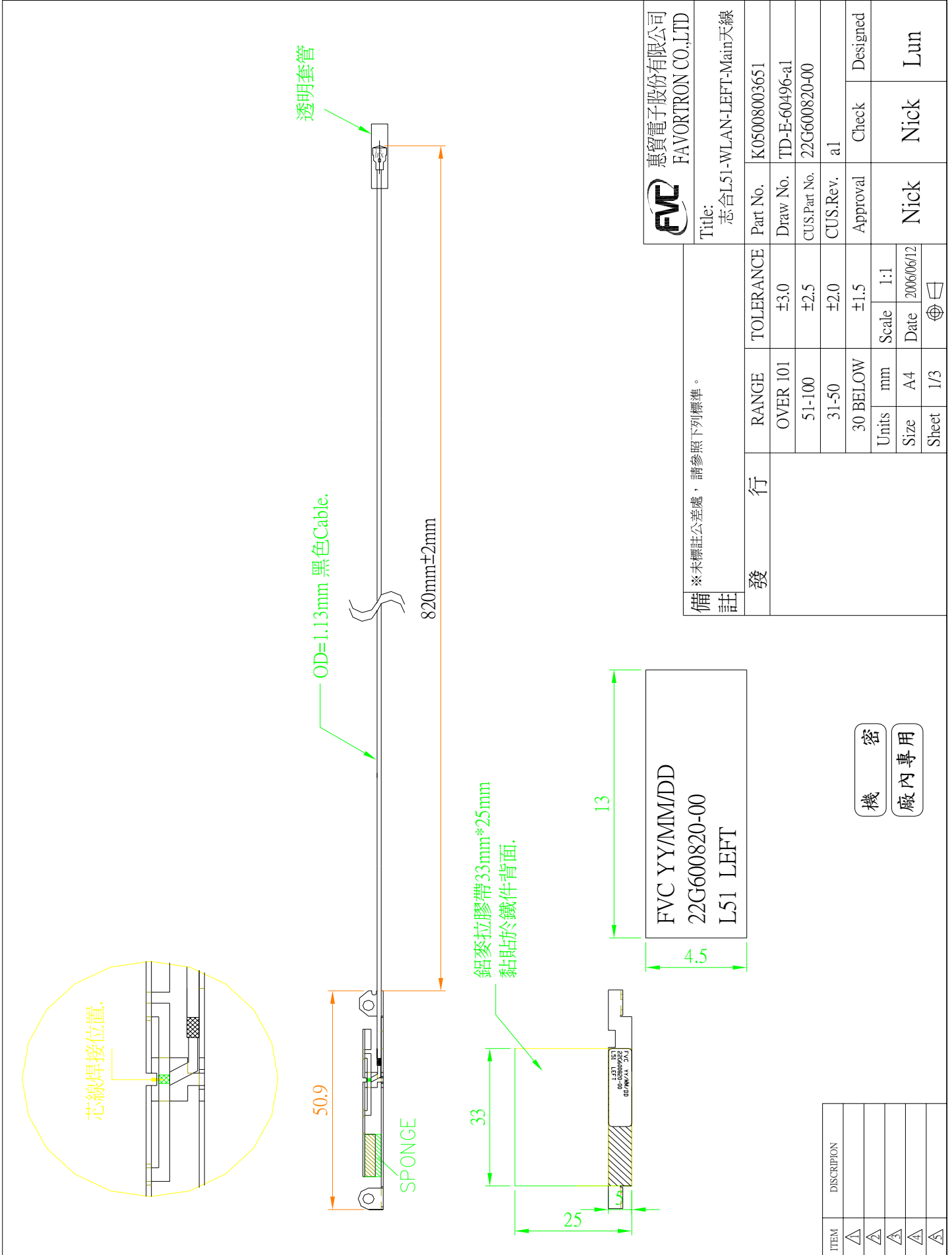


**惠貿電子股份有限公司**  
**FAVORTRON CO., LTD**

台北縣新店市 231 民權路 108-1 號 4F TEL: (02) 2218-2189

CUSTOMER P/N		22G600820-00 (L51-LEFT)		材料具體型號 or 系列型號
項次	類別	內容	UL / SGS	
1	DRAWING			
		ASSEMBLY		
		BOM		
		鐵件圖面&測試方法		
2	WLAN Ant./In Notebook (LCD-LEFT ANT.)			
		2.4~2.5GHz / Return Loss & VSWR……		
		5.15~5.85 GHz / Return Loss & VSWR		
		2.4~2.5 & 5.15~5.85 GHz / Return Loss & VSWR		
3	Gain&PATT			
4	SPECIFICATIONS			
		1. Electrical Properties		
		2. Coaxial Cable Specification	SPH-3-0805A	
		3. Coaxial Cable UL	E81015	UL 1354 RF 1.13
		4. I-PEX Connector		
		5. I-PEX Connector UL	E213445	
		6. I-PEX Connector 拉力測試報告		
		7. Sponge Specification	3G-1672	
		8. Sponge UL	E66114(S)	
		9. G9000-SY UL	MH15431	
		10. 鋁箔麥拉 Specification		
		11. 鋁箔麥拉 UL	E86511	
		12. 鋁箔麥拉背膠 UL	MH15003	型號: TT219
		13. PIFA Specification	283383	
		14. IN HOUSE TEST		
5	天線材料名稱內容	SGS REPORT NO		
	IPEX 端子 (接頭 MHF PLUG)	CONTACT	CE/2005/96053	1845-011
		HOUSING	CE/2005/96055	1844-011
	CABLE (黑色) OD = 1.13	導體	2070181/EC	
		絕緣層	SH6044950/CHEM	
		線材外被色母	2070608/EC	
			NT06080073-7	
	無鉛錫	SH546665-1/CHEM		
	鐵件	CE/2005/95879A		
	SPONGE	CE/2004/93871		
	G9000-SY	CE/2005/90196		
	透明套管 (TUBE)	GZ0602016707/CHEM		
	鋁箔麥拉	CE/2004/92965		
	白色標籤	SH6013297/CHEM	型號: AW3209	
	白色標籤 (碳帶)	CE/2005/B2096B	型號: RA6902	

# 1. DRAWING ASSEMBLY



# BOM

## BOM

ITEM	COMPONENT	Q'TY	DESCRIPTION	FAVORTRON P/N	VENDER
1	PIFA ANTENNA	1	志合M50-PIFA-LEFT	M02007009001	品欣
2	同軸線	1	φ 1.13 黑色 * 843mm 單邊加PEX Connector	G04007210001	FVC
3	SPONGE	1	8mm * 3mm * t=3.5mm	M01009001002	東鋒
4	透明套管	1	OD2.5*20mm(透明)內徑3.1±0.2壁厚0.25±0.1	B02009714999	三聯
5	鋁麥拉膠帶	1	33mm*25mm t=0.1(鋁箔面背導電膠33mm*5mm)	M01005001002	隆揚
6	LABEL	1	4.5x13mm 白色	G01013007001	亞識
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

## SUB BOM (G04007210001)

ITEM	COMPONENT	Q'TY	DESCRIPTION	FVC P/N	VENDER
1	Connector	1	接頭MHF PLUG(I-PEX) OD=φ1.13	L07001001001	I-PEX
2	同軸線	1	同軸線φ1.13 * 842(黑色)鍍錫線/整卷	M04005009001	日立信電

 惠貿電子股份有限公司  
FAVORTRON CO.,LTD

Title:

志合L51-WLAN-LEFT-MAIN天線

Part No. K05008003651

Draw No. TD-E-60496-a1

CUS.Part No. 22G600820-00

CUS.Rev. a1

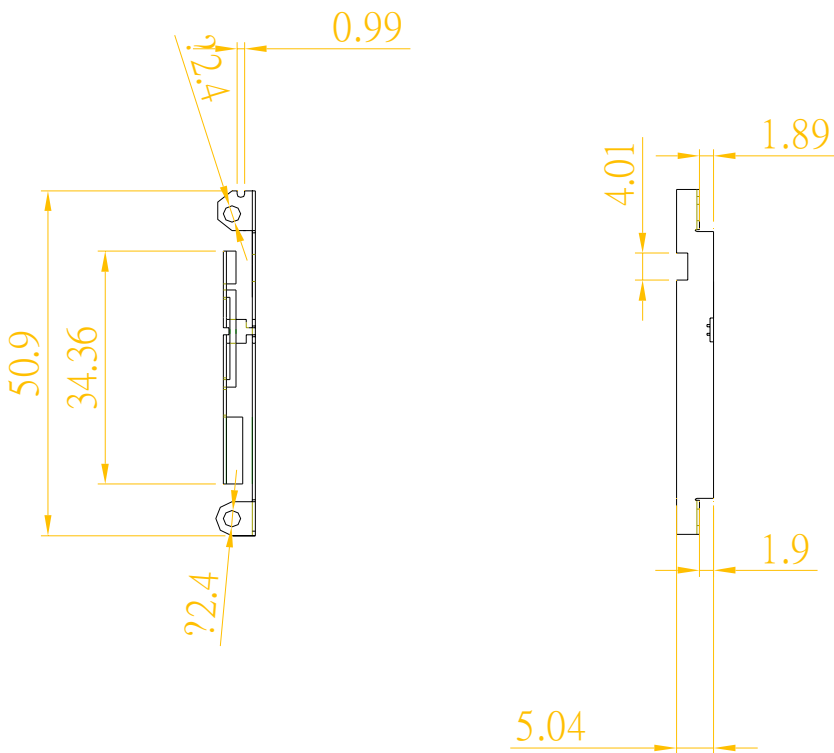
Approval Check Designed

Nick Nick Lun

發行備註

Date 2006/06/12 Sheet 2/3

機密  
廠內專用



Remark

1. MATERIAL:馬口鐵 H
2. L = 0.4mm± 0.05
3. 表面不得有毛邊
4. 外觀不得有壓傷油污卸傷手紋
5. 未標註公差範圍者請詳公差欄標示值。



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TITLE:

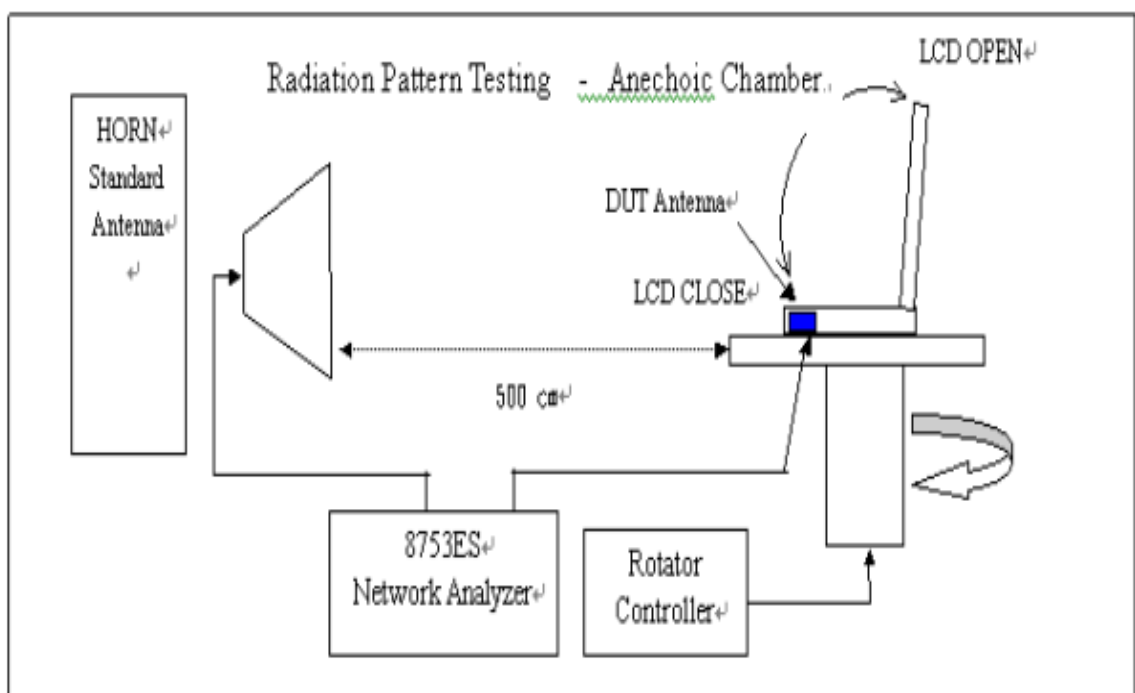
志合L50-LEFT 天線

※未標註公差處，請參照下列標準。

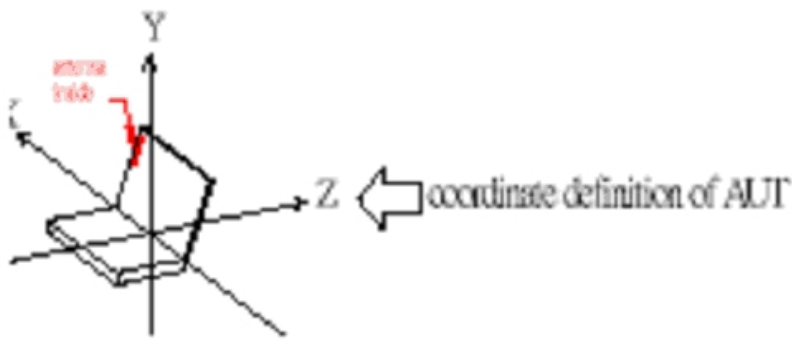
發 行		RANGE	TOLERANCE	Rev.		Scale		PAGE	
		Over 101	±1.5	A0		1:1			
		51-100	±1.0						
		31-50	±0.3						
		30 Below	±0.2						
Units	MM								
Size	A4								
Sheet									

PART NO.	K05008001501
DRAW NO.	TD-E-51246-A1
Customer No.	22G600650-00
Customer REV.	A1
APPROVAL	CHECKED DRAWED
Nick	Nick Lun

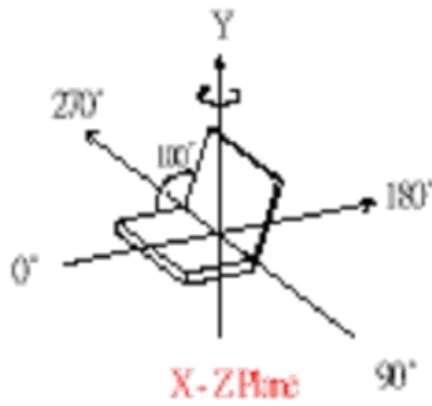
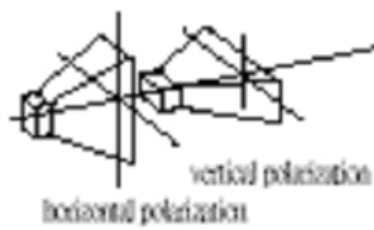
## 天線測試方法



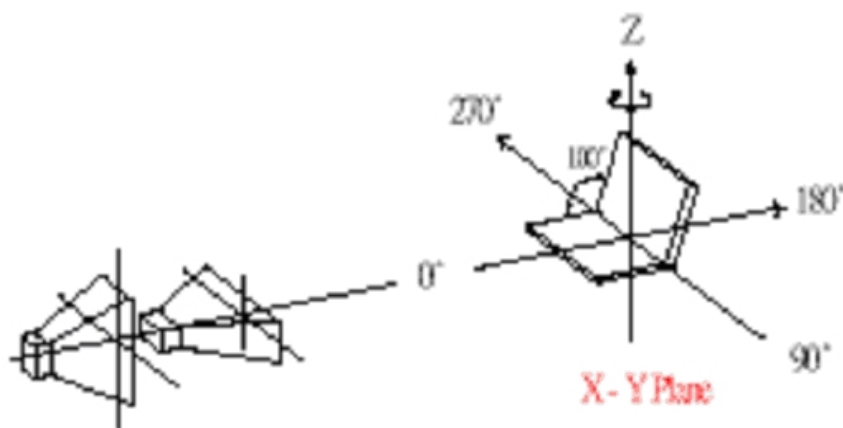
## Coordinate Definition



**KORNANTENNA**



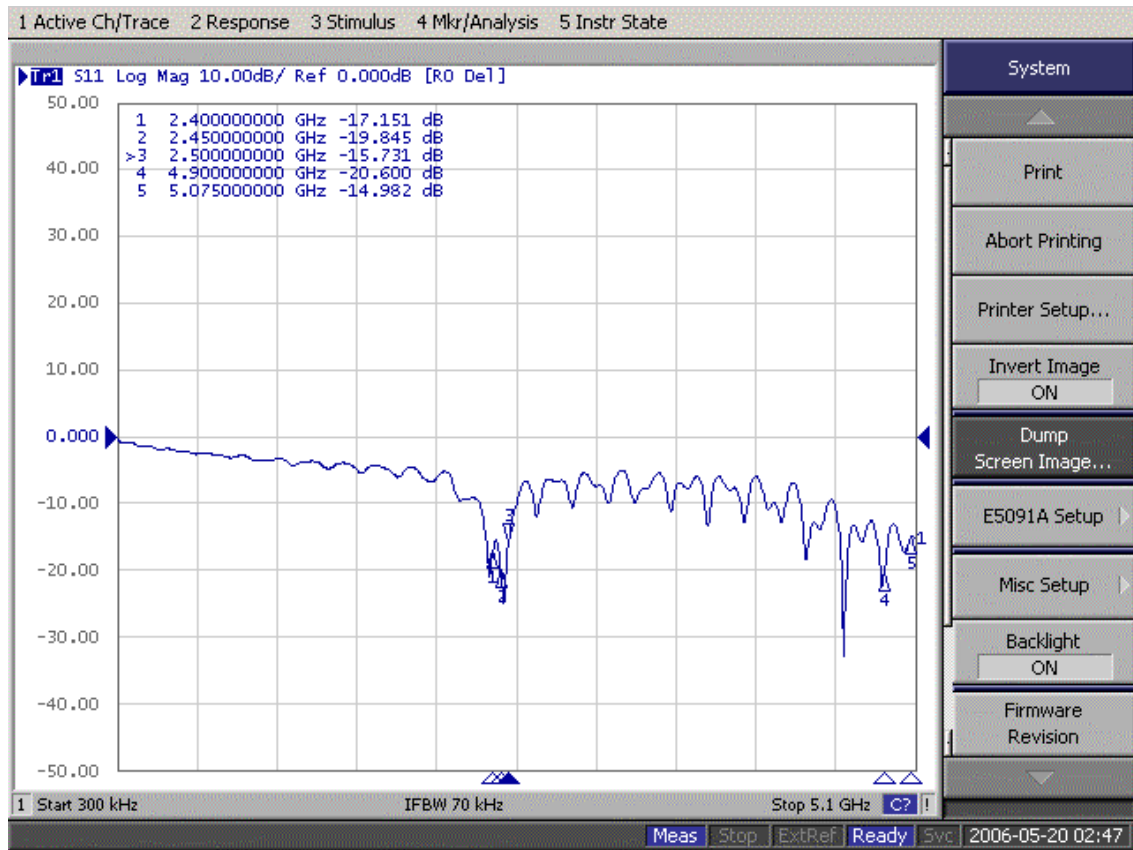
**X-Z Plane**



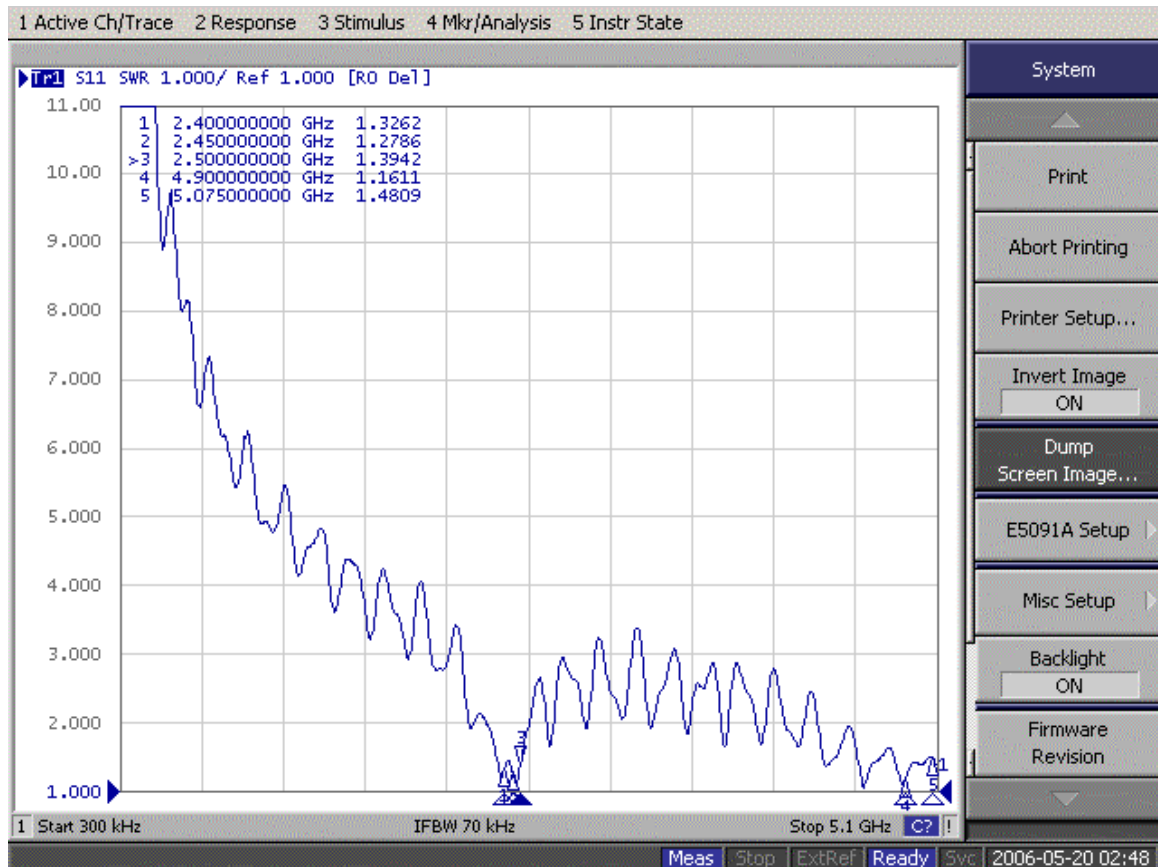
**X-Y Plane**

## 2. WLAN Ant./In Notebook (LCD-LEFT ANT.)

2.4~2.5GHz & 4.9~5.075GHz / Return Loss

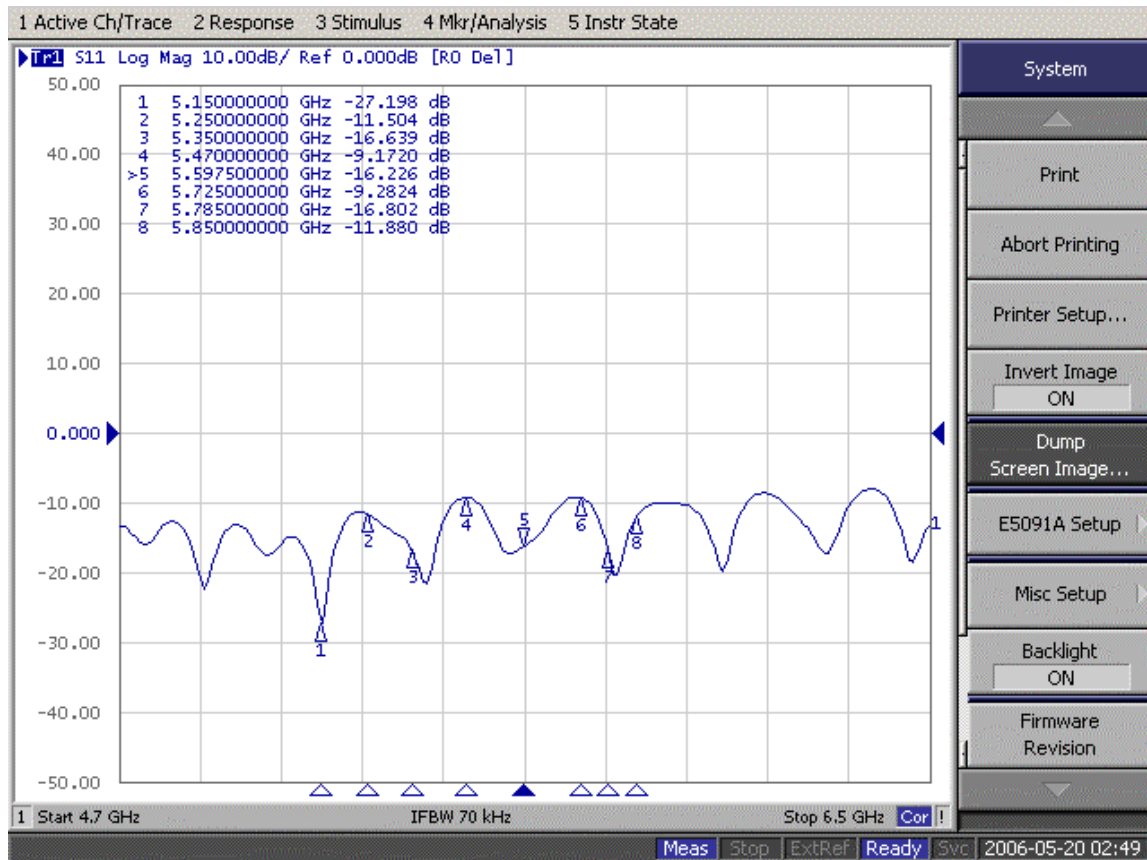


2.4~2.5GHz & 4.9~5.075GHz / Vswr

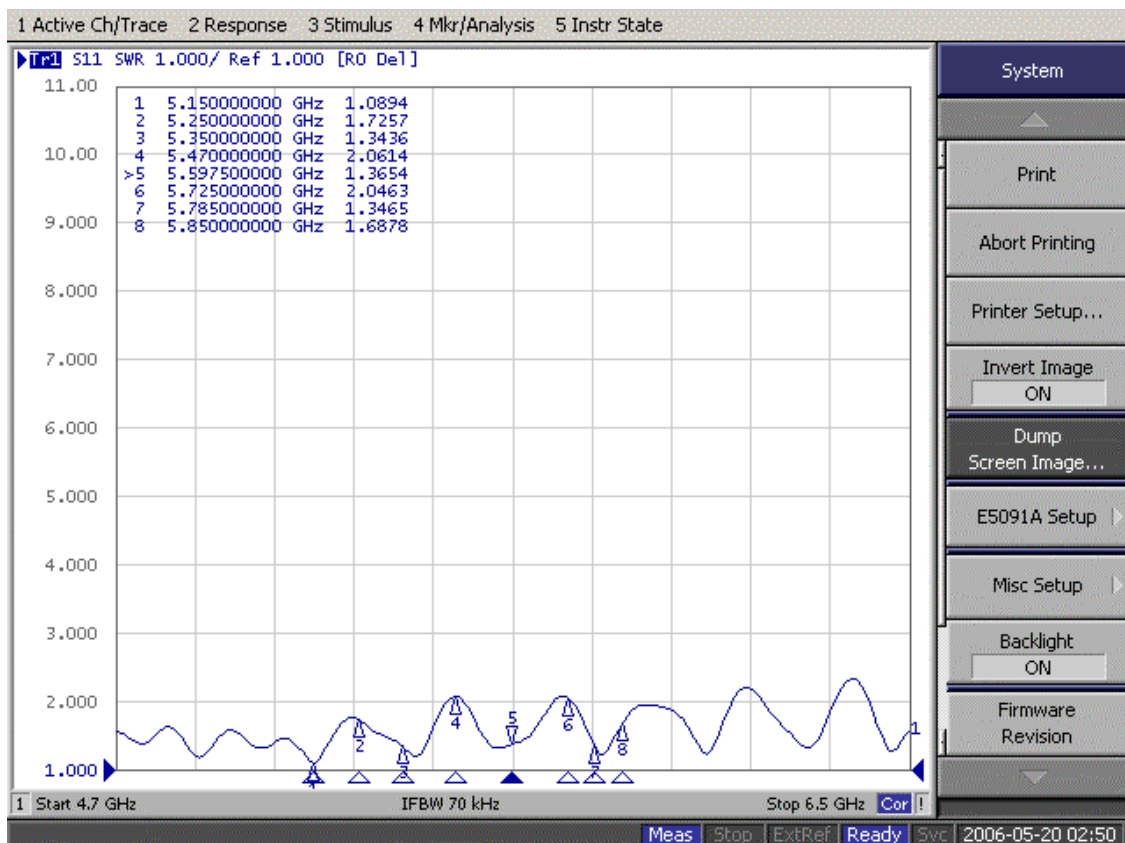




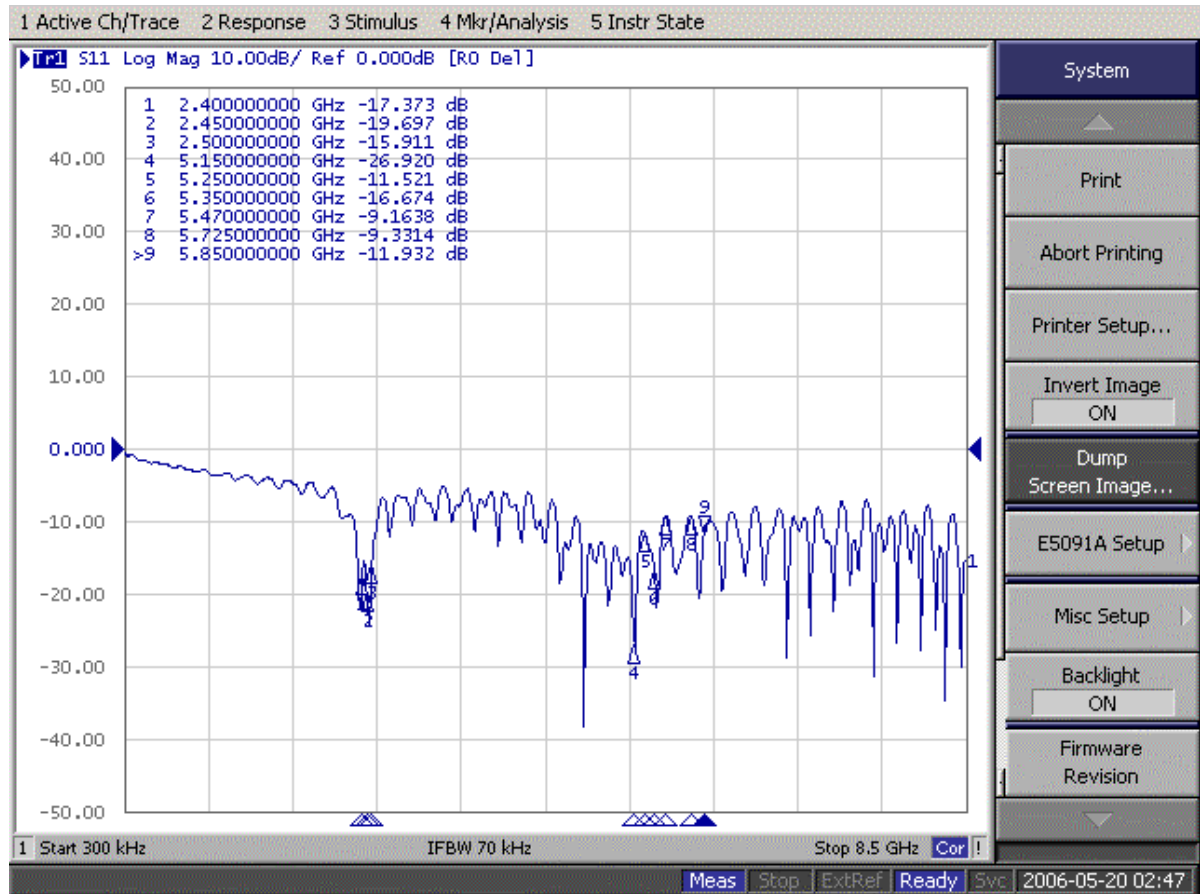
## 5.15~5.85 GHz / Return Loss



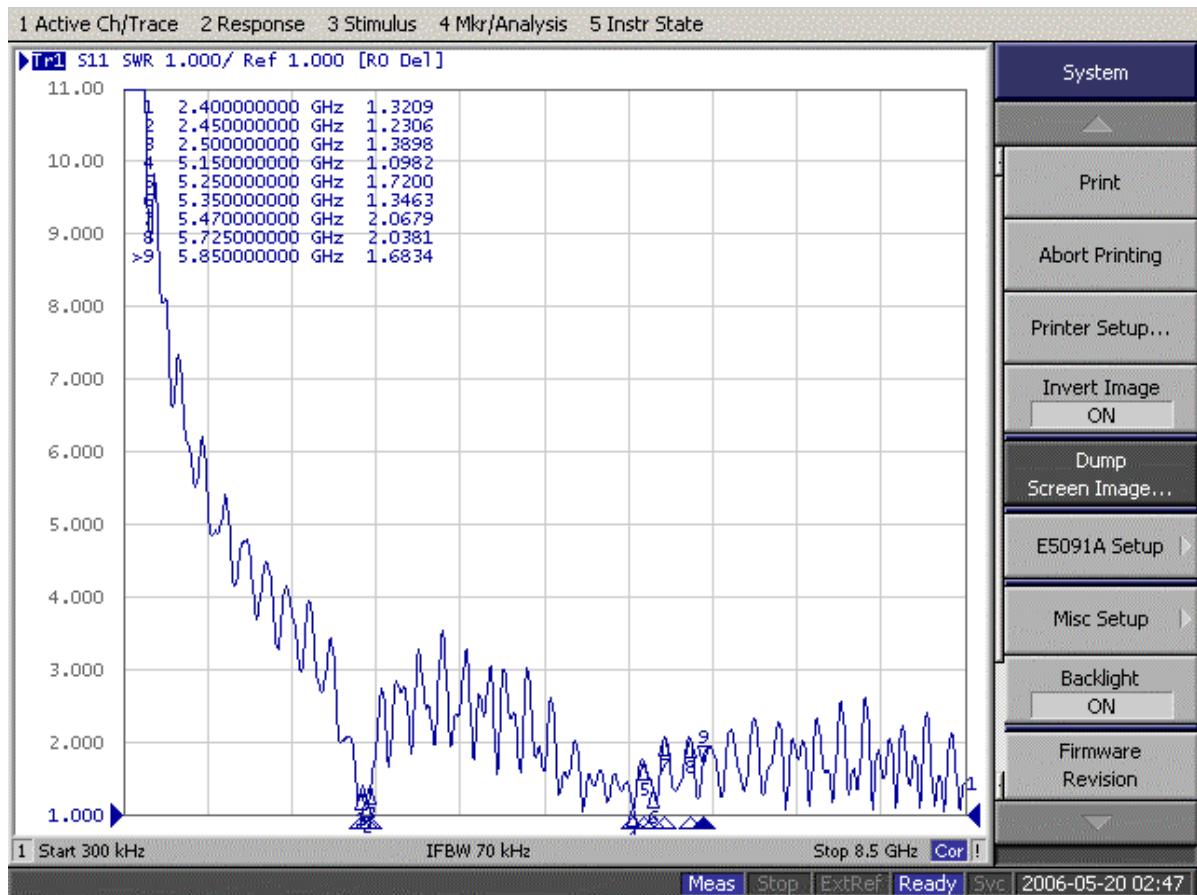
## 5.15~5.85 GHz / Vswr



## 2.4~2.5 & 5.15~5.85 GHz / Return Loss



## 2.4~2.5 & 5.15~5.85 GHz / Vswr



### 3. Gain&PATTERN-WLAN ANT./In Notebook

#### LCD- LEFT ANT.

#### a. 2.4GHz



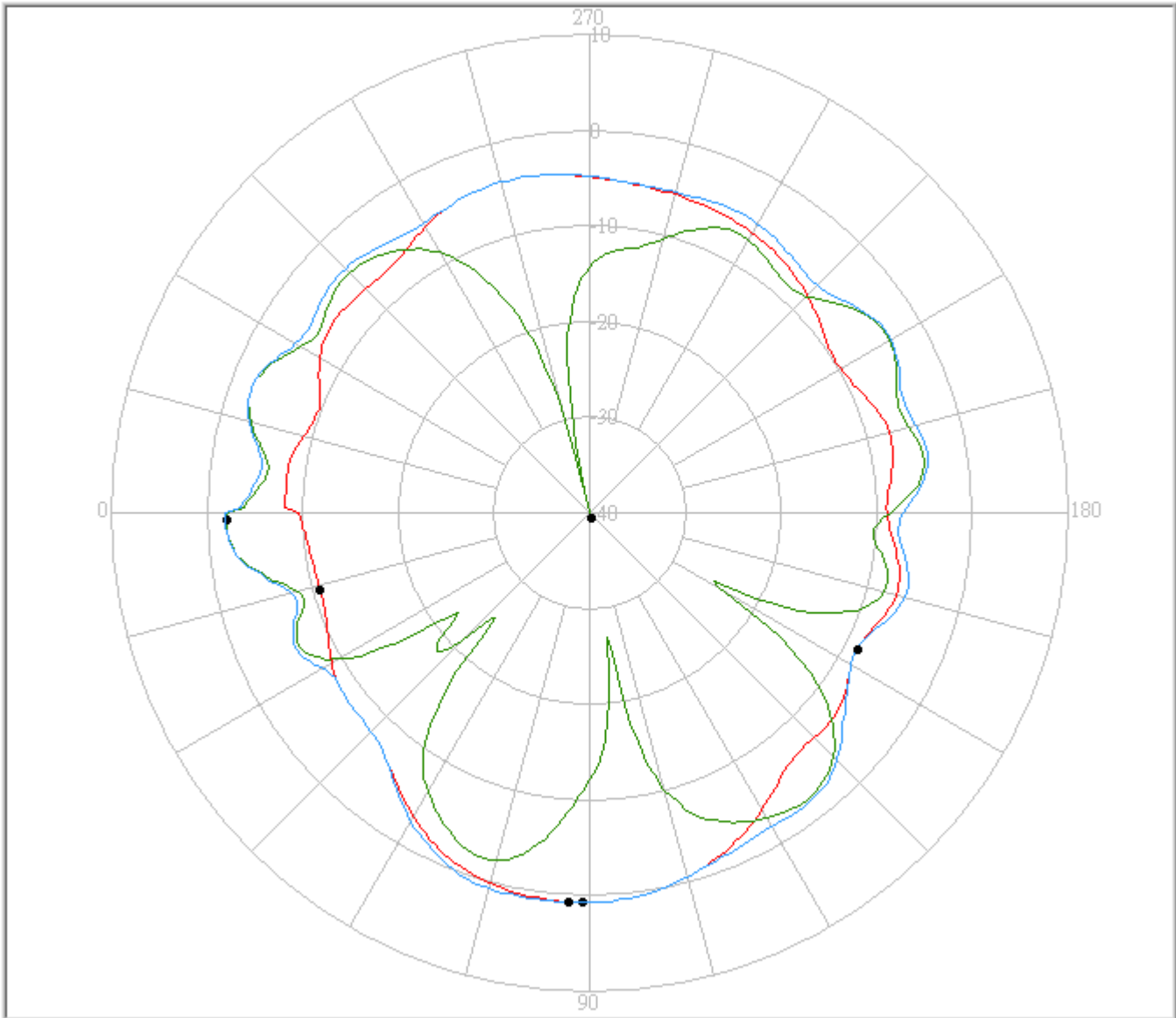
eService for Customer Satisfaction

**FAVORTRON**

**FAVORTRON Co. Ltd**

**Antenna Pattern Measurement**

4F, No. 108-1, Min Chuan Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C. Tel:886-2-2218-2189,  
Fax:886-2-2218-5760



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	2400.00	0.74 / 89.00	-10.72 / 16.00	-5.01	Ver.	2006/5/19
2	L51	LEFT	2400.00	-2.00 / 1.00	-40.54 / 283.00	-6.51	Hor.	2006/5/19
3	L51	LEFT	2400.00	0.76 / 87.00	-8.64 / 153.00	-3.66	V+H	2006/5/19

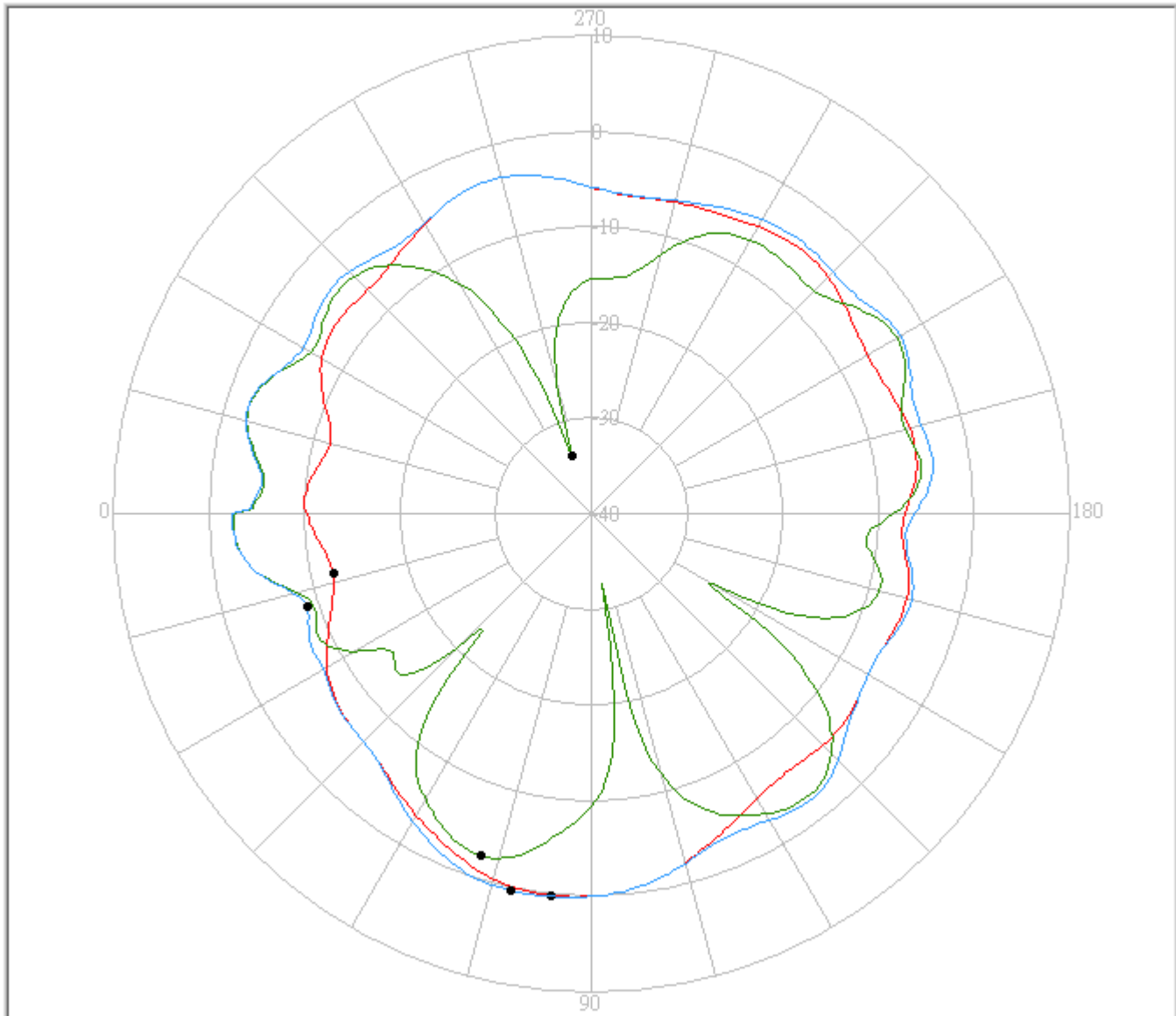
## b. 2.45GHz



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Fax:886-2-2218-5760



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	2450.00	0.11 / 84.00	-12.31 / 13.00	-5.06	Ver.	2006/5/19
2	L51	LEFT	2450.00	-2.40 / 72.00	-33.73 / 288.00	-6.70	Hor.	2006/5/19
3	L51	LEFT	2450.00	0.29 / 78.00	-8.77 / 18.00	-3.80	V+H	2006/5/19

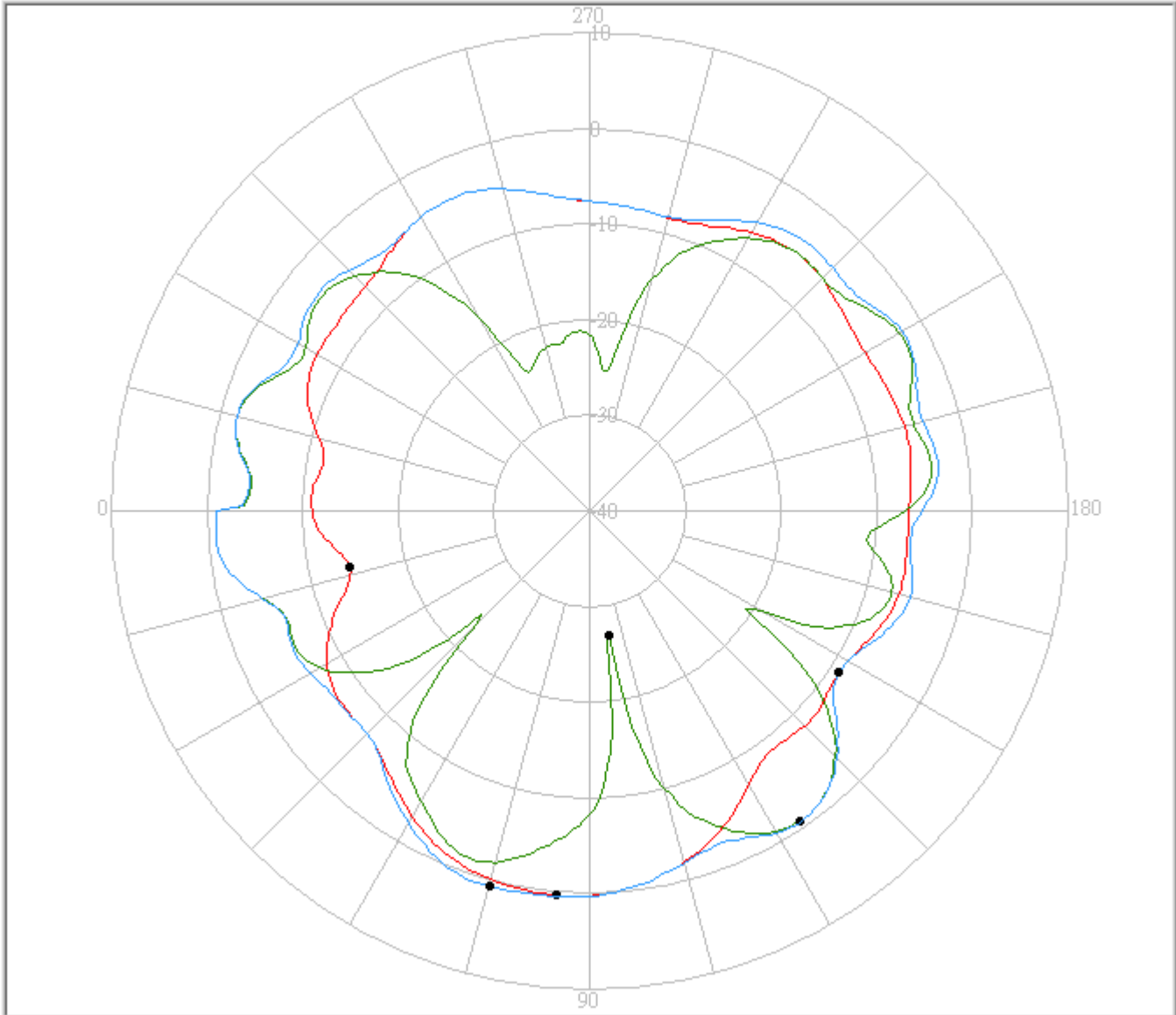
c. 2.5GHz



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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	2500.00	0.31 / 85.00	-14.25 / 13.00	-5.37	Ver.	2006/5/19
2	L51	LEFT	2500.00	-0.83 / 124.00	-26.90 / 99.00	-5.65	Hor.	2006/5/19
3	L51	LEFT	2500.00	0.66 / 75.00	-8.99 / 147.00	-3.47	V+H	2006/5/19

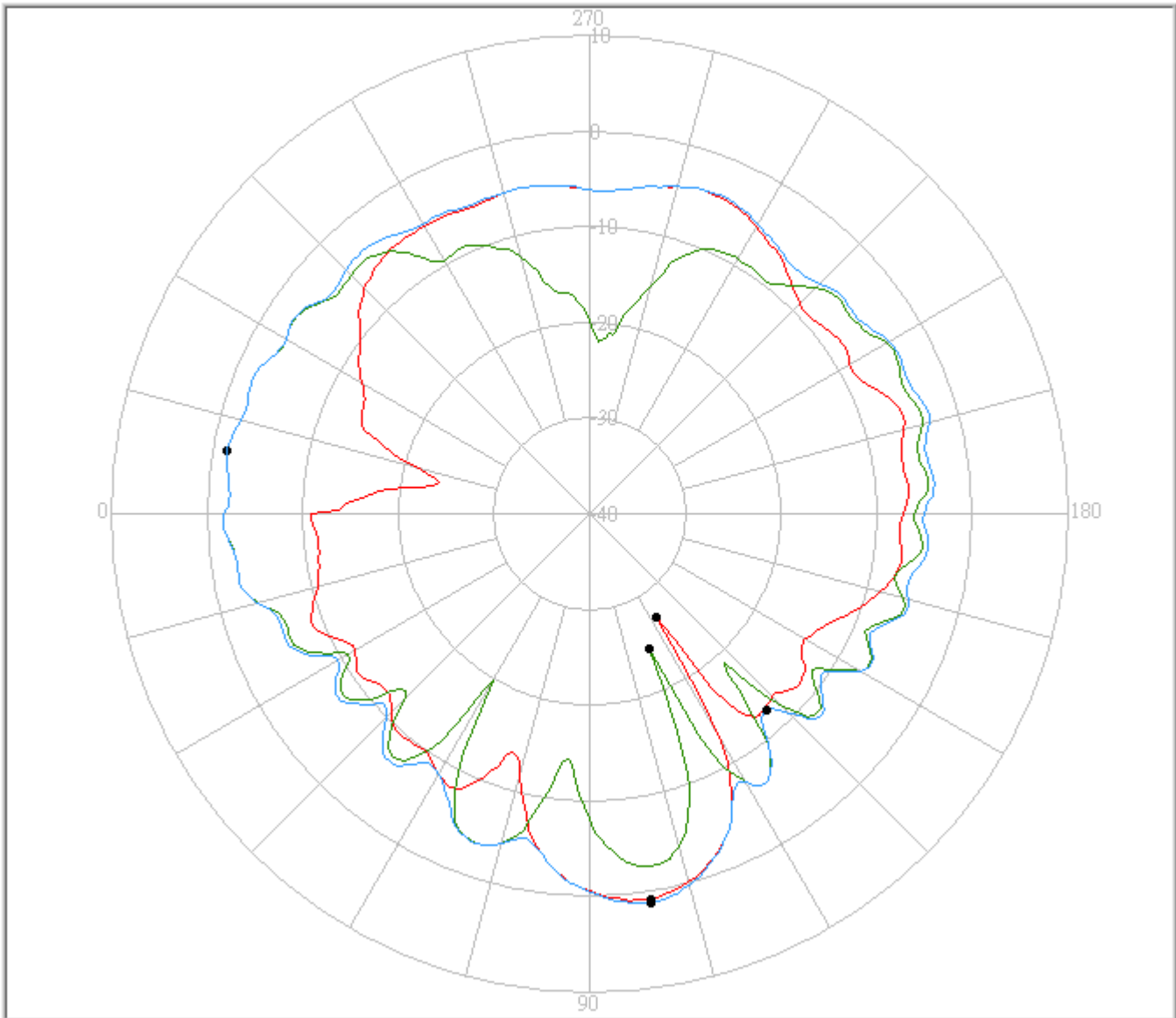
## d. 4.9GHz



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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	4900.00	0.71 / 99.00	-27.19 / 123.00	-6.62	Ver.	2006/5/19
2	L51	LEFT	4900.00	-1.53 / 350.00	-24.54 / 114.00	-6.13	Hor.	2006/5/19
3	L51	LEFT	4900.00	1.12 / 99.00	-12.44 / 132.00	-4.26	V+H	2006/5/19

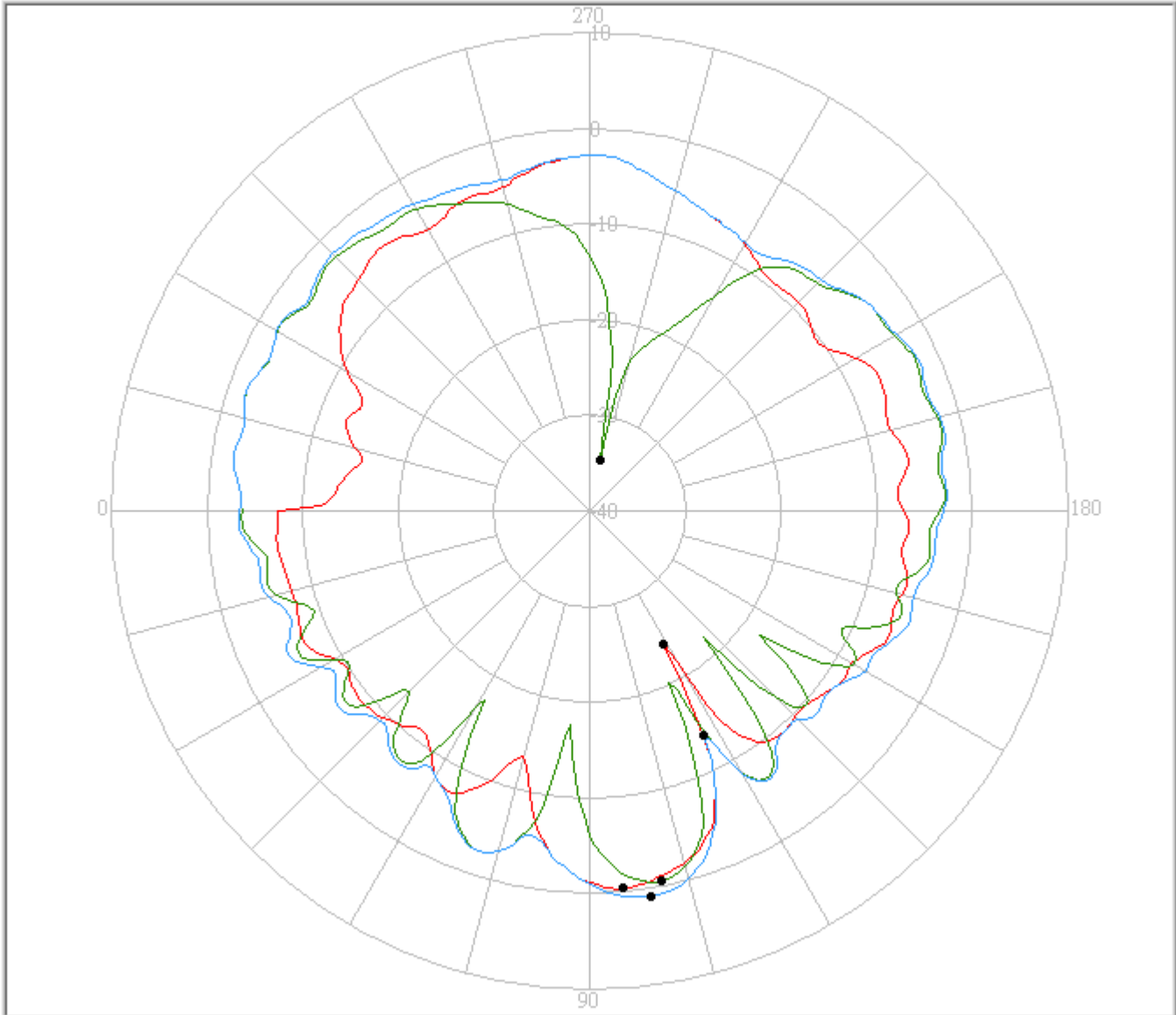
e. 5.075GHz



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## Antenna Pattern Measurement

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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5075.00	-0.39 / 95.00	-24.05 / 119.00	-6.48	Ver.	2006/5/19
2	L51	LEFT	5075.00	-0.63 / 101.00	-34.57 / 259.00	-5.38	Hor.	2006/5/19
3	L51	LEFT	5075.00	0.76 / 99.00	-13.72 / 117.00	-3.93	V+H	2006/5/19

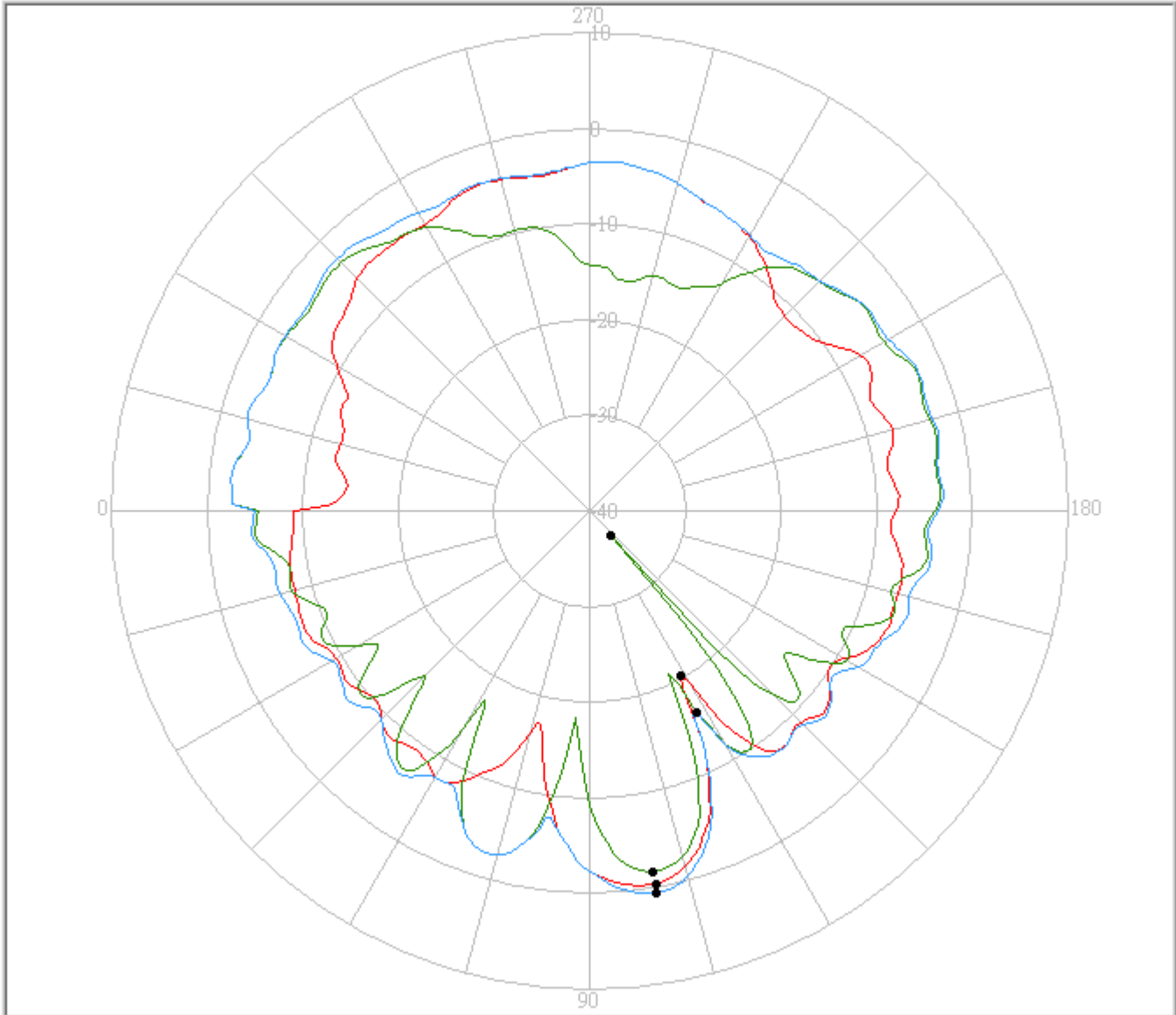
## f. 5.15GHz



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Fax:886-2-2218-5760



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5150.00	-0.45 / 100.00	-20.36 / 119.00	-6.73	Ver.	2006/5/19
2	L51	LEFT	5150.00	-1.65 / 100.00	-36.58 / 131.00	-6.21	Hor.	2006/5/19
3	L51	LEFT	5150.00	0.54 / 100.00	-16.17 / 118.00	-4.47	V+H	2006/5/19



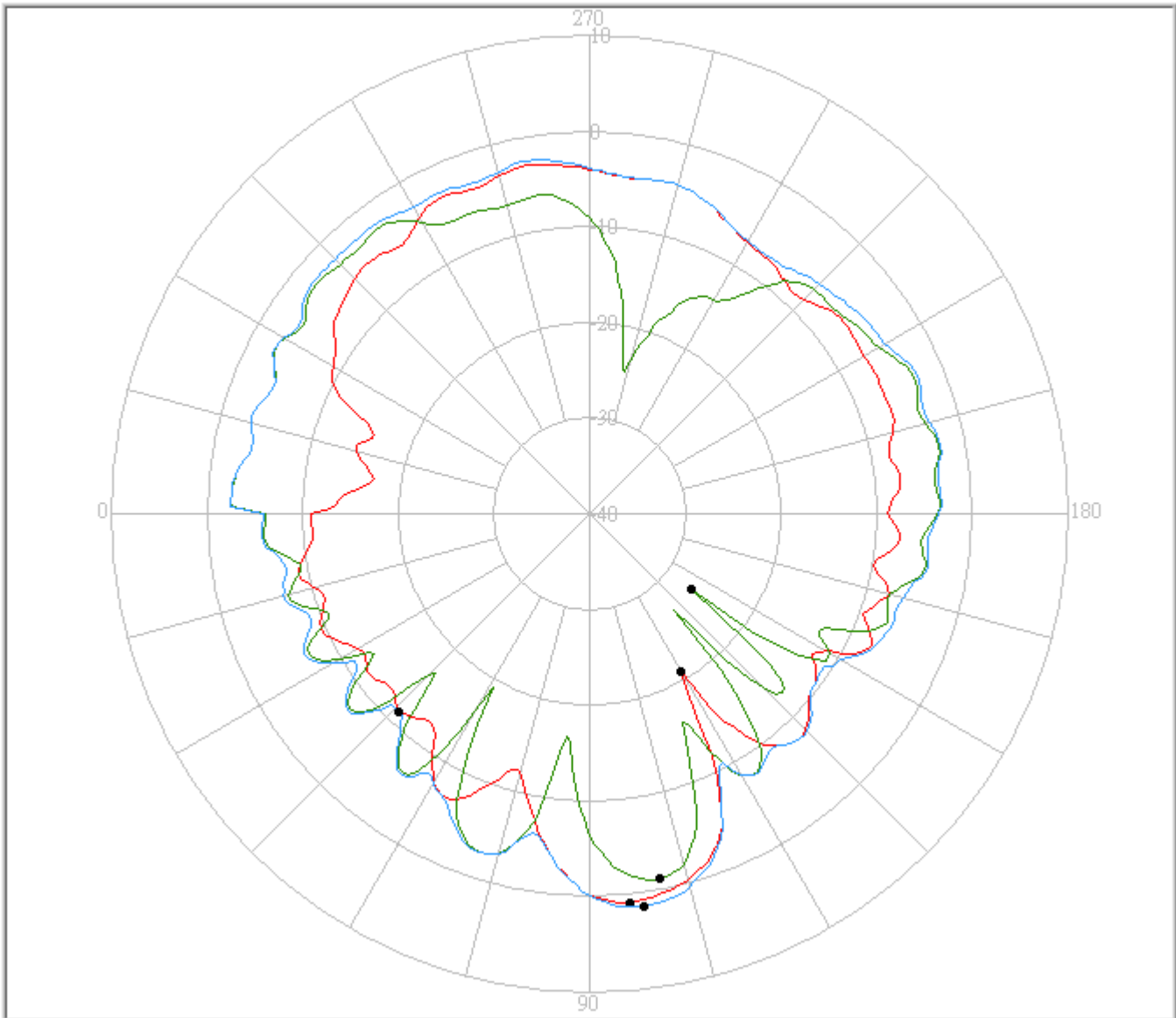
g. 5.25GHz



# FAVORTRON Co. Ltd

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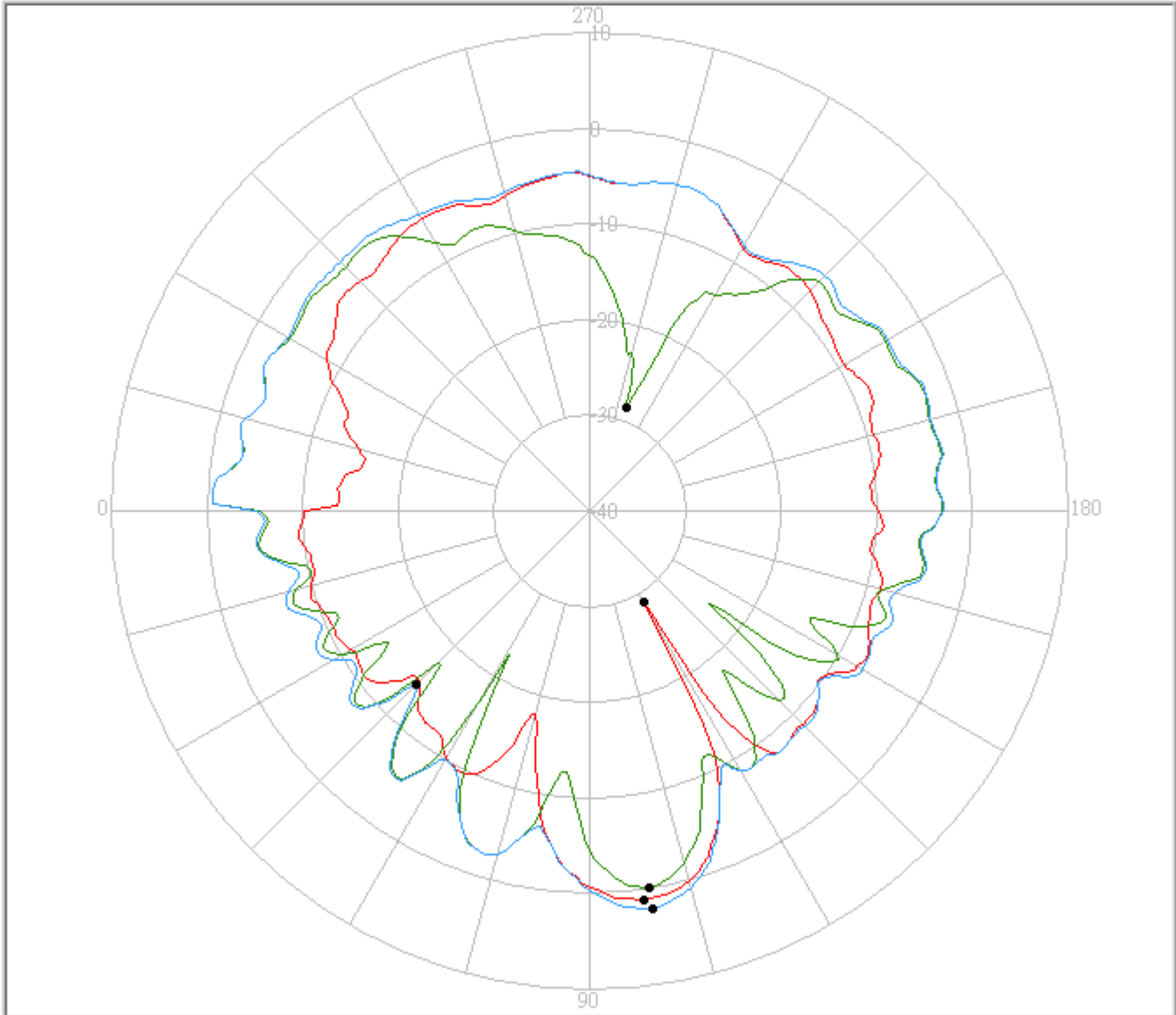
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5250.00	0.81 / 96.00	-20.99 / 120.00	-6.24	Ver.	2006/5/19
2	L51	LEFT	5250.00	-1.16 / 101.00	-26.81 / 143.00	-6.06	Hor.	2006/5/19
3	L51	LEFT	5250.00	1.43 / 98.00	-11.31 / 46.00	-4.20	V+H	2006/5/19

## h. 5.35GHz



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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5350.00	1.06 / 98.00	-28.94 / 121.00	-6.75	Ver.	2006/5/19
2	L51	LEFT	5350.00	-0.18 / 99.00	-28.55 / 250.00	-6.01	Hor.	2006/5/19
3	L51	LEFT	5350.00	2.02 / 99.00	-14.26 / 45.00	-4.35	V+H	2006/5/19

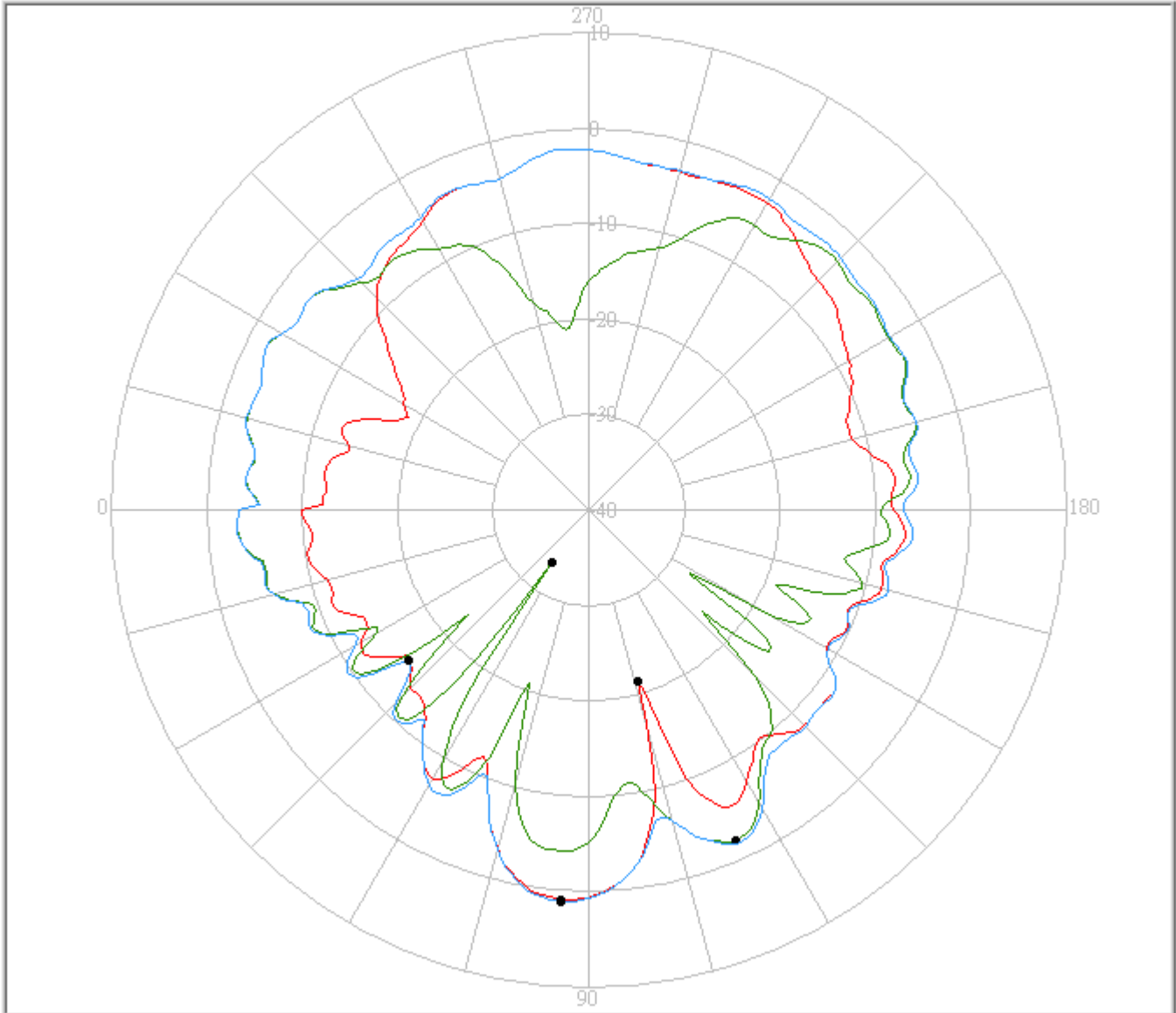
i. 5.47GHz



**FAVORTRON Co. Ltd**

**Antenna Pattern Measurement**

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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5470.00	0.93 / 86.00	-21.27 / 106.00	-6.16	Ver.	2006/5/19
2	L51	LEFT	5470.00	-2.10 / 114.00	-33.32 / 55.00	-6.70	Hor.	2006/5/19
3	L51	LEFT	5470.00	1.12 / 86.00	-15.38 / 40.00	-4.27	V+H	2006/5/19

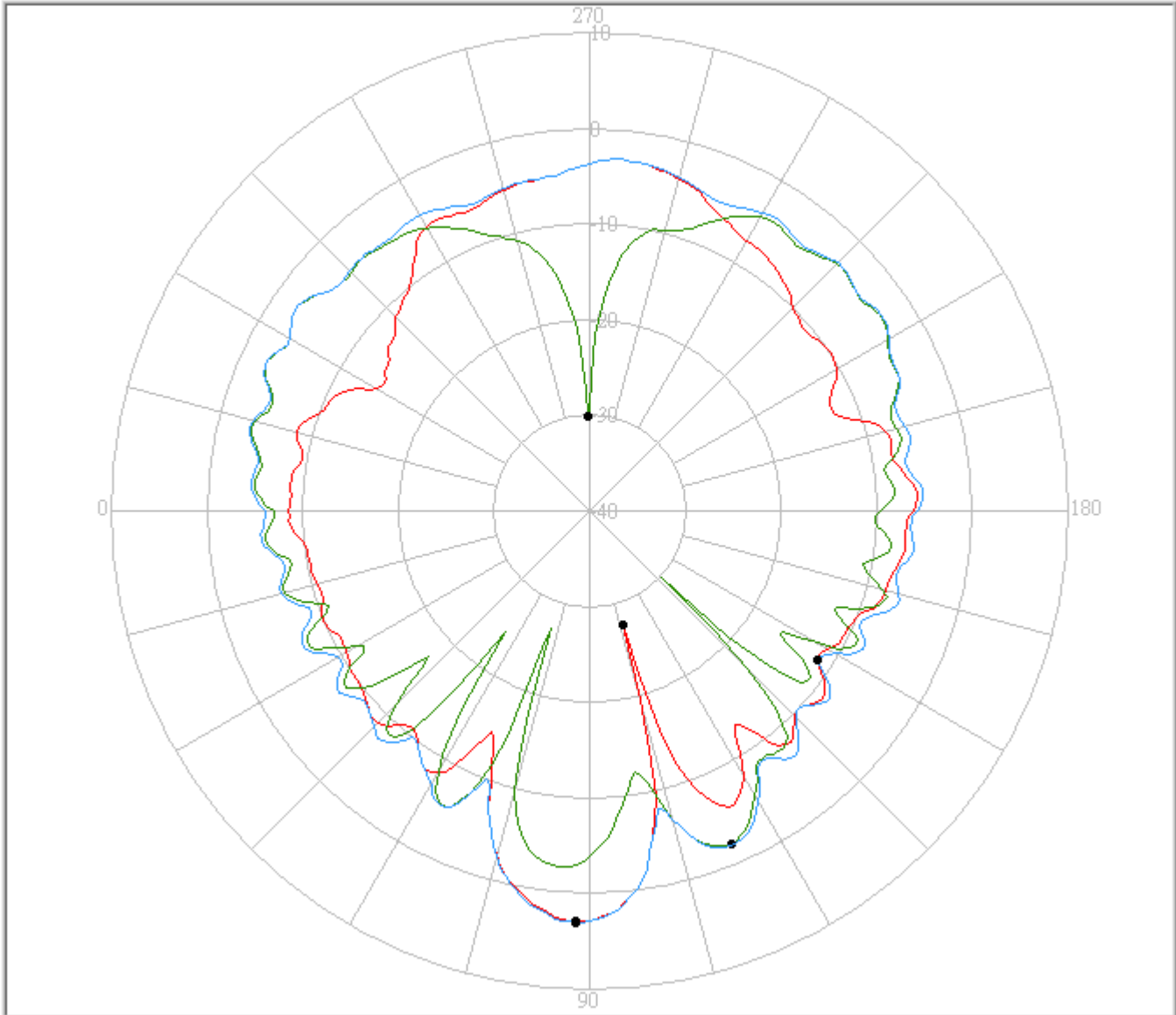
j. 5.597GHz



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## Antenna Pattern Measurement

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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5597.50	2.91 / 88.00	-27.69 / 106.00	-6.14	Ver.	2006/5/19
2	L51	LEFT	5597.50	-2.25 / 113.00	-30.11 / 271.00	-6.61	Hor.	2006/5/19
3	L51	LEFT	5597.50	2.05 / 88.00	-11.54 / 147.00	-4.29	V+H	2006/5/19

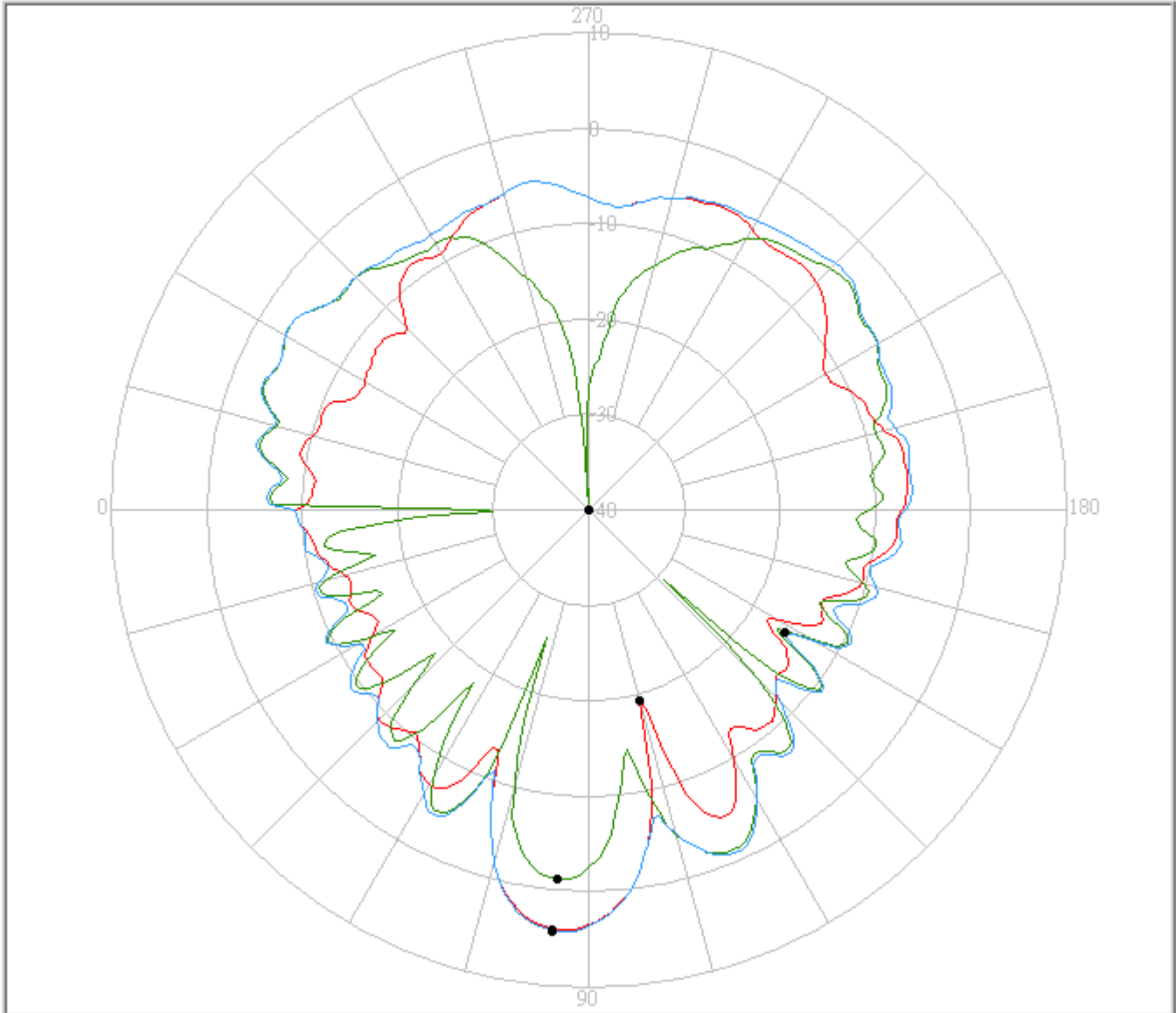
k. 5.725GHz



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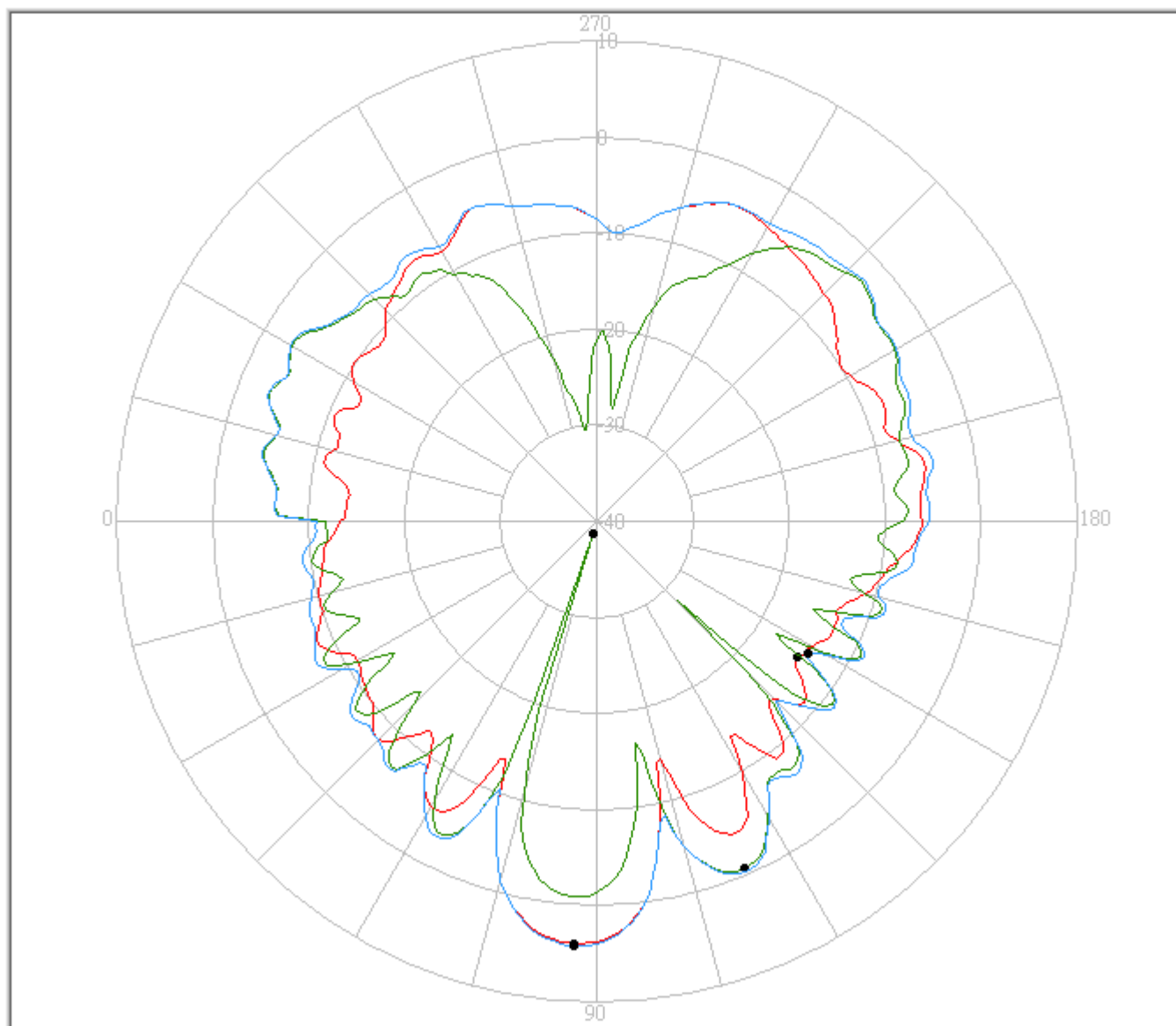
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5725.00	2.07 / 85.00	-19.28 / 105.00	-6.14	Ver.	2006/5/19
2	L51	LEFT	5725.00	-1.29 / 85.00	-49.67 / 273.00	-7.29	Hor.	2006/5/19
3	L51	LEFT	5725.00	2.25 / 85.00	-15.72 / 148.00	-4.63	V+H	2006/5/19

# 1. 5.785GHz



## FAVORTRON Co. Ltd Antenna Pattern Measurement

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Fax:886-2-2218-5760



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5785.00	2.97 / 87.00	-14.77 / 146.00	-5.79	Ver.	2006/5/19
2	L51	LEFT	5785.00	-0.72 / 113.00	-38.65 / 72.00	-6.90	Hor.	2006/5/19
3	L51	LEFT	5785.00	2.19 / 87.00	-14.02 / 148.00	-4.28	V+H	2006/5/19

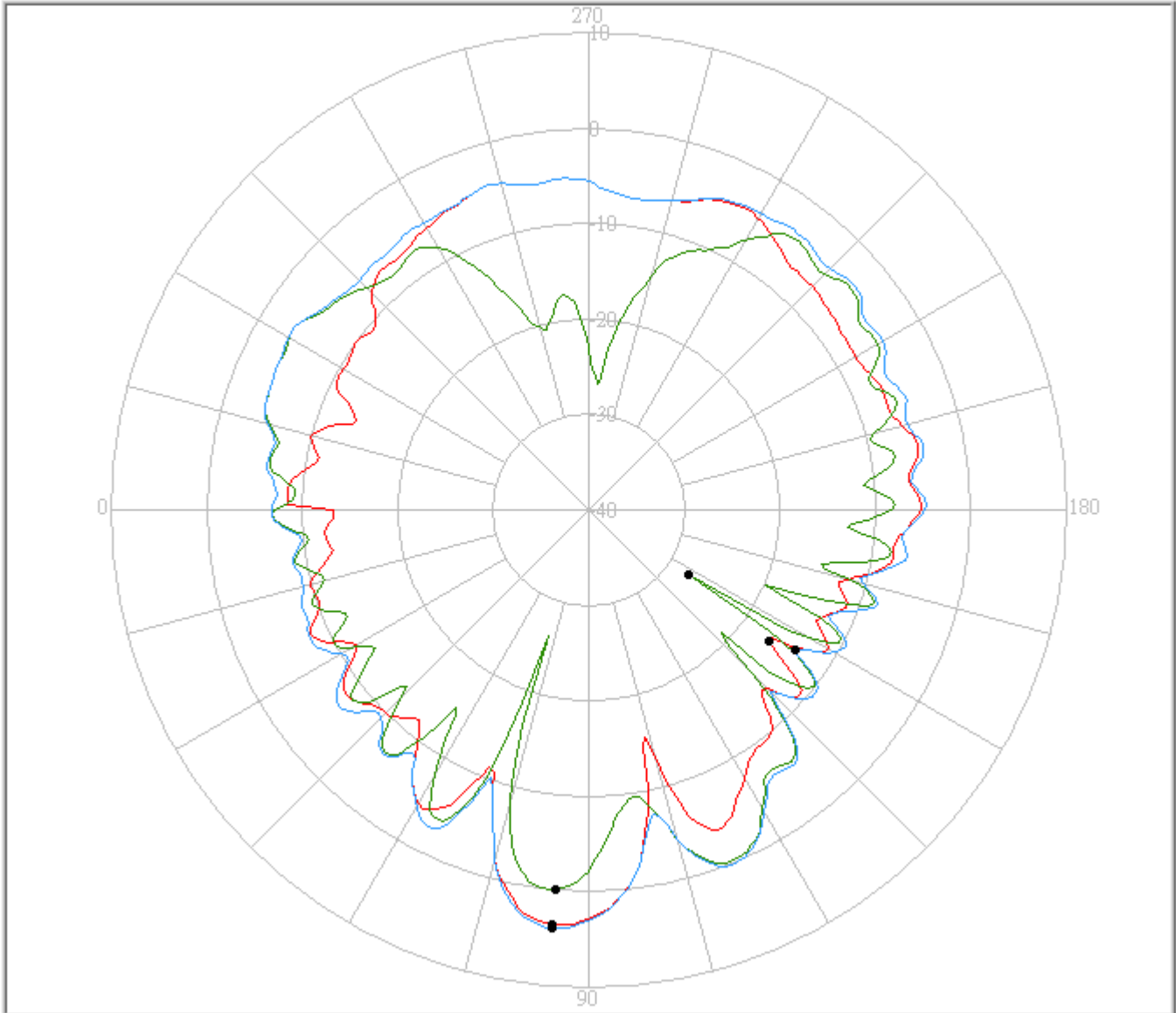
m. 5.85GHz



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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5850.00	2.60 / 85.00	-16.73 / 144.00	-5.72	Ver.	2006/5/19
2	L51	LEFT	5850.00	-0.06 / 85.00	-27.46 / 147.00	-6.87	Hor.	2006/5/19
3	L51	LEFT	5850.00	2.97 / 85.00	-13.94 / 146.00	-4.32	V+H	2006/5/19

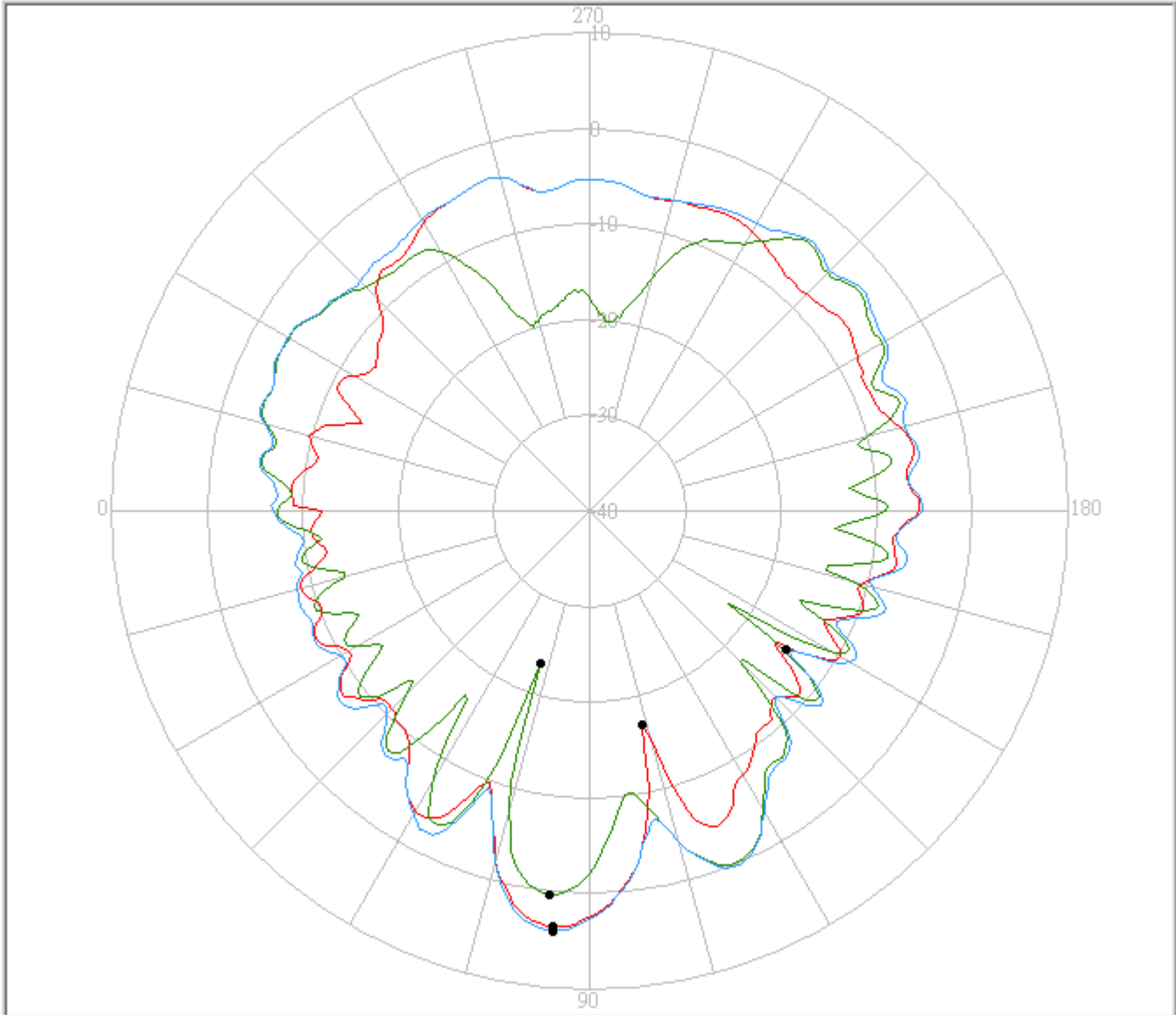
n. 5.875GHz



# FAVORTRON Co. Ltd

## Antenna Pattern Measurement

4F, No. 108-1, Min Chuan Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C. Tel:886-2-2218-2189, Fax:886-2-2218-5760



Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	L51	LEFT	5875.00	2.63 / 85.00	-16.96 / 104.00	-5.82	Ver.	2006/5/19
2	L51	LEFT	5875.00	0.26 / 84.00	-23.28 / 72.00	-6.79	Hor.	2006/5/19
3	L51	LEFT	5875.00	2.04 / 85.00	-14.92 / 145.00	-4.32	V+H	2006/5/19



## 4. SPECIFICATIONS:

### 1. Electrical Properties

Frequency Range : 2.4~2.5GHz & 4.9~5.9GHz

Impedance : 50 ohm

VSWR(2.4~2.5GHZ) :  $\leq 2.0$

VSWR(5.15~5.85GHz) :  $< 2.5$

Peak Gain :  $\leq 3\text{dBi}$

Average Gain :  $> -5\text{dB}$