

DATE : 2005/12/14

CUSTOMER : UNIWILL CORP.

APPROVAL SHEET

MODEL	S50
DESCRIPTION	PIFA For Wireless LAN Antenna+GPRS Antenna 2.4~2.5GHZ /4.9~5.875GHZ 824~960 MHZ/1.710~1.990GHZ
SUPPLIER P/N	-----
CUSTOMER P/N	-----
FILE P/N	

FAVORTRON			CUSTOMER	
Manager	Supervisor	Engineer		
Jesse	Jesse	Nick		

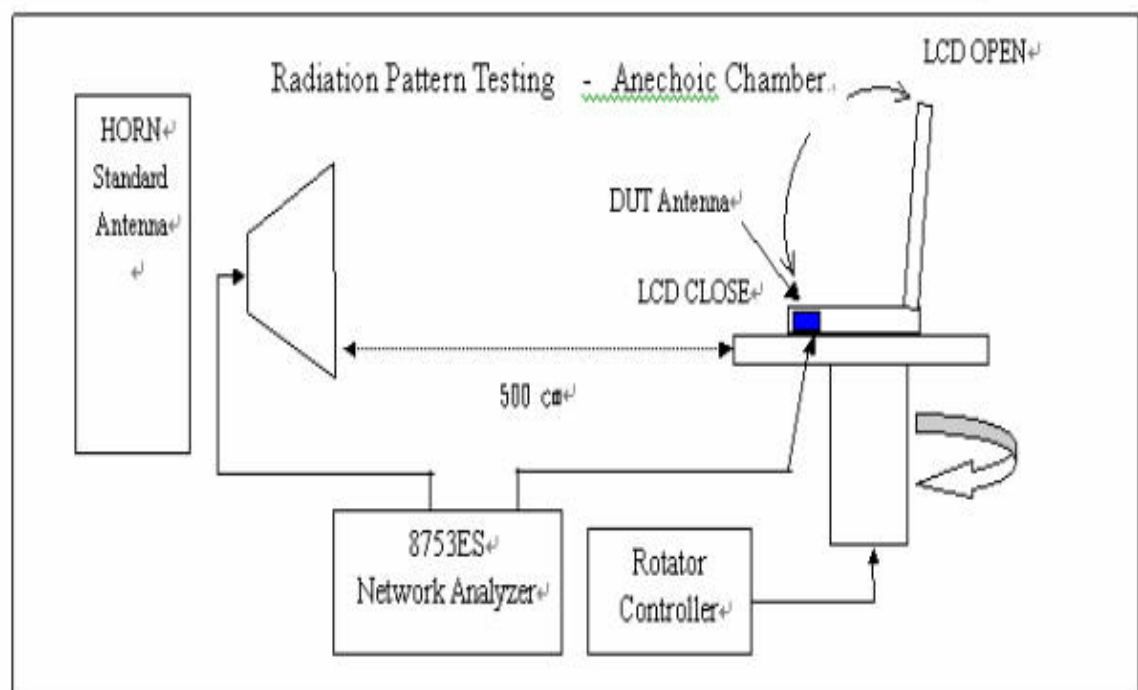


惠賢電子股份有限公司
FAVORTRON CO., LTD

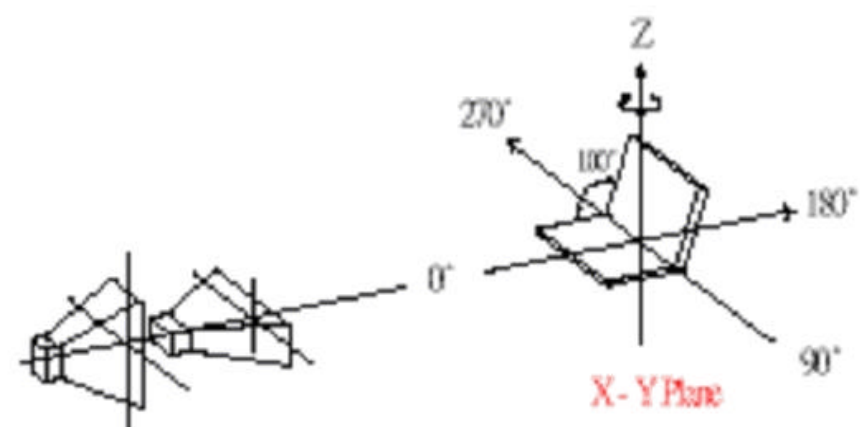
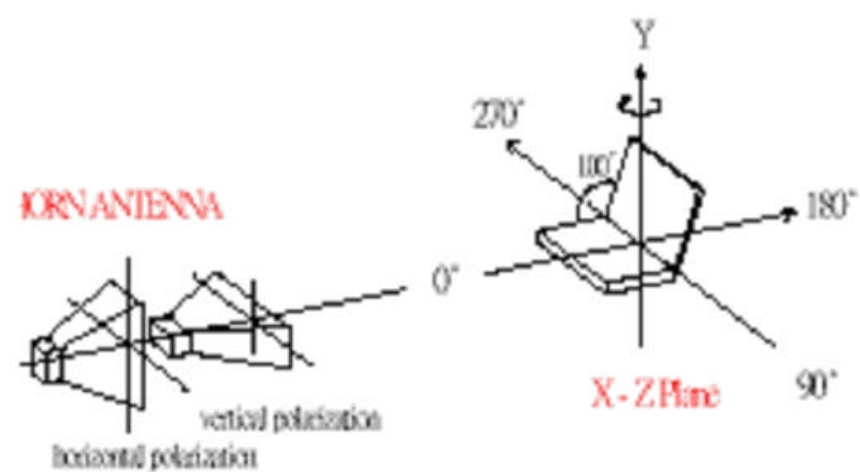
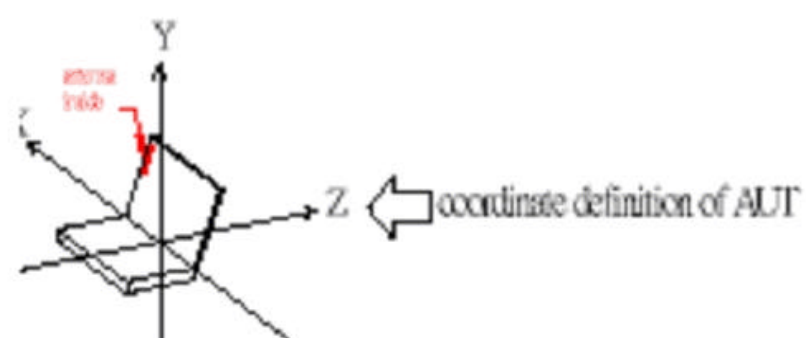
台北縣新店市民權路 108-1 號 4F
4F, No. 108-1, Minchziuan Rd., SHzindian City,
Taipei HZsien 231, Taiwan. R.O.C

TEL: (02) 2218-2189
FAX: (02) 2218-5420
URL: www.fvc.com.tw

天線測試方法

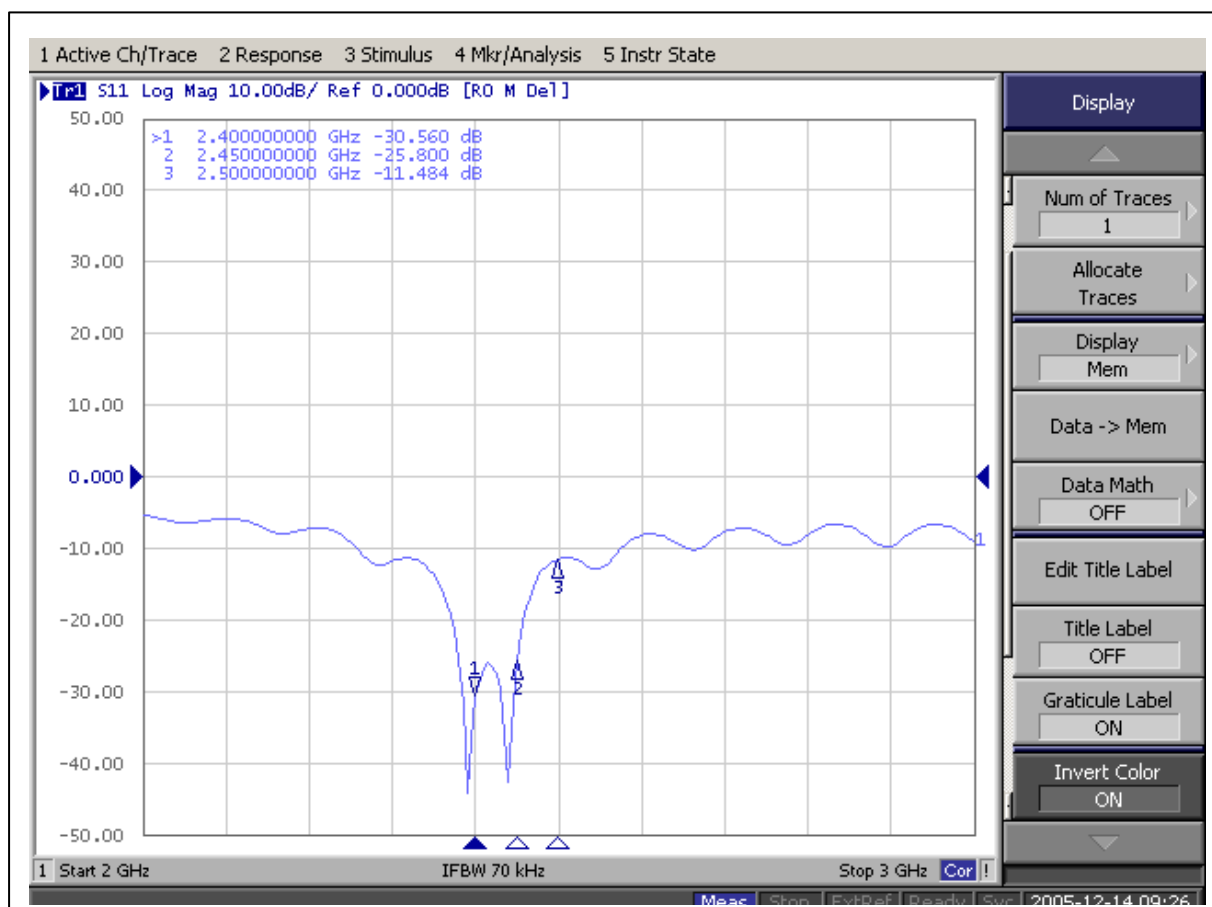


Coordinate Definition

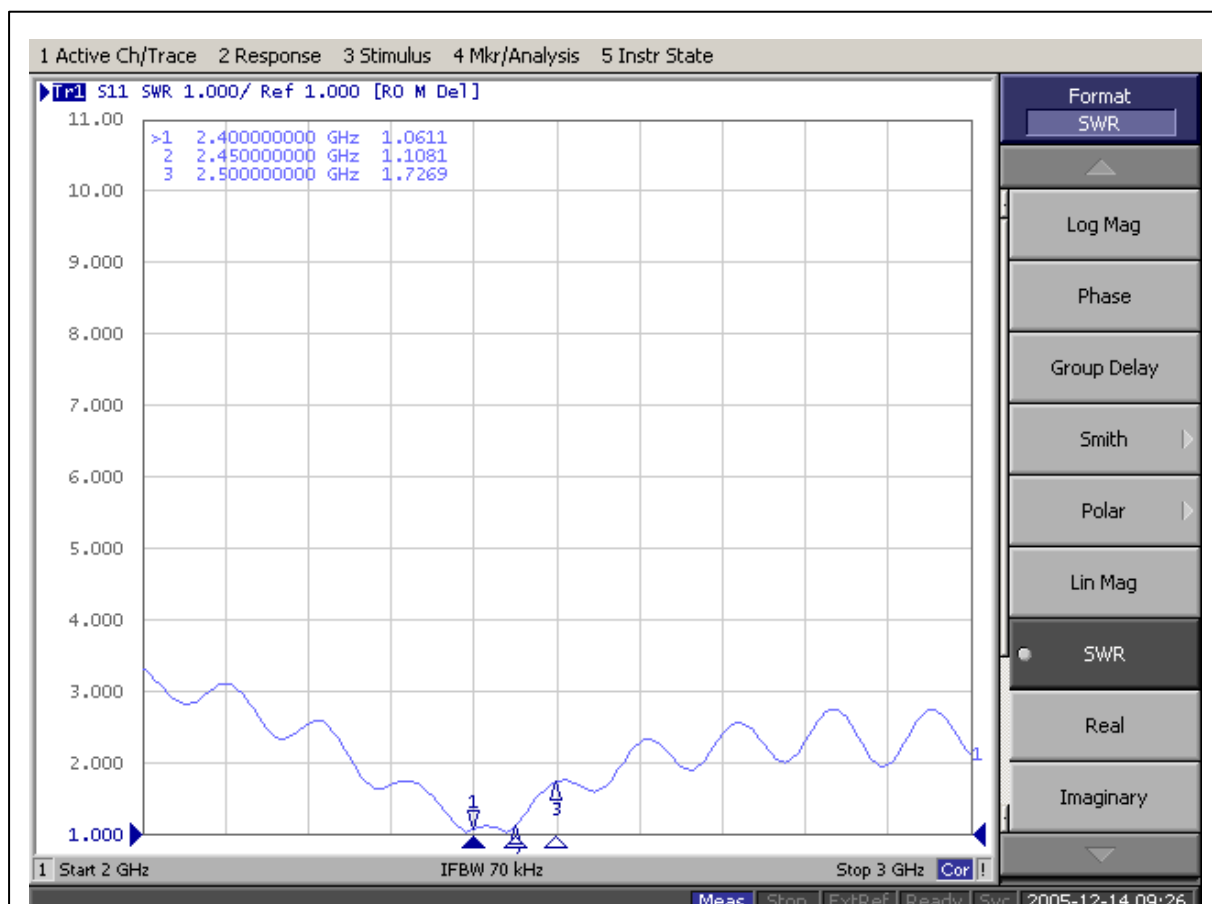


2. WLAN Ant./ (LEFT)

2.4~2.5GHZ / Return Loss

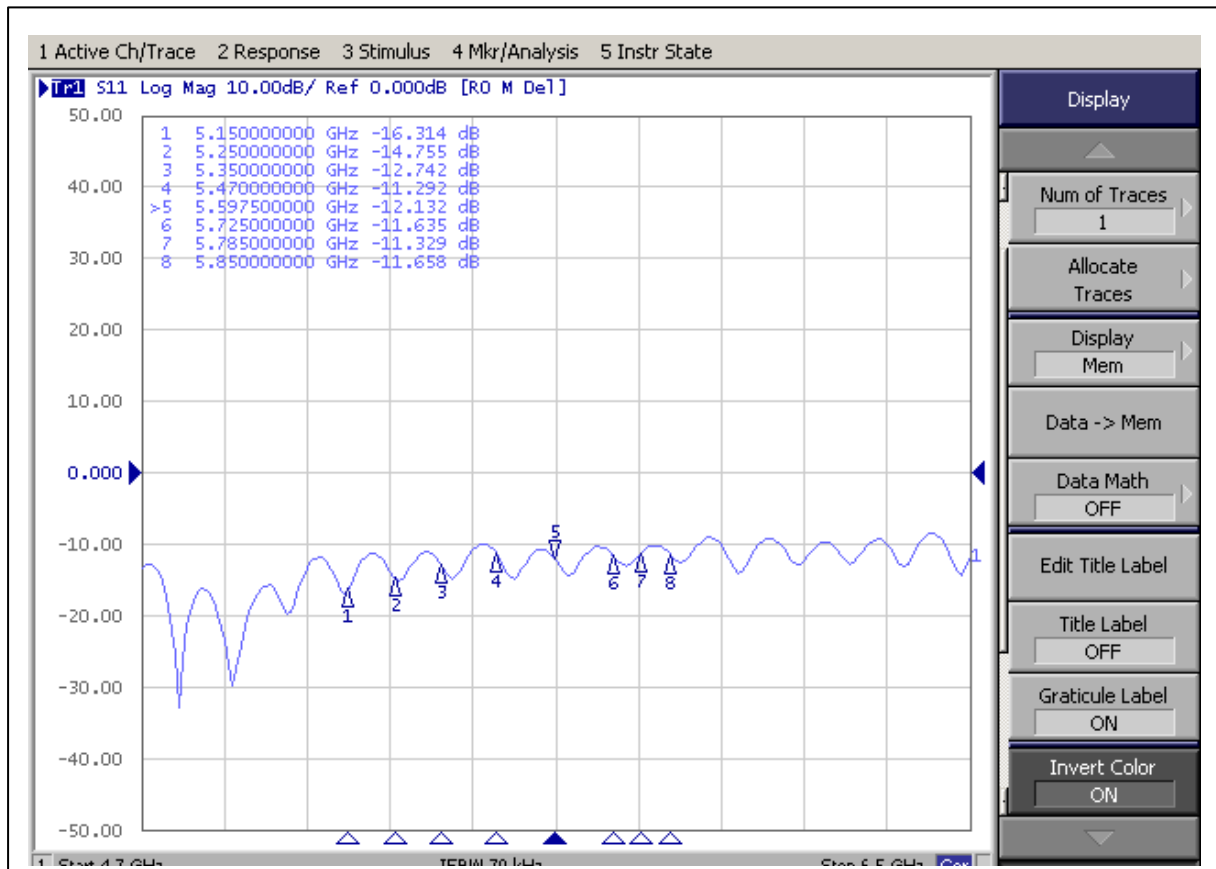


2.4~2.5GHZ / VSWR

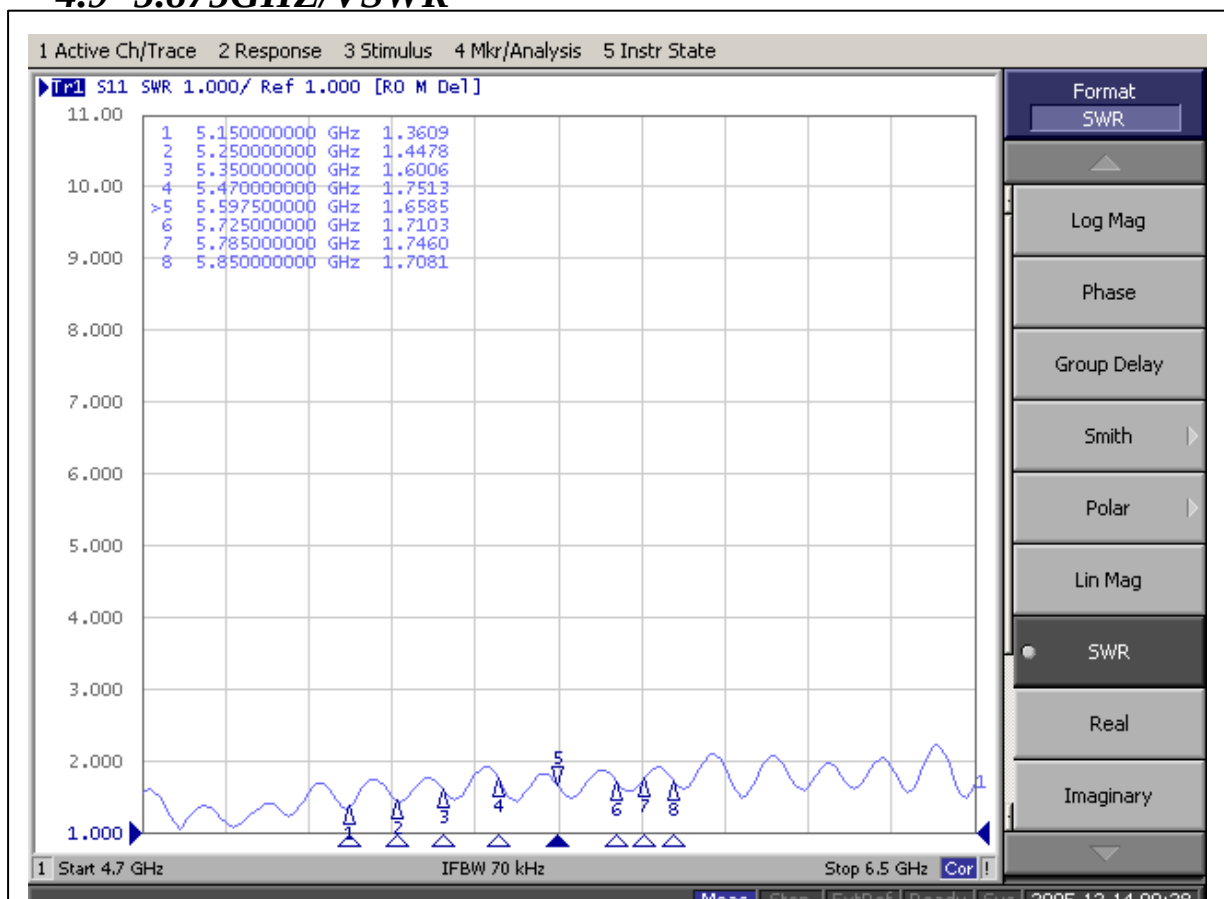


WLAN Ant./ (LEFT)

4.9~5.875GHZ/Return Loss

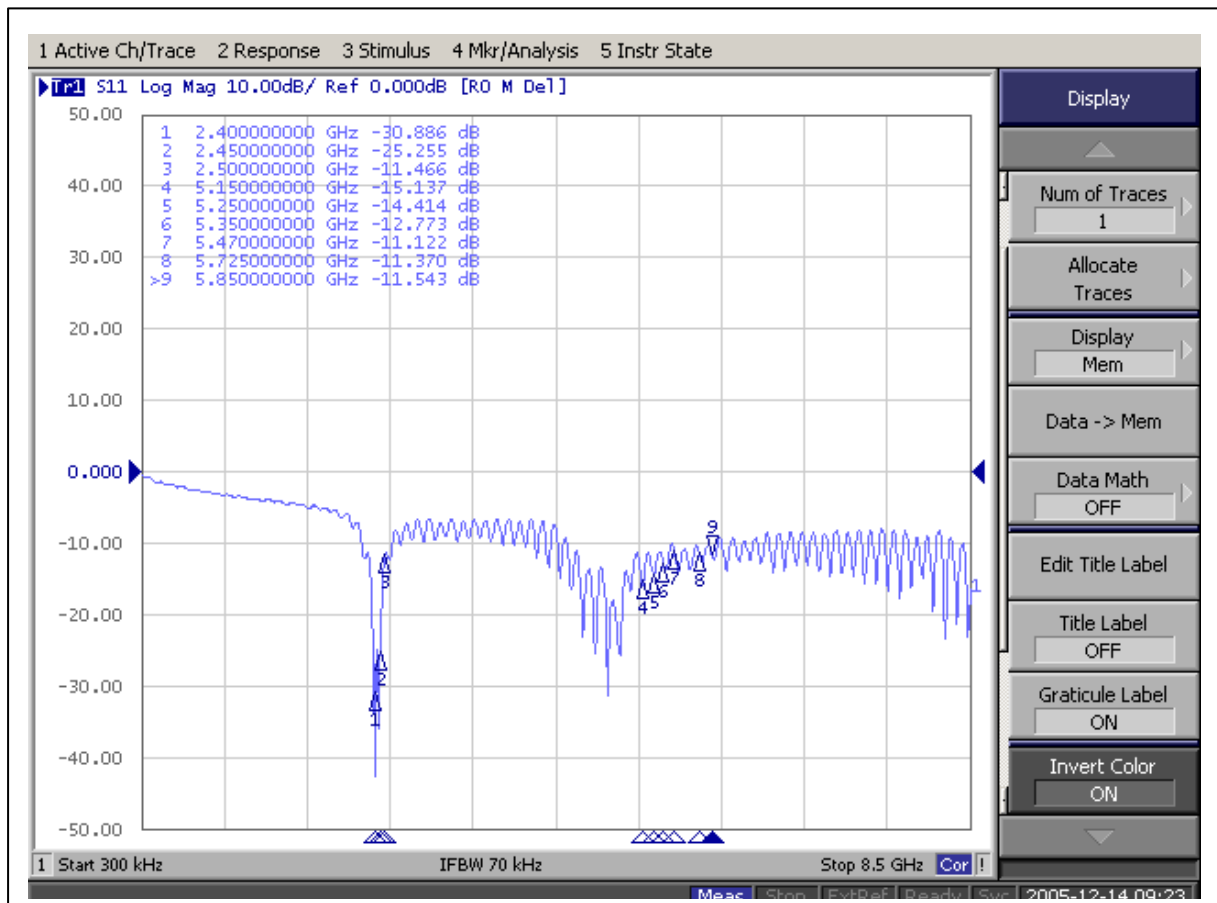


4.9~5.875GHZ/VSWR

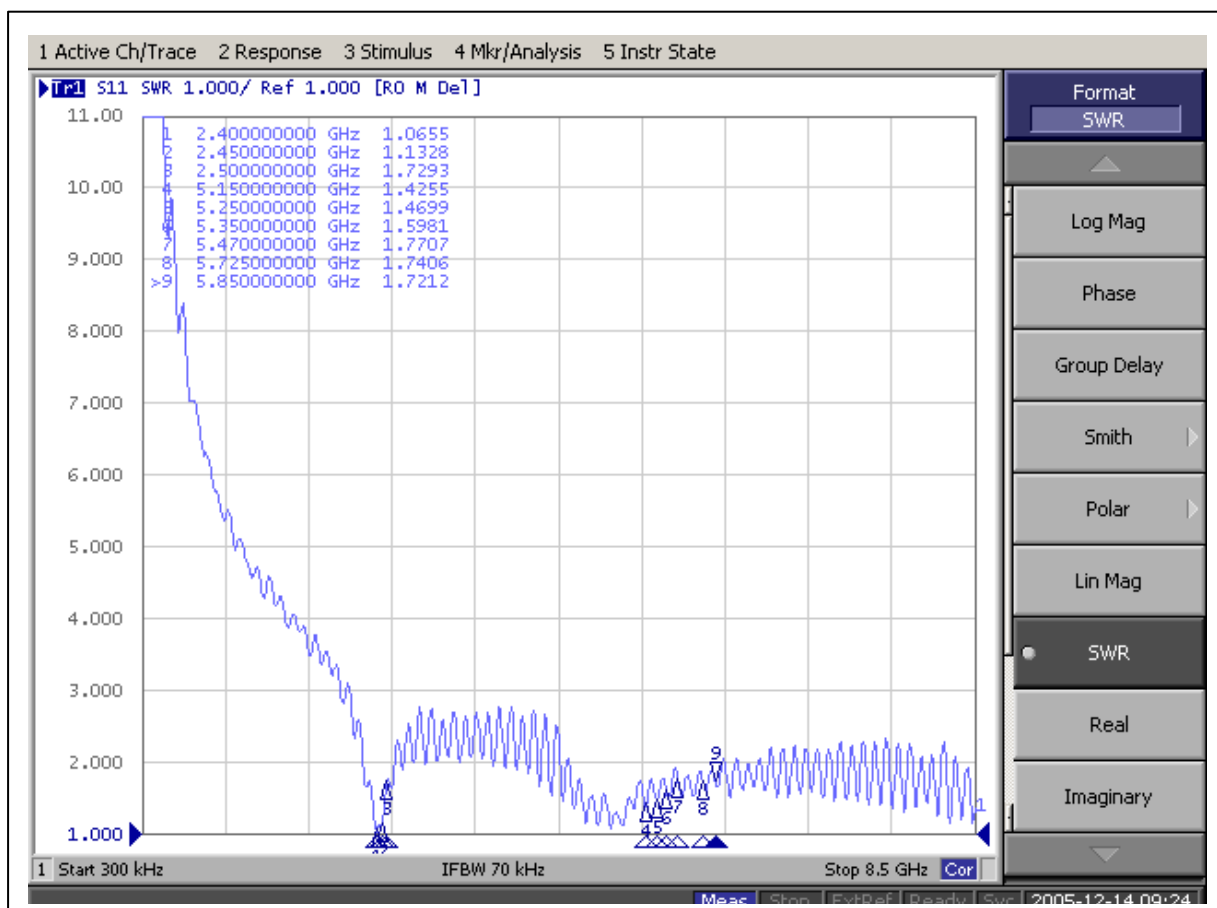


WLAN Ant./ (LEFT)

2.4~2.5GHZ & 5.15~5.875GHZ / Return Loss



2.4~2.5GHZ & 5.15~5.875GHZ/VSWR



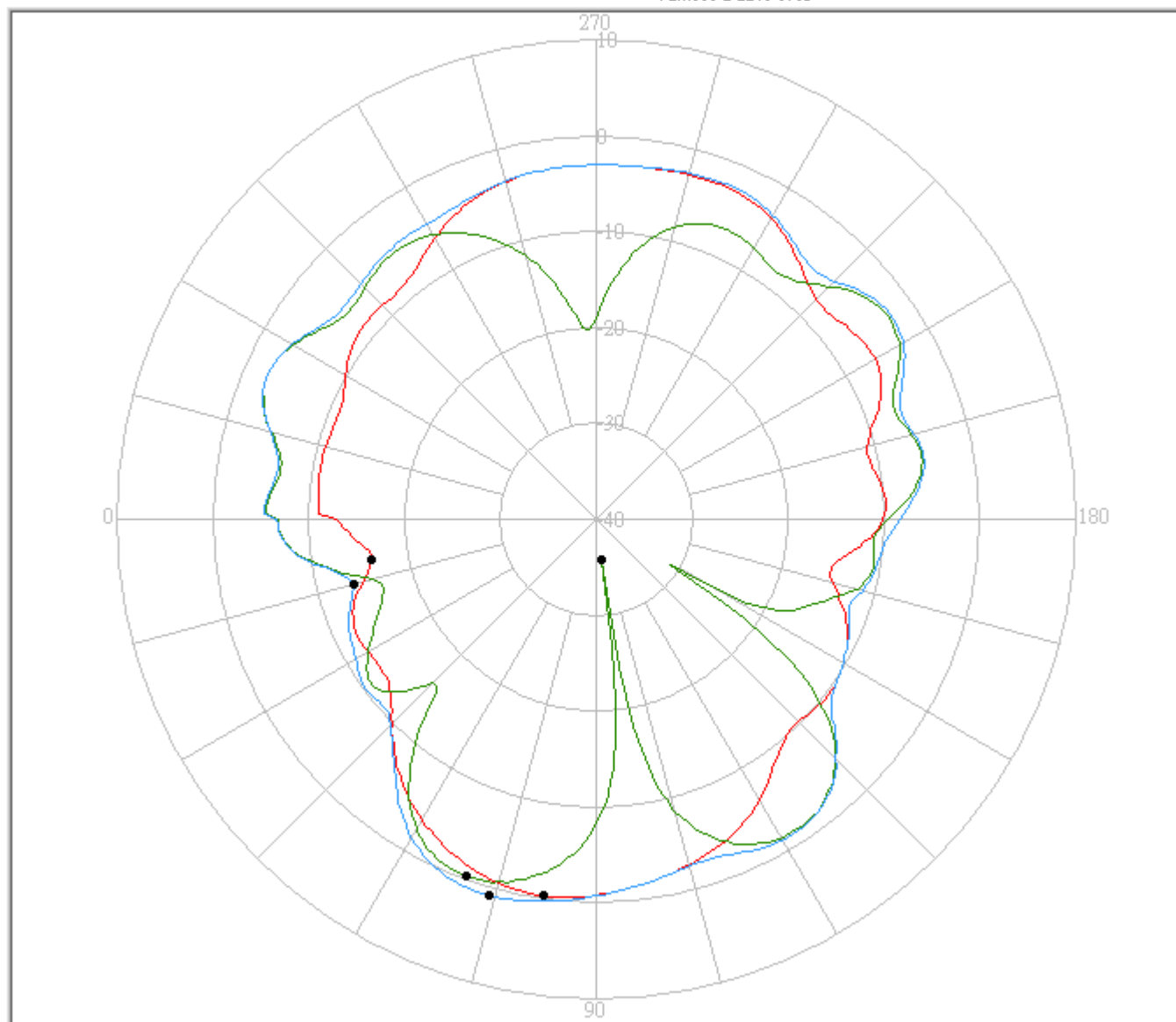
3. Gain & Pattern –LEFT

a. 2.4GHz



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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	S50	Left	2400.00	-0.39 / 82.00	-16.20 / 10.00	-5.74	Ver.	2005/12/13
2	S50	Left	2400.00	-0.37 / 70.00	-35.70 / 98.00	-6.11	Hor.	2005/12/13
3	S50	Left	2400.00	0.77 / 74.00	-13.83 / 15.00	-3.96	V+H	2005/12/13

b. 2.45GHz

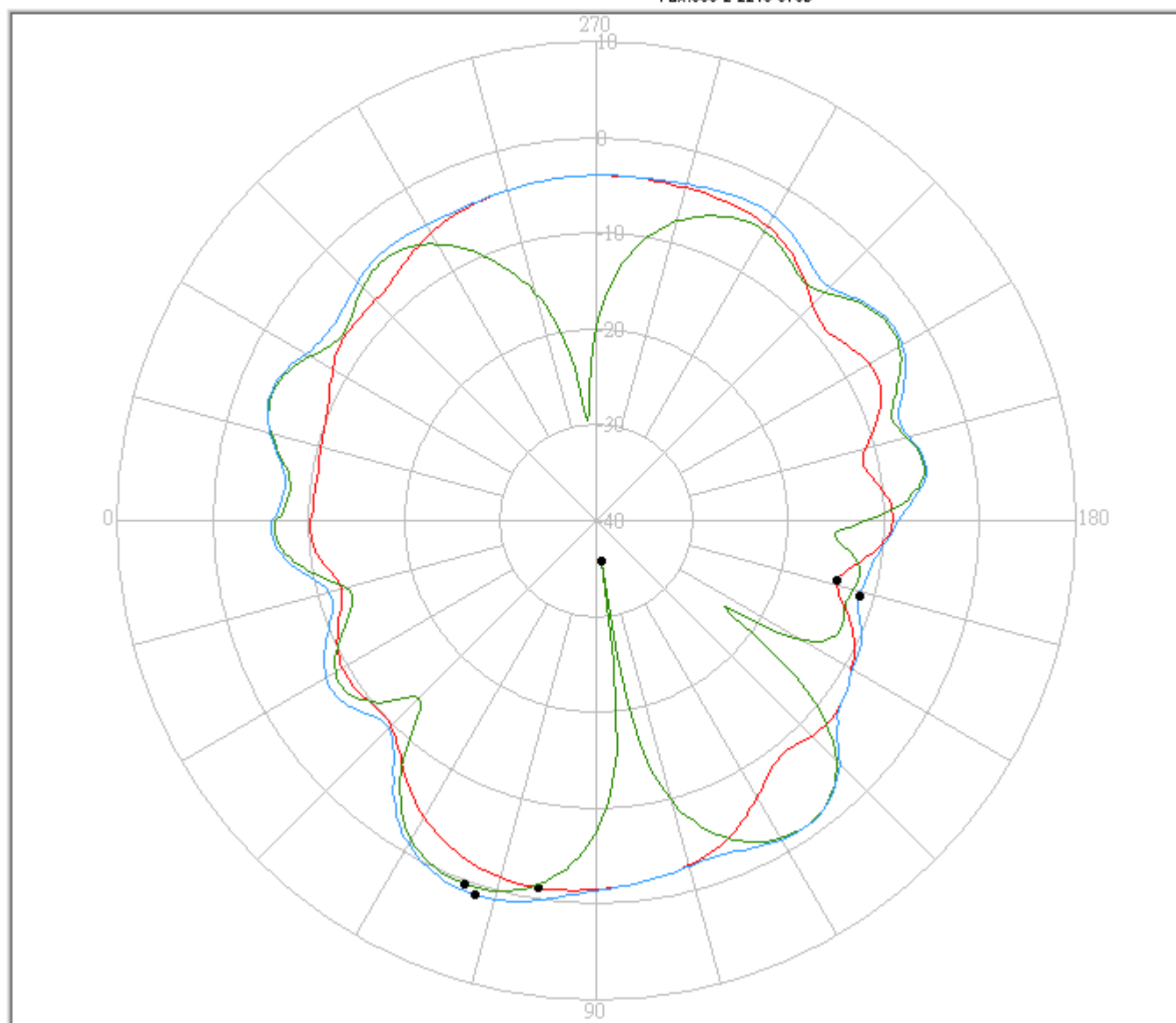


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Fax:886-2-2218-5760



Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	Left	2450.00	-1.25 / 81.00	-14.10 / 166.00	-6.01	Ver.	2005/12/13
2		S50	Left	2450.00	0.33 / 70.00	-35.66 / 98.00	-5.94	Hor.	2005/12/13
3		S50	Left	2450.00	1.01 / 72.00	-11.49 / 164.00	-4.10	V+H	2005/12/13

c. 2.5GHz



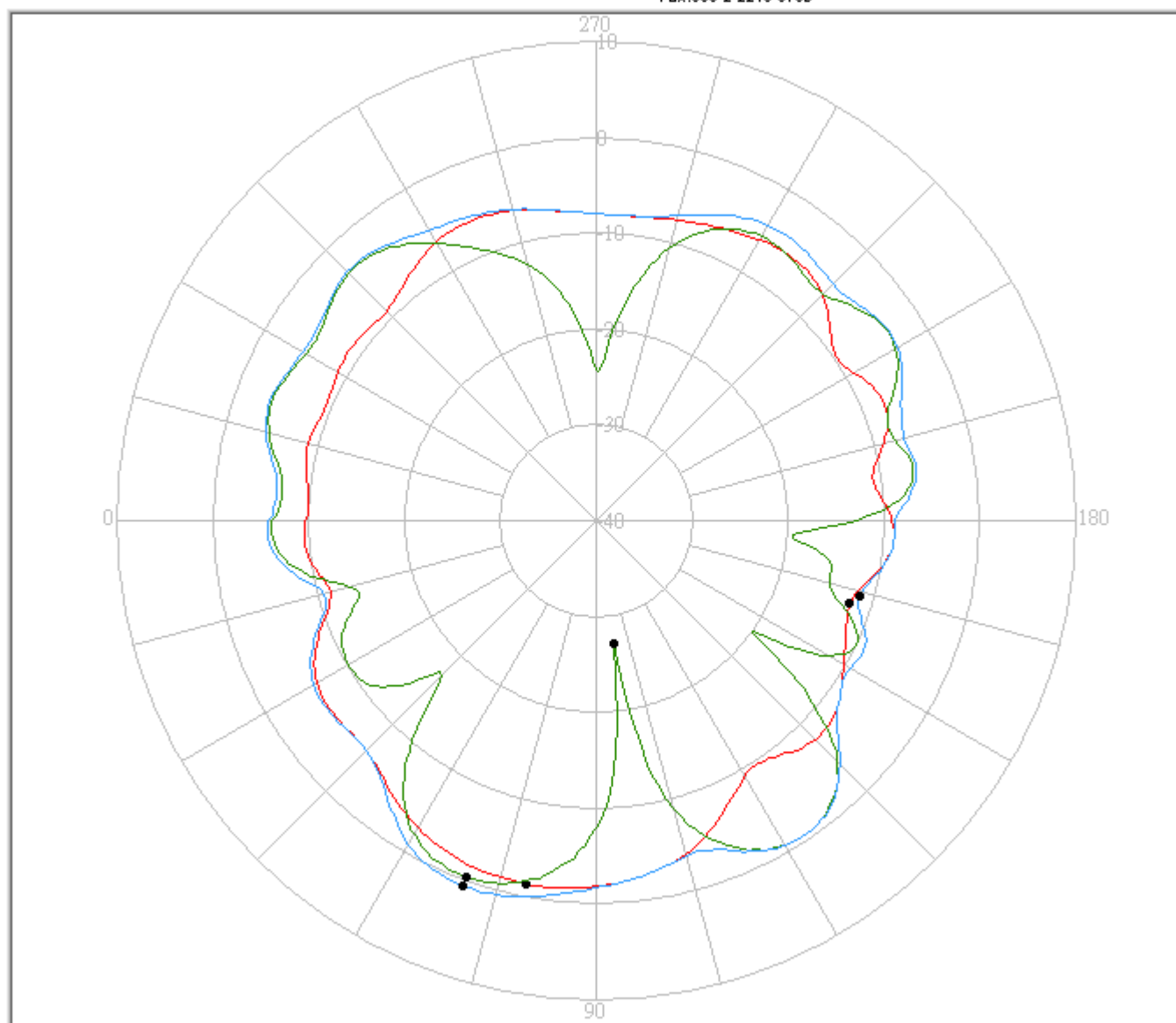
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Fax:886-2-2218-5760



Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	■	S50	Left	2500.00	-1.39 / 79.00	-12.18 / 162.00	-6.49	Ver.	2005/12/13
2	■	S50	Left	2500.00	-0.41 / 70.00	-27.04 / 98.00	-6.02	Hor.	2005/12/13
3	■	S50	Left	2500.00	0.56 / 70.00	-11.44 / 164.00	-4.36	V+H	2005/12/13

d. 4.9GHz



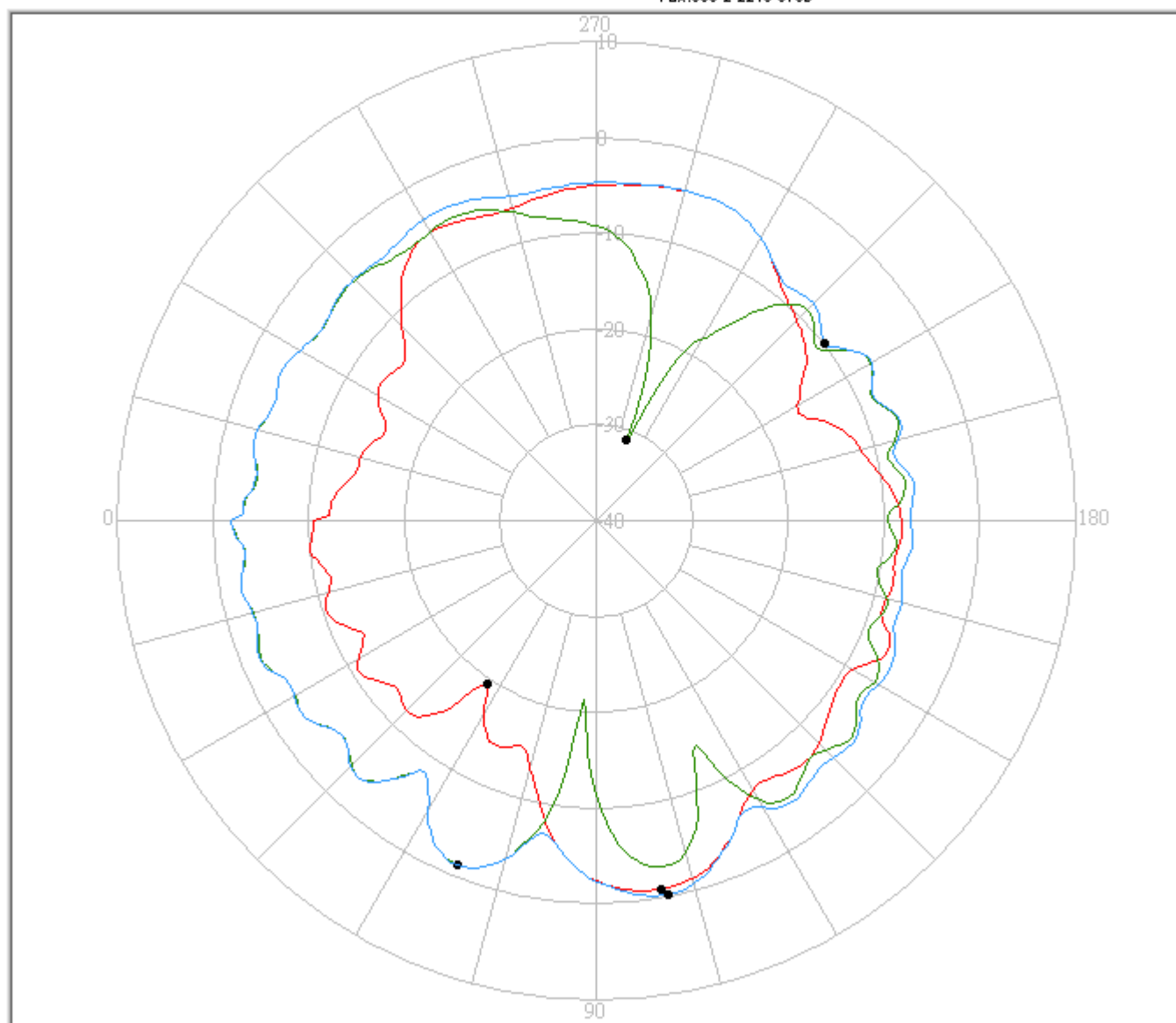
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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	Left	4900.00	-0.98 / 100.00	-19.54 / 56.00	-7.50	Ver.	2005/12/13
2		S50	Left	4900.00	-1.23 / 68.00	-31.06 / 249.00	-5.84	Hor.	2005/12/13
3		S50	Left	4900.00	-0.32 / 101.00	-9.87 / 218.00	-4.43	V+H	2005/12/13

e. 5.075GHz



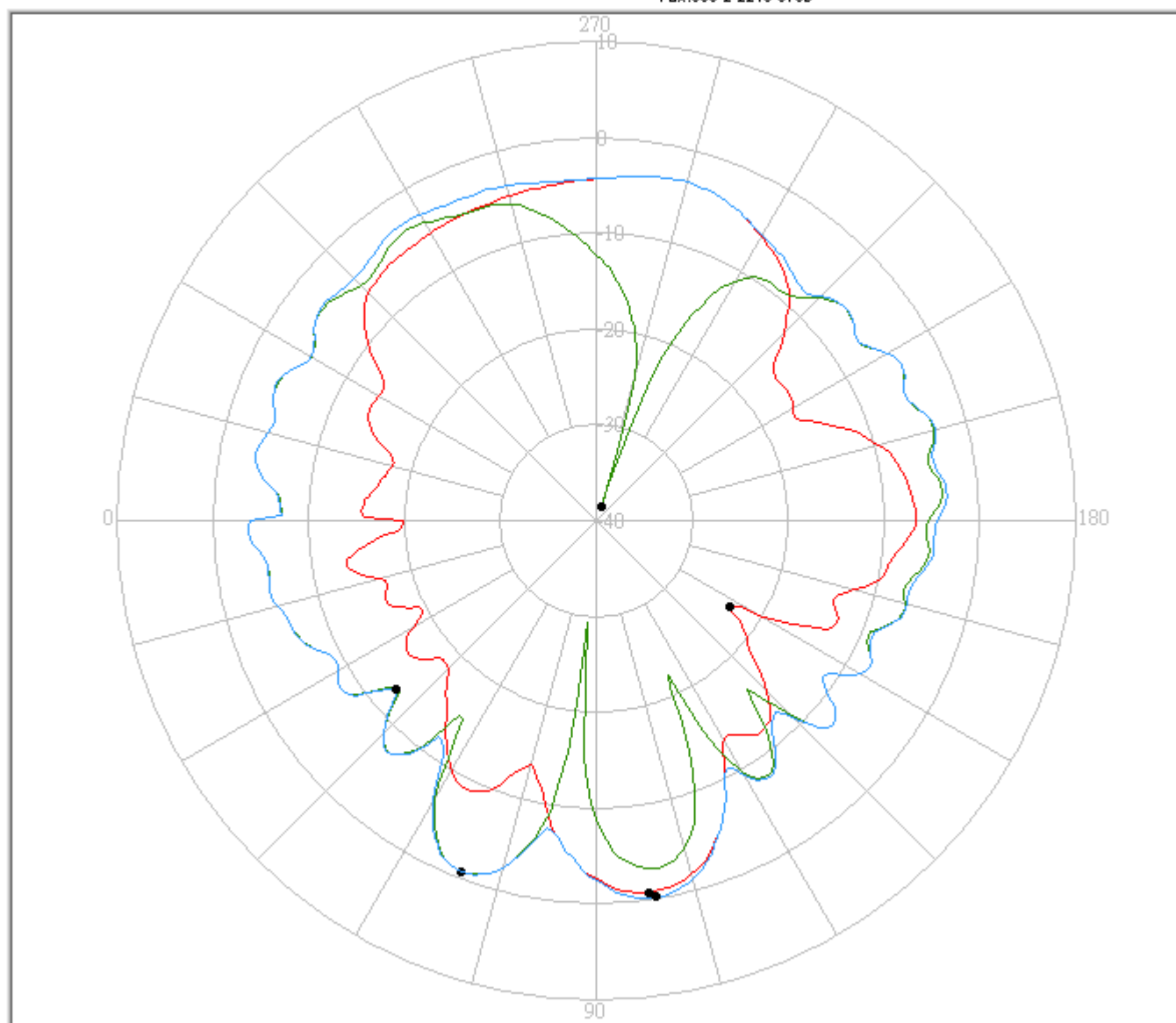
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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	Left	5075.00	-0.87 / 98.00	-23.37 / 147.00	-7.77	Ver.	2005/12/13
2		S50	Left	5075.00	-0.76 / 69.00	-38.38 / 252.00	-6.29	Hor.	2005/12/13
3		S50	Left	5075.00	-0.24 / 99.00	-12.66 / 40.00	-4.80	V+H	2005/12/13

f. 5.15GHz

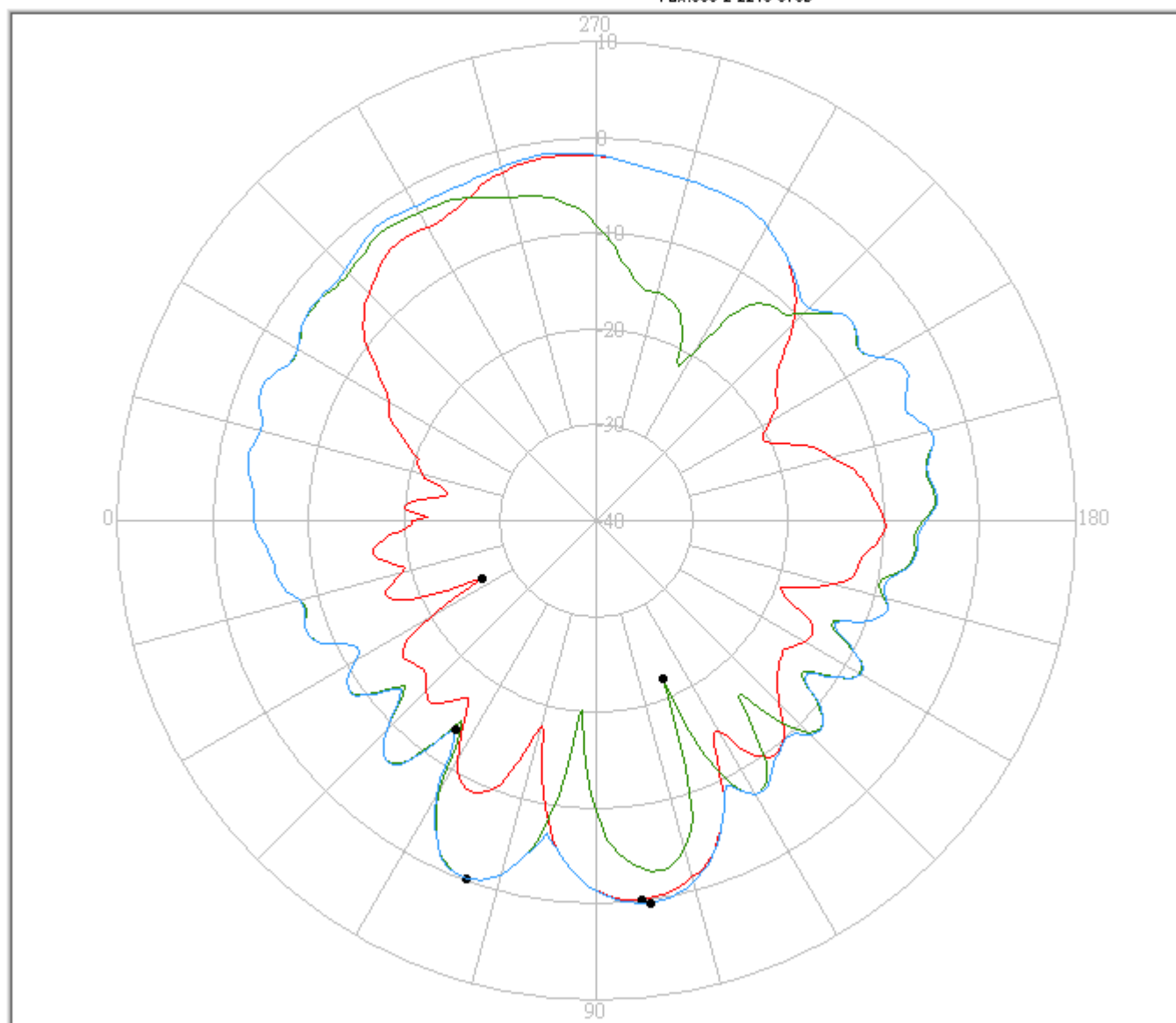


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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	S50	Left	5150.00	-0.23 / 97.00	-26.63 / 27.00	-7.09	Ver.	2005/12/13
2	S50	Left	5150.00	-0.33 / 70.00	-22.11 / 113.00	-6.01	Hor.	2005/12/13
3	S50	Left	5150.00	0.25 / 98.00	-13.73 / 56.00	-4.27	V+H	2005/12/13

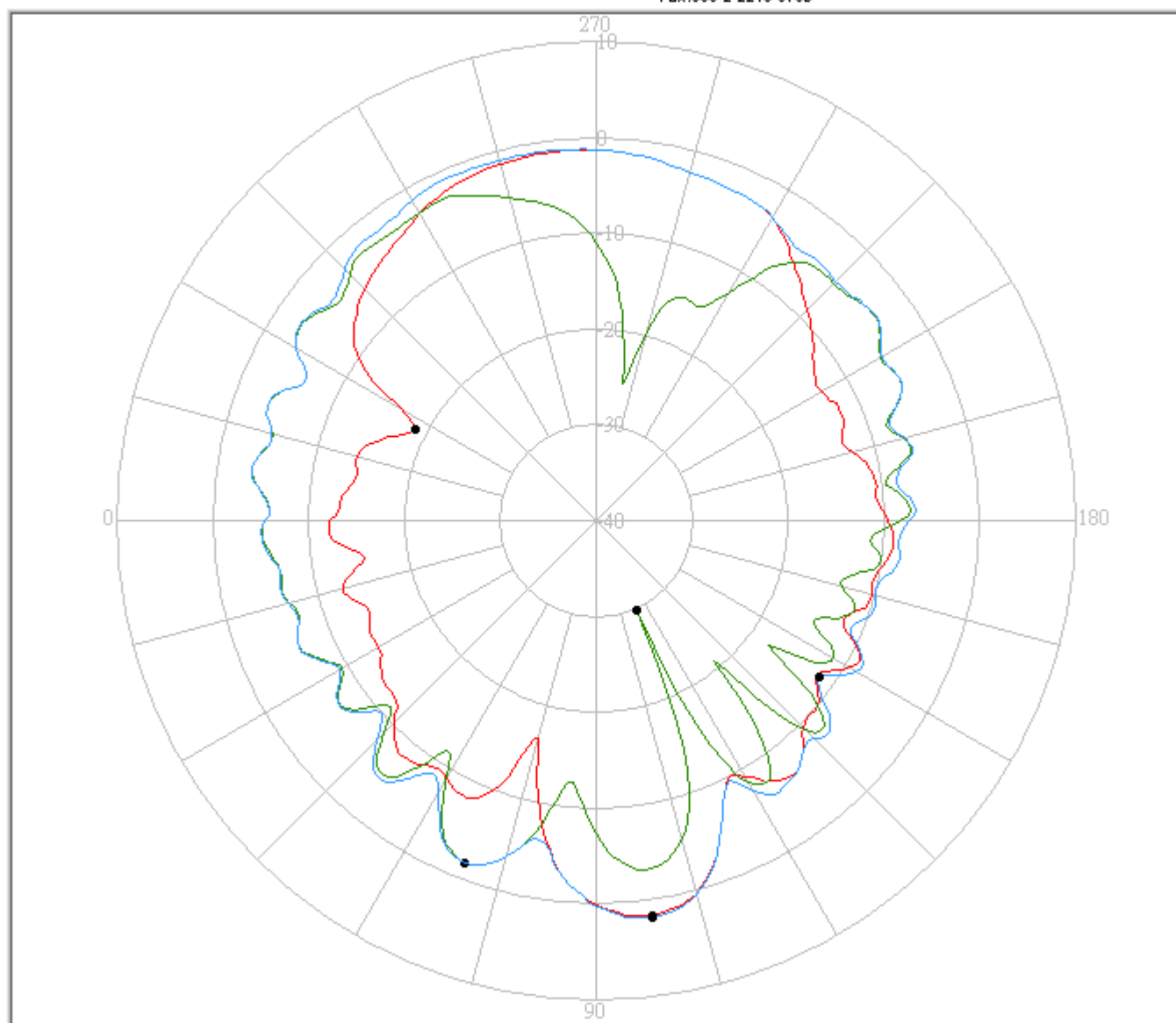
g. 5.25GHz



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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	Red	S50	Left	5250.00	1.55 / 98.00	-18.87 / 333.00	-5.63	Ver.	2005/12/13
2	Green	S50	Left	5250.00	-1.81 / 69.00	-29.72 / 114.00	-6.45	Hor.	2005/12/13
3	Blue	S50	Left	5250.00	1.77 / 98.00	-11.71 / 145.00	-3.88	V+H	2005/12/13

Hz. 5.35GHz

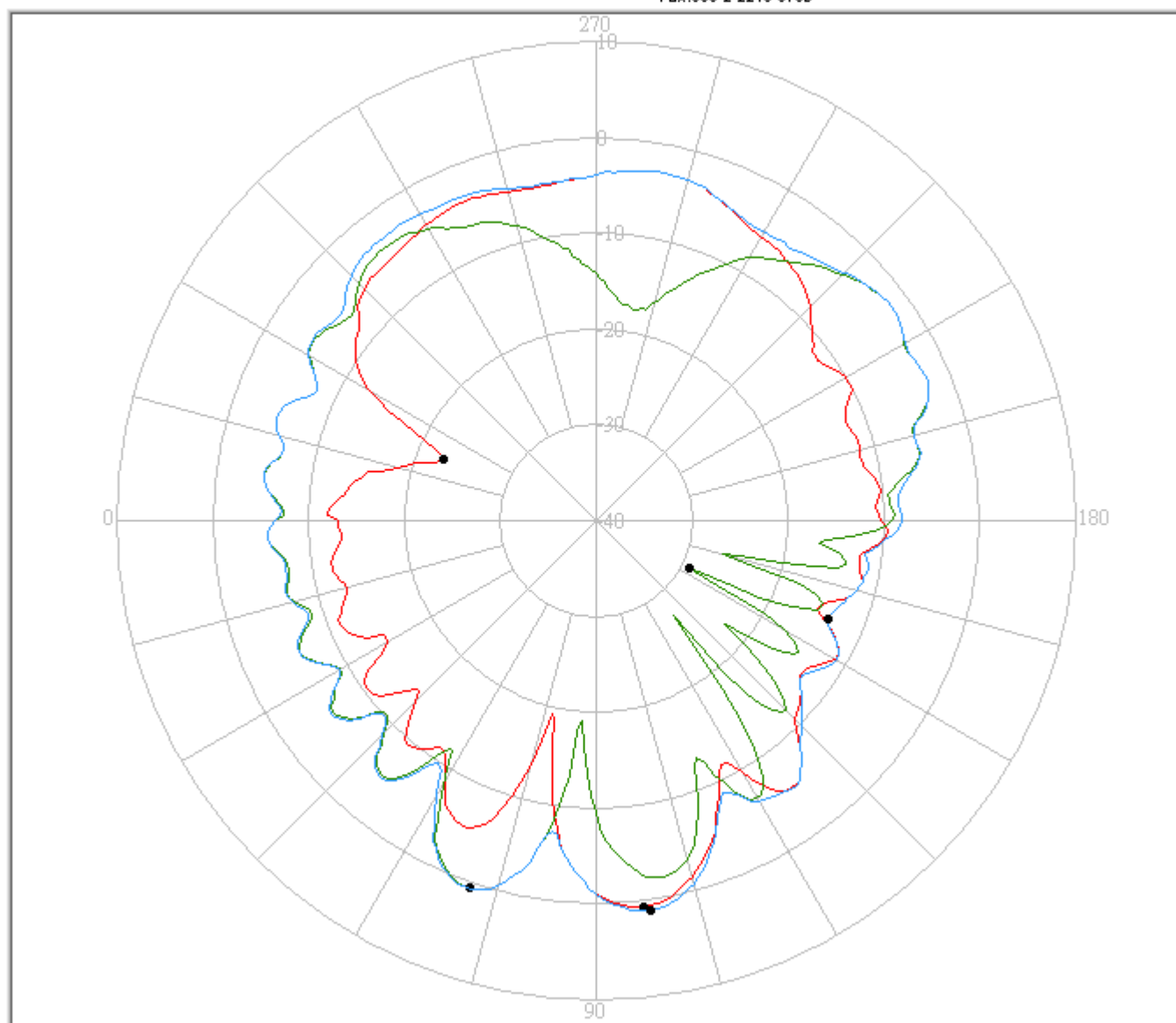


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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	Left	5350.00	0.61 / 97.00	-22.83 / 338.00	-6.86	Ver.	2005/12/13
2		S50	Left	5350.00	0.57 / 71.00	-29.19 / 153.00	-6.34	Hor.	2005/12/13
3		S50	Left	5350.00	1.04 / 98.00	-13.83 / 157.00	-4.50	V+H	2005/12/13

i. 5.47GHz



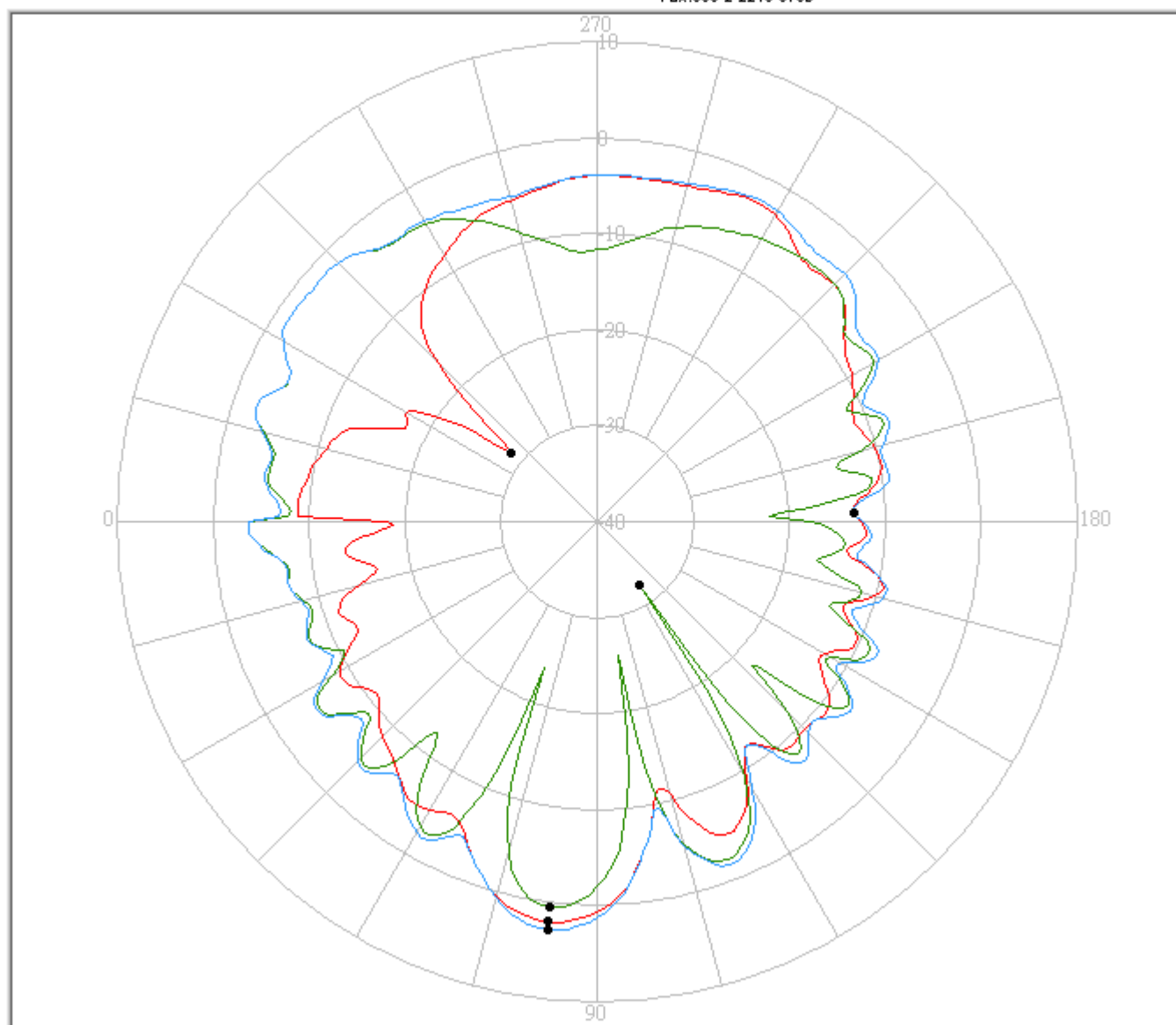
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Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	S50	Left	5470.00	1.94 / 83.00	-28.57 / 321.00	-6.16	Ver.	2005/12/13
2	S50	Left	5470.00	0.44 / 83.00	-32.08 / 124.00	-6.02	Hor.	2005/12/13
3	S50	Left	5470.00	2.83 / 83.00	-13.30 / 182.00	-4.14	V+H	2005/12/13

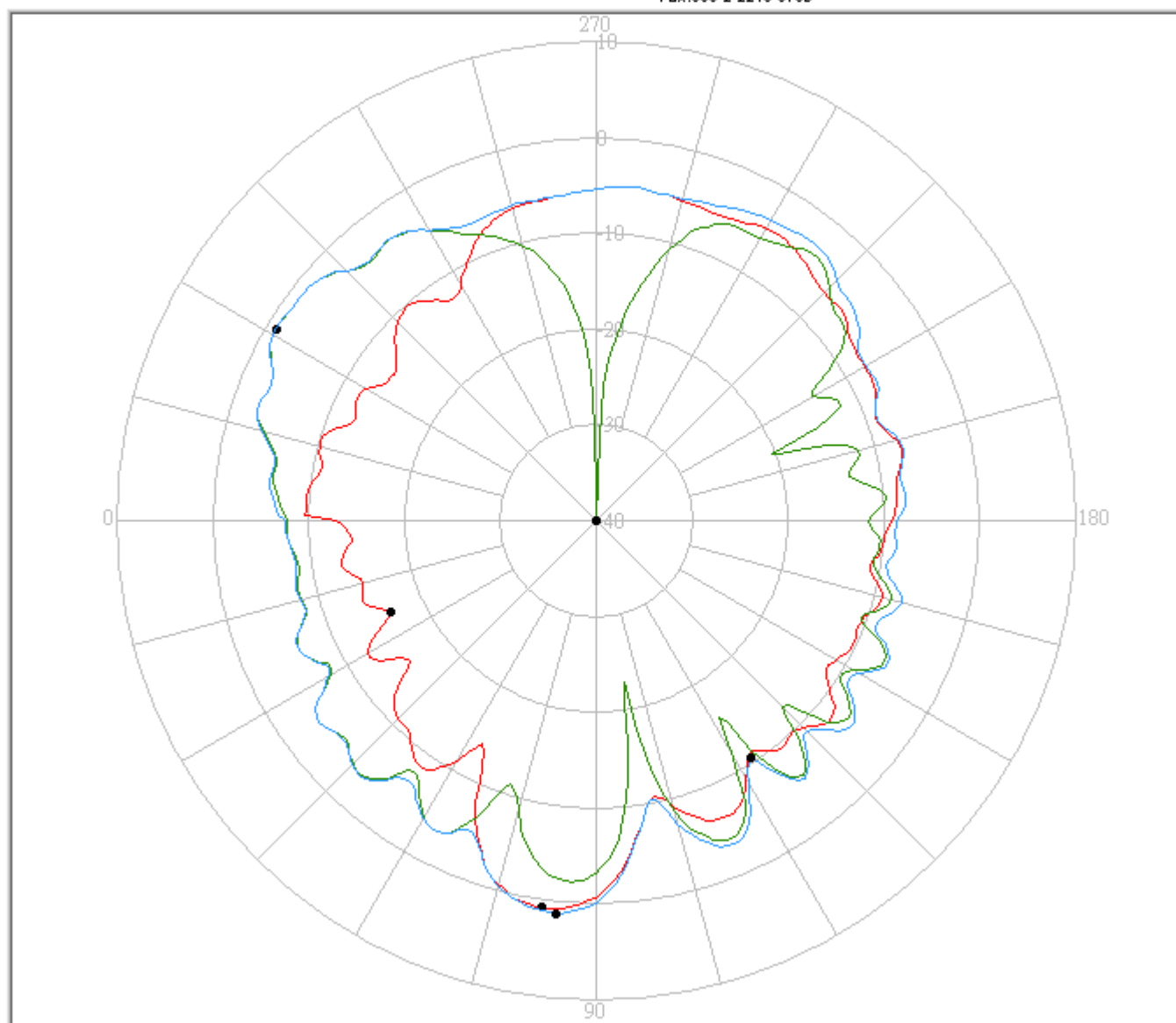
j. 5.597GHz



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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	Red	S50	Left	5597.50	0.76 / 82.00	-16.53 / 24.00	-7.16	Ver.	2005/12/13
2	Green	S50	Left	5597.50	-1.07 / 329.00	-41.85 / 269.00	-6.38	Hor.	2005/12/13
3	Blue	S50	Left	5597.50	1.17 / 84.00	-10.50 / 123.00	-4.70	V+H	2005/12/13

k. 5.725GHz



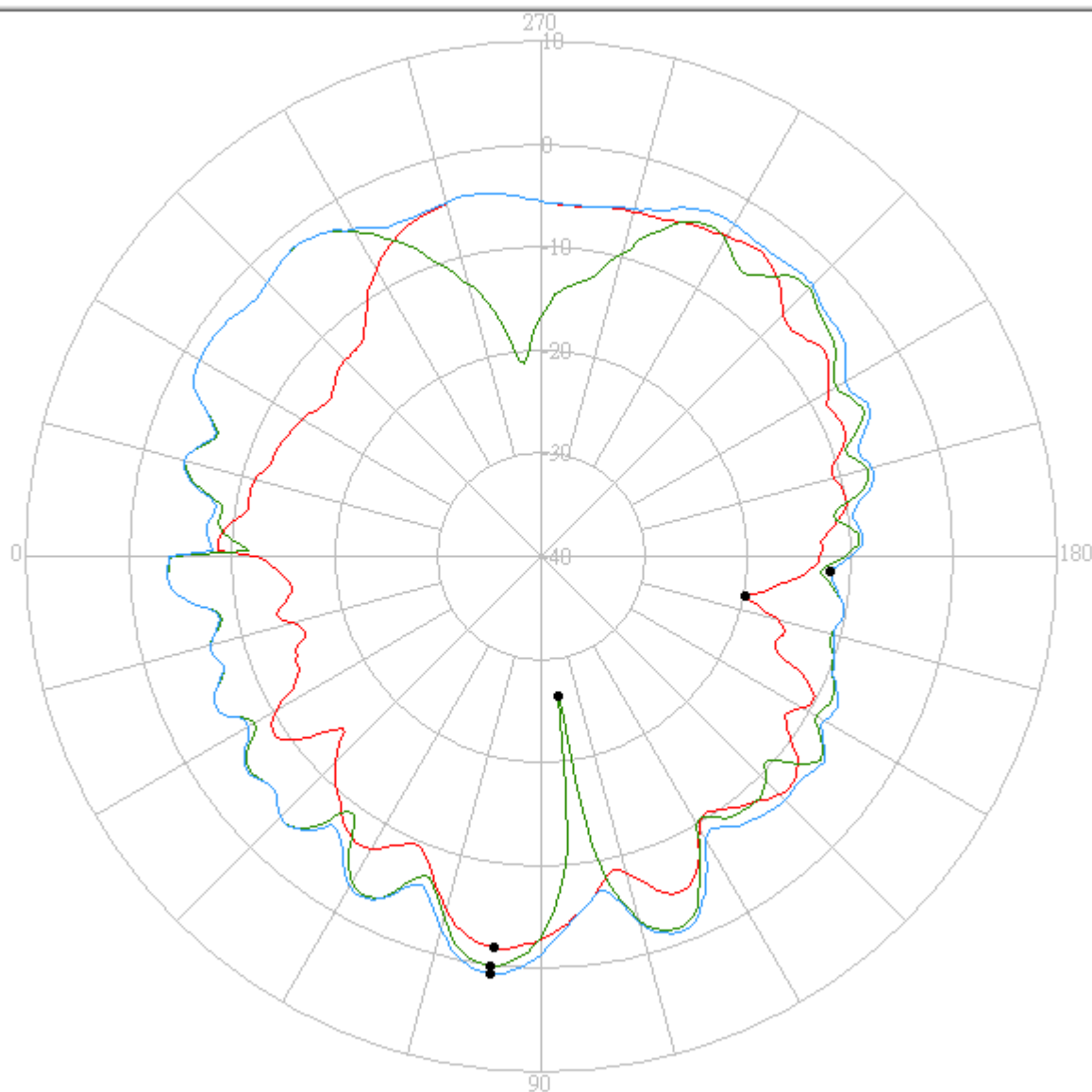
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Fax:886-2-2218-5760



Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	Left	5725.00	-1.75 / 83.00	-19.77 / 169.00	-7.60	Ver.	2005/12/13
2		S50	Left	5725.00	-0.01 / 83.00	-26.37 / 97.00	-5.55	Hor.	2005/12/13
3		S50	Left	5725.00	0.79 / 83.00	-11.87 / 177.00	-4.48	V+H	2005/12/13

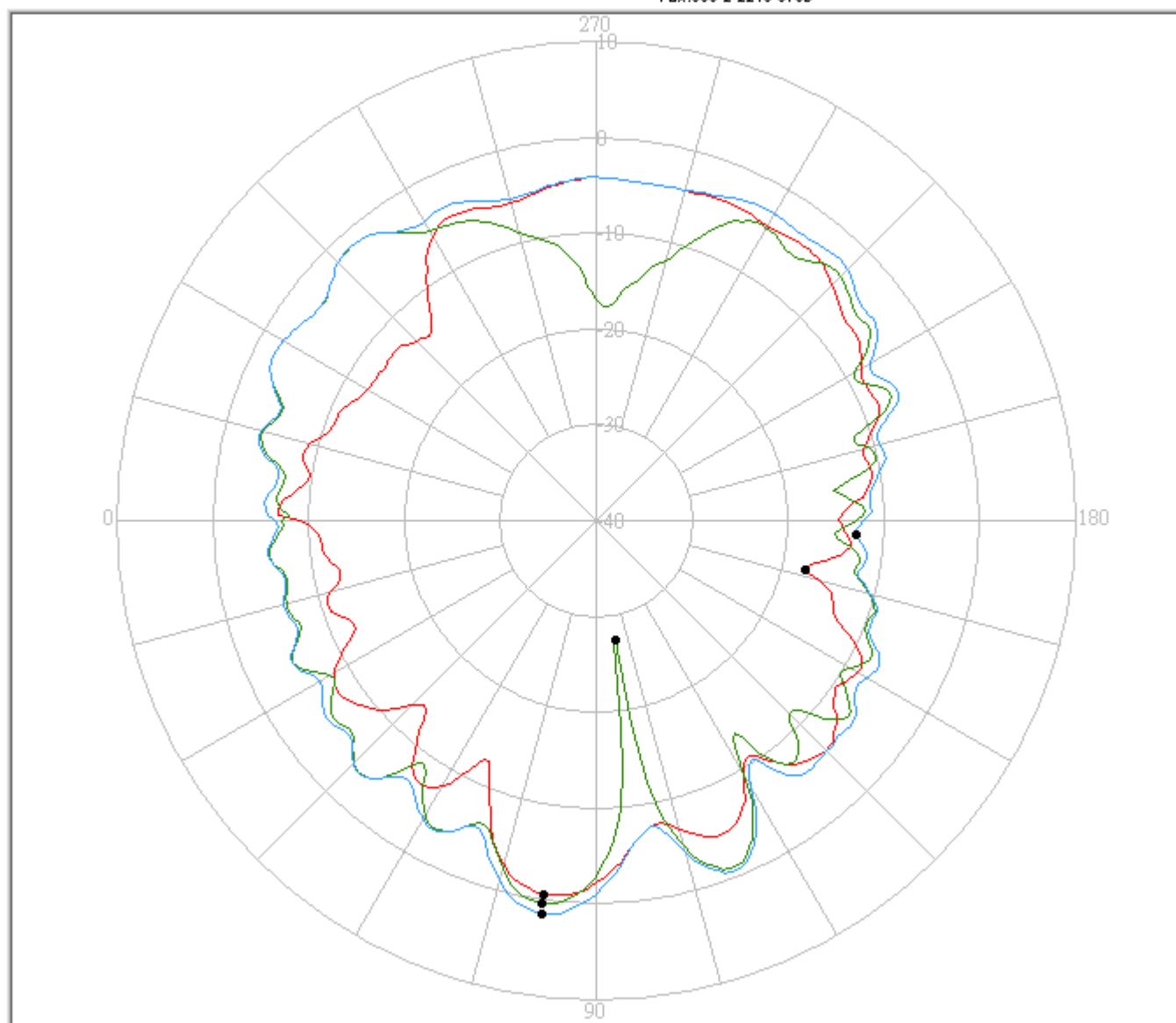
1. 5.785GHz



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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		S50	Left	5785.00	-0.67 / 82.00	-17.55 / 167.00	-6.93	Ver.	2005/12/13
2		S50	Left	5785.00	0.28 / 82.00	-27.38 / 99.00	-5.73	Hor.	2005/12/13
3		S50	Left	5785.00	1.37 / 82.00	-12.89 / 177.00	-4.41	V+H	2005/12/13

m. 5.85GHz



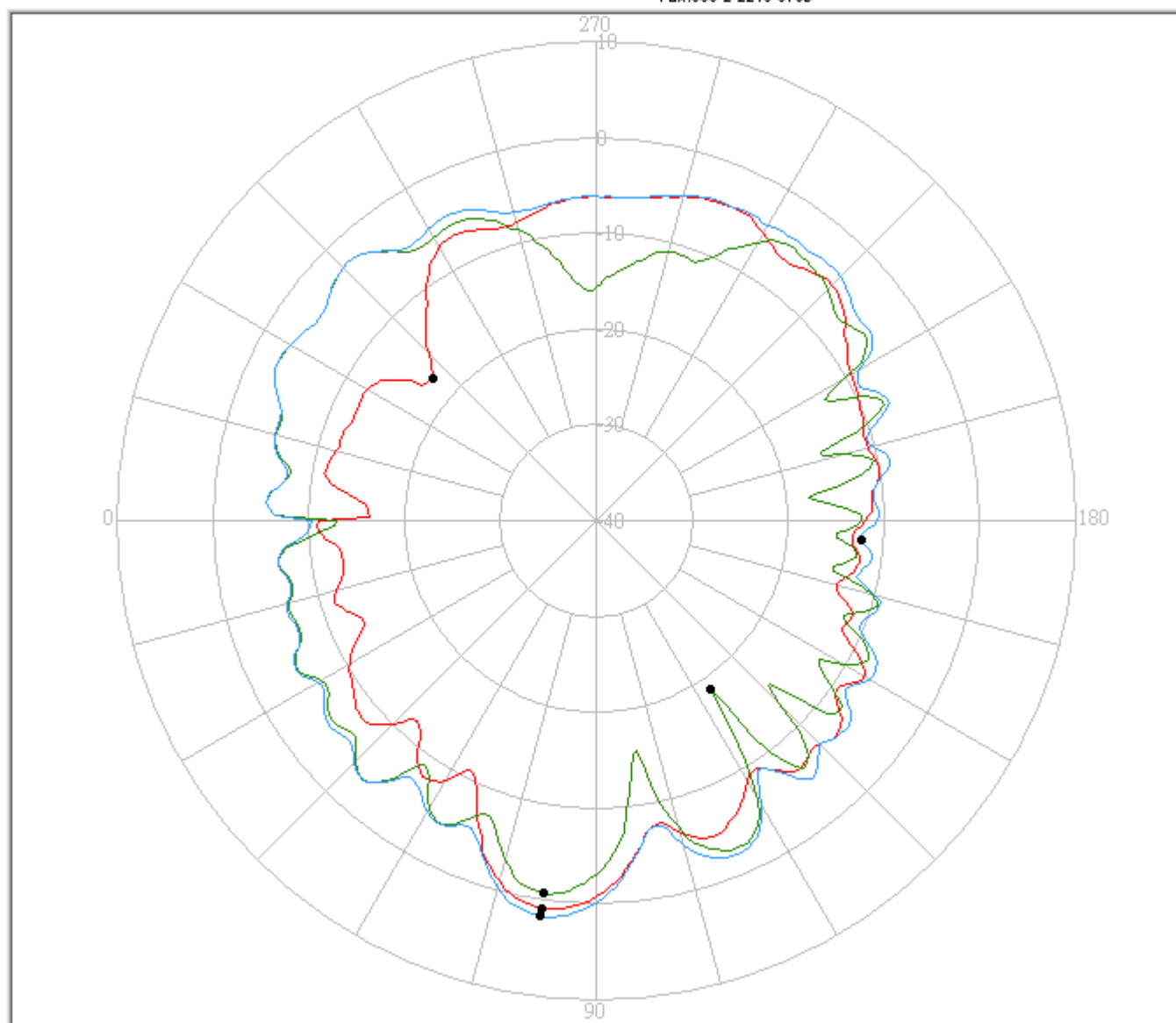
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Fax:886-2-2218-5760



Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	Left	5850.00	0.80 / 82.00	-17.50 / 319.00	-7.07	Ver.	2005/12/13
2		S50	Left	5850.00	-0.76 / 82.00	-18.77 / 124.00	-6.47	Hor.	2005/12/13
3		S50	Left	5850.00	1.66 / 82.00	-12.35 / 176.00	-4.87	V+H	2005/12/13

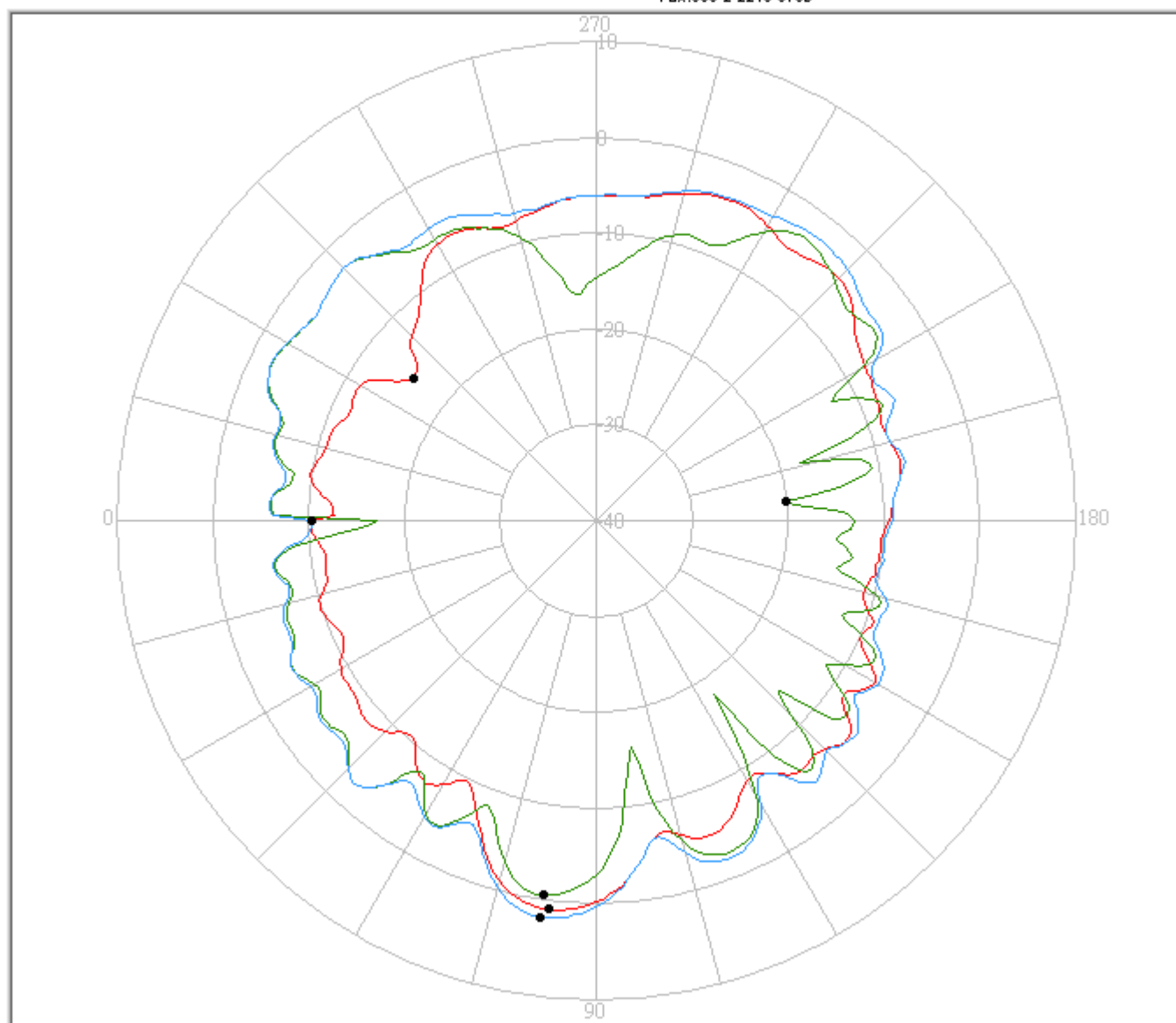
n. 5.875GHz



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Antenna Pattern Measurement

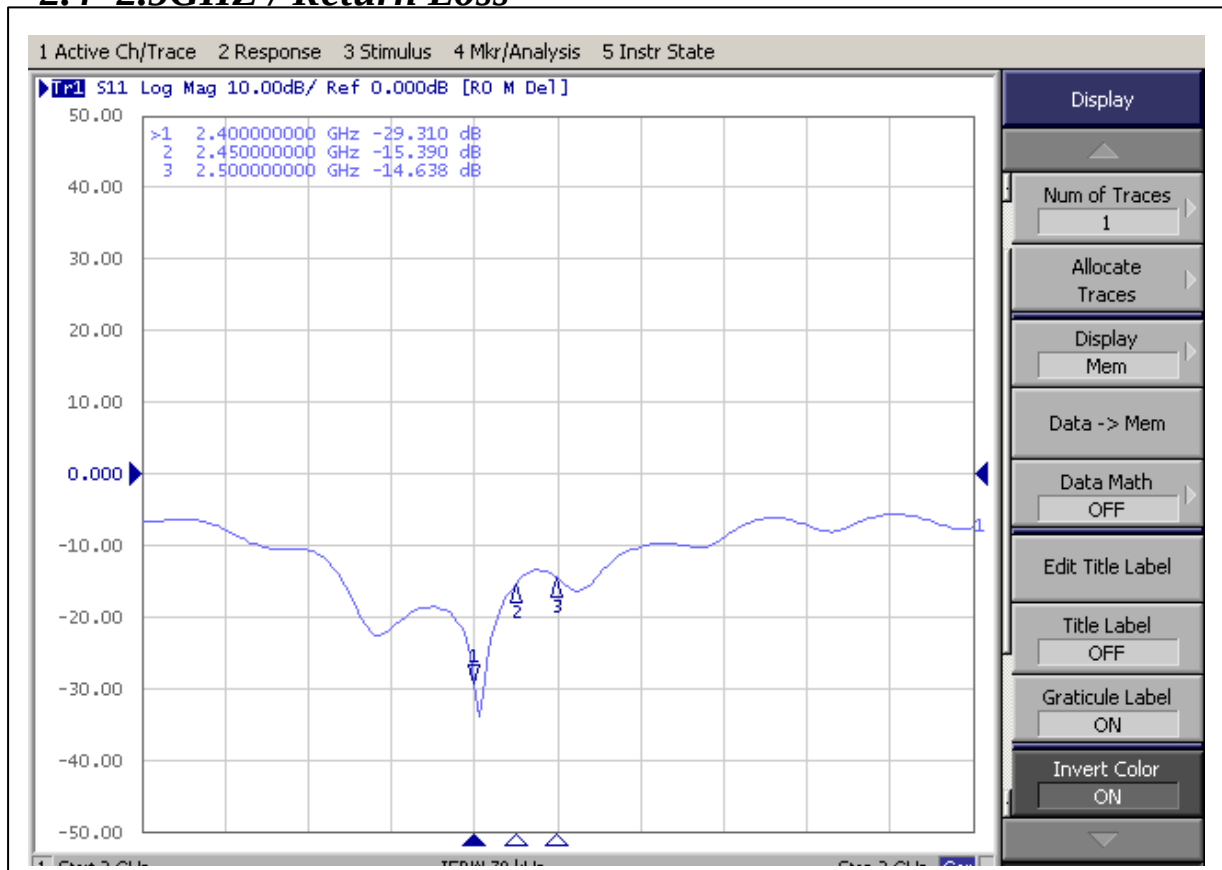
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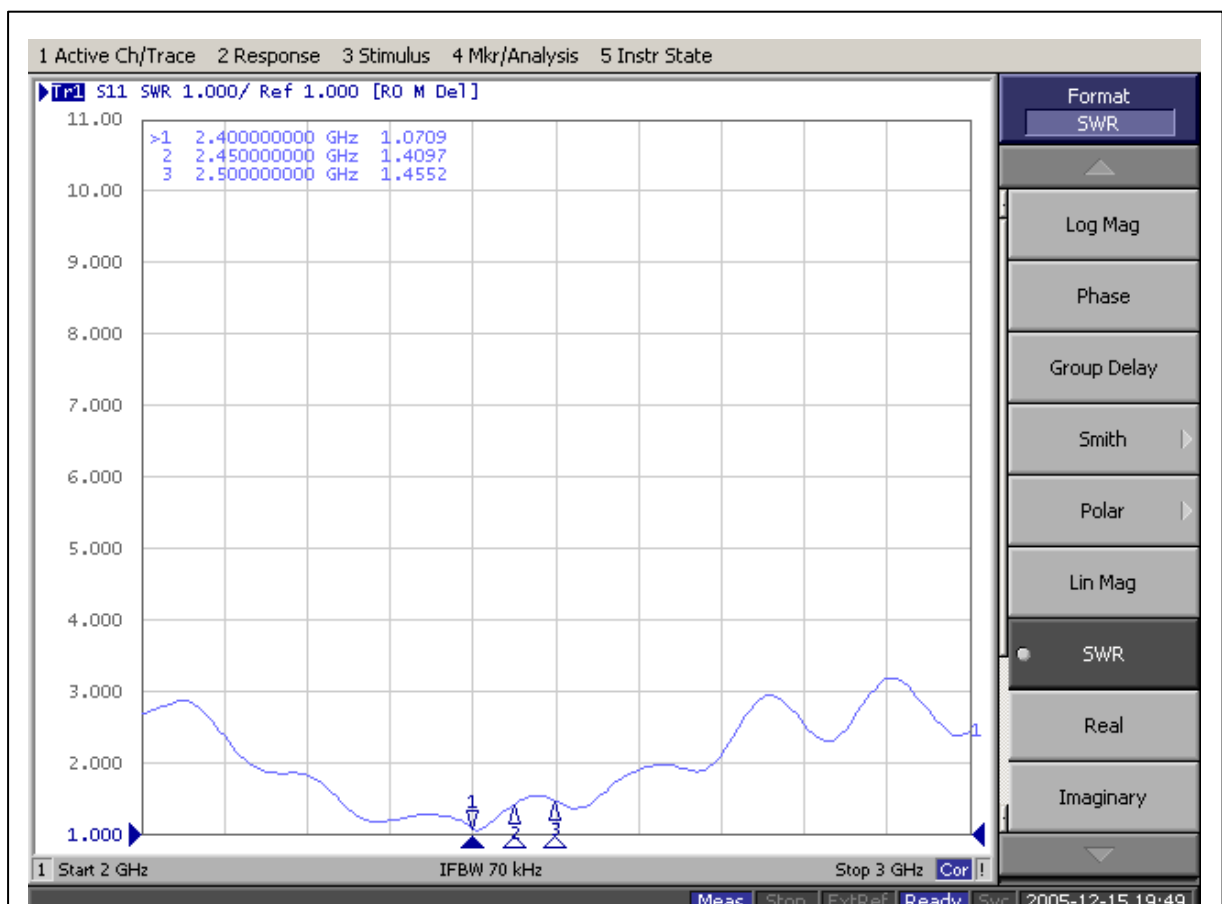
Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	Left	5875.00	0.86 / 83.00	-15.89 / 322.00	-6.44	Ver.	2005/12/13
2		S50	Left	5875.00	-0.53 / 82.00	-20.03 / 186.00	-6.10	Hor.	2005/12/13
3		S50	Left	5875.00	1.76 / 82.00	-10.39 / 0.00	-4.40	V+H	2005/12/13

4. WLAN Ant./ (RIGHT)

2.4~2.5GHZ / Return Loss

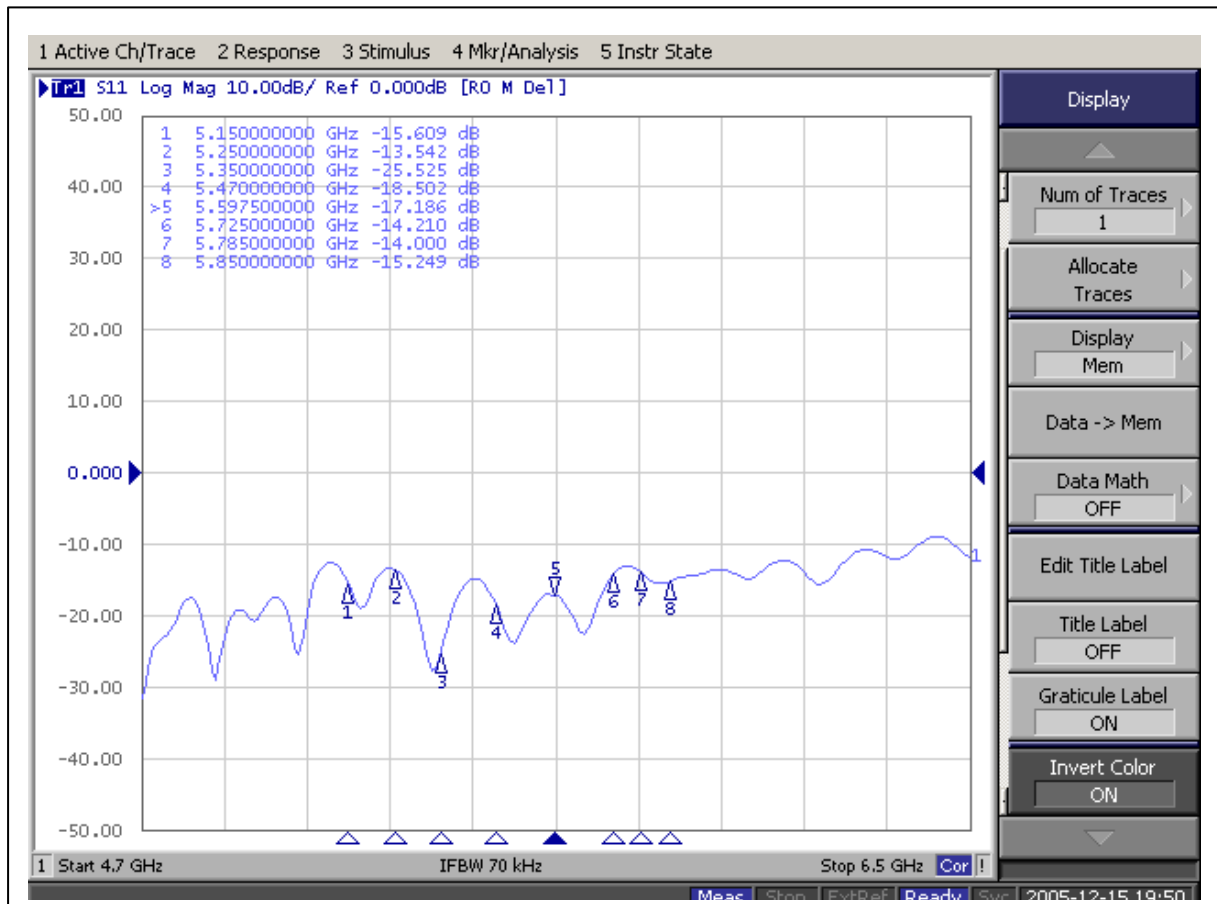


2.4~2.5GHZ / VSWR

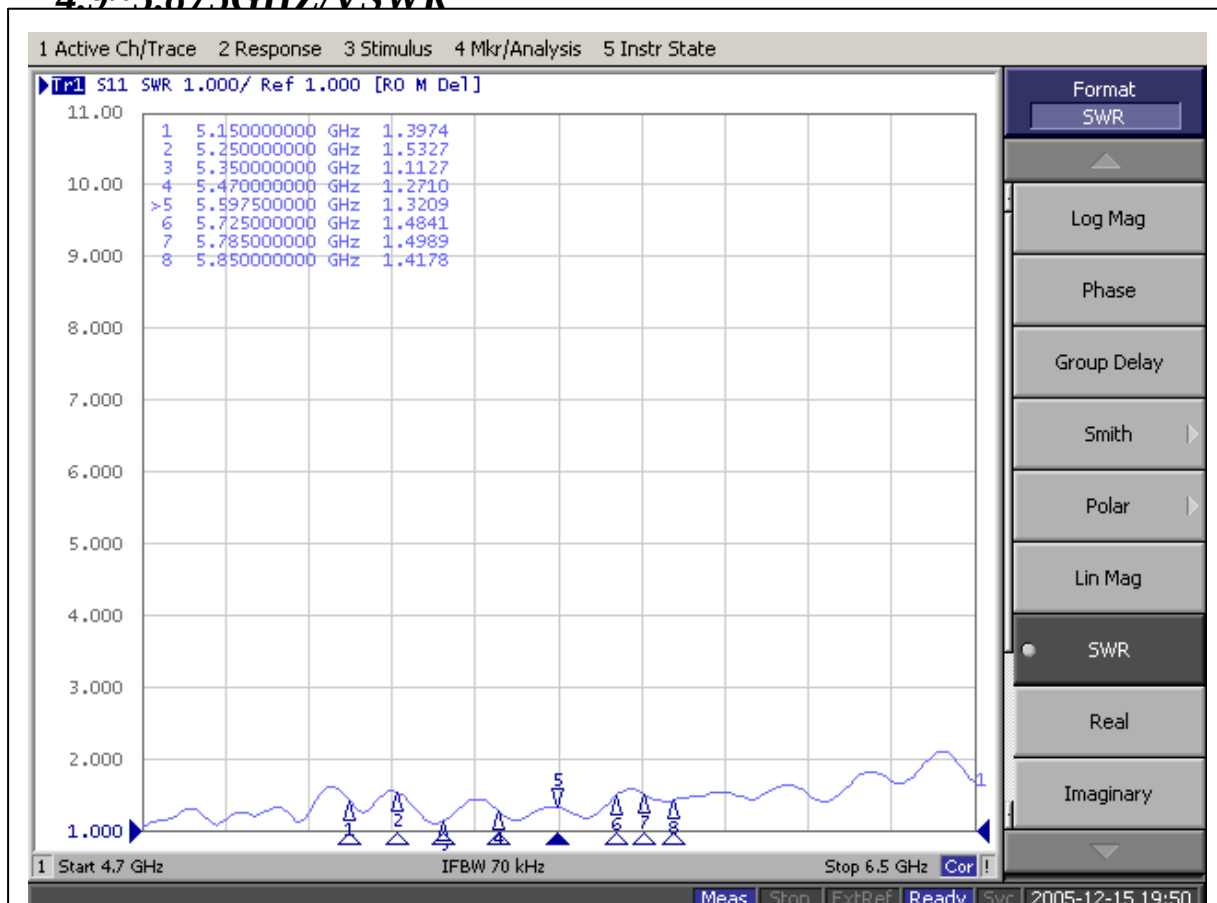


WLAN Ant./ (RIGHT)

4.9~5.875GHZ/Return Loss

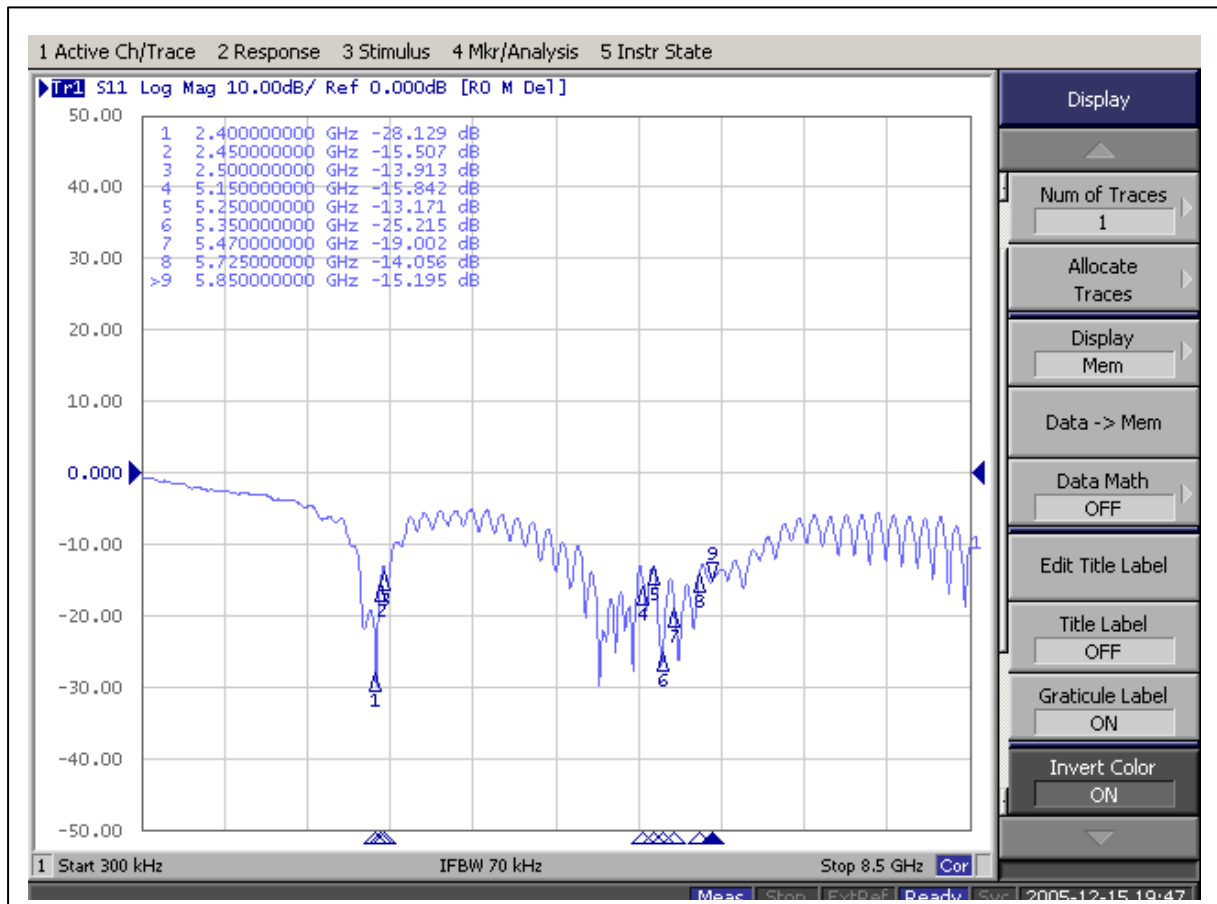


4.9~5.875GHZ/VSWR

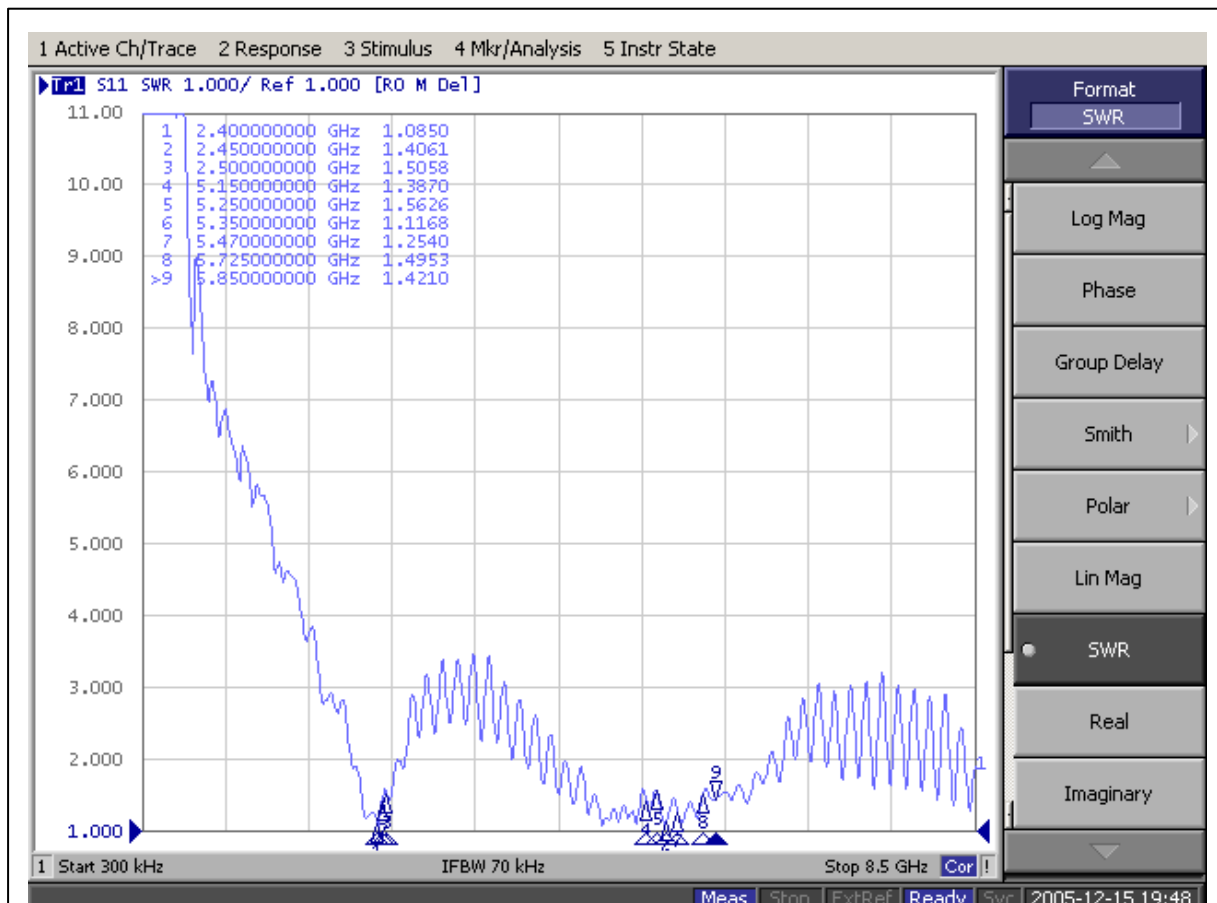


WLAN Ant./ (RIGHT)

2.4~2.5GHZ & 5.15~5.875GHZ / Return Loss



2.4~2.5GHZ & 5.15~5.875GHZ/VSWR



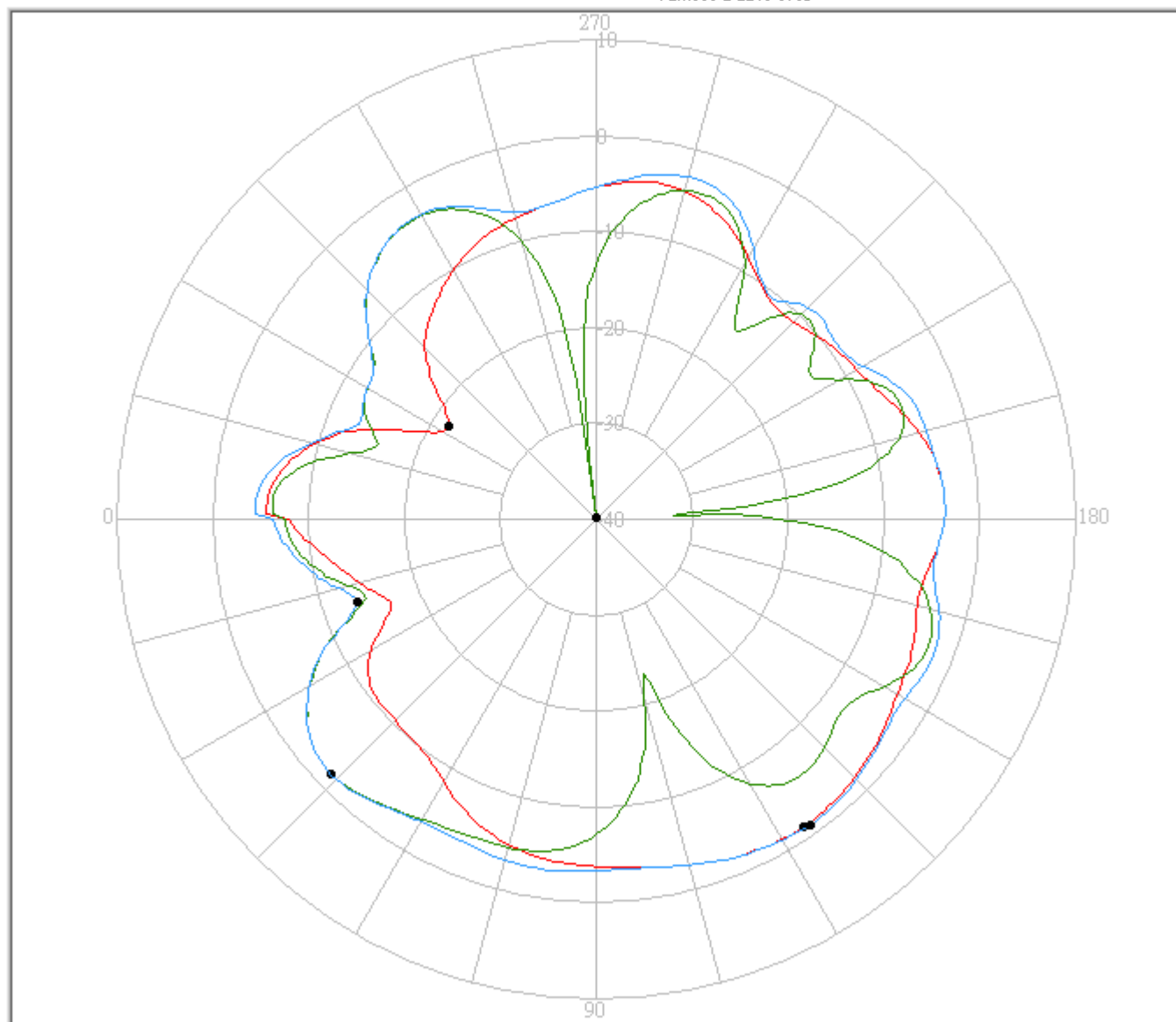
5. Gain & Pattern –RIGHT

a. 2.4GHz



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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	RIGHT	2400.00	-1.34 / 124.00	-21.82 / 328.00	-5.98	Ver.	2005/12/15
2		S50	RIGHT	2400.00	-1.67 / 44.00	-39.75 / 277.00	-6.77	Hor.	2005/12/15
3		S50	RIGHT	2400.00	-1.14 / 125.00	-13.70 / 19.00	-4.35	V+H	2005/12/15

b. 2.45GHz

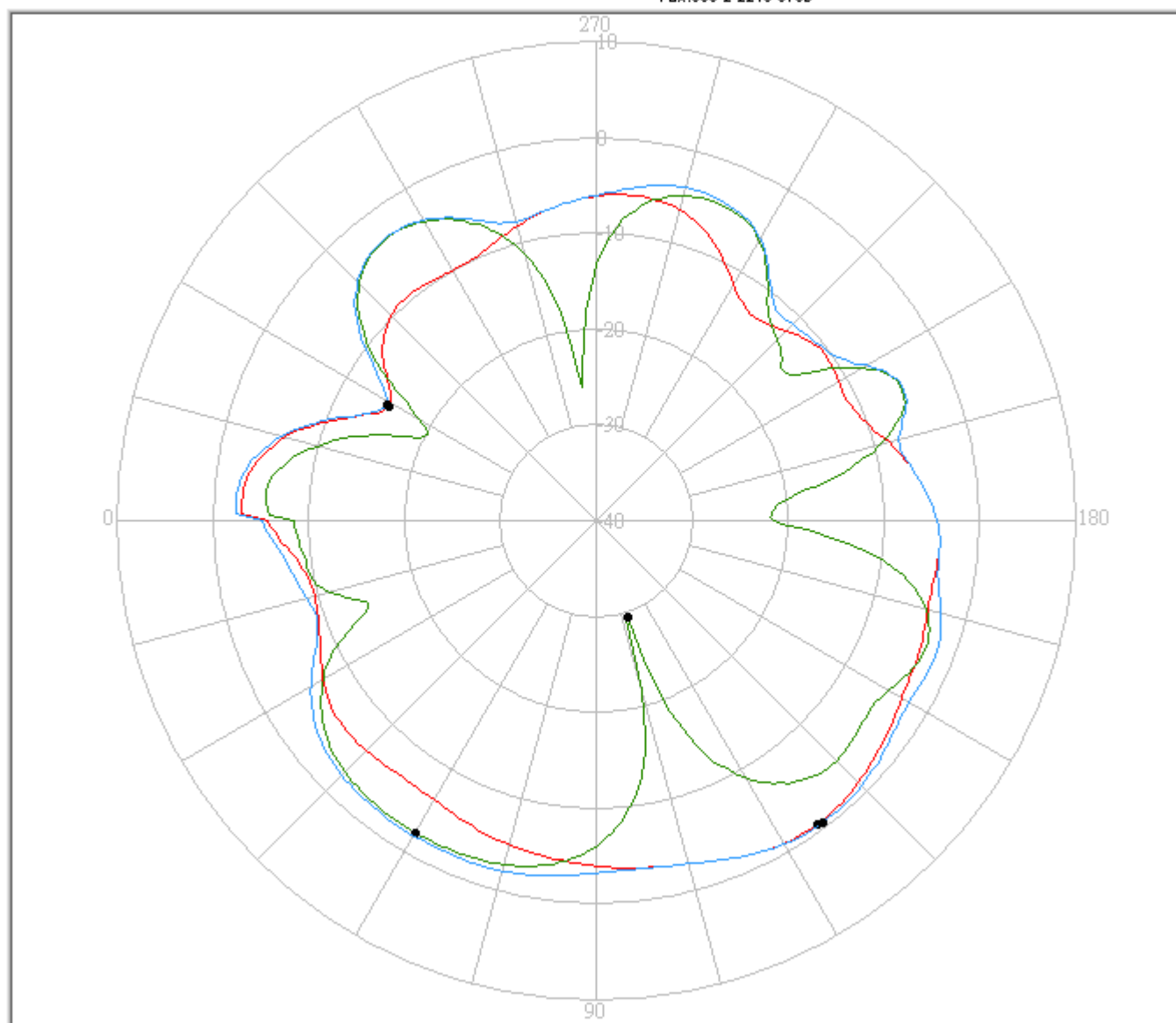


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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	RIGHT	2450.00	-0.79 / 126.00	-15.27 / 331.00	-5.62	Ver.	2005/12/15
2		S50	RIGHT	2450.00	-2.35 / 60.00	-29.44 / 108.00	-6.51	Hor.	2005/12/15
3		S50	RIGHT	2450.00	-0.60 / 127.00	-14.98 / 331.00	-4.13	V+H	2005/12/15

c. 2.5GHz



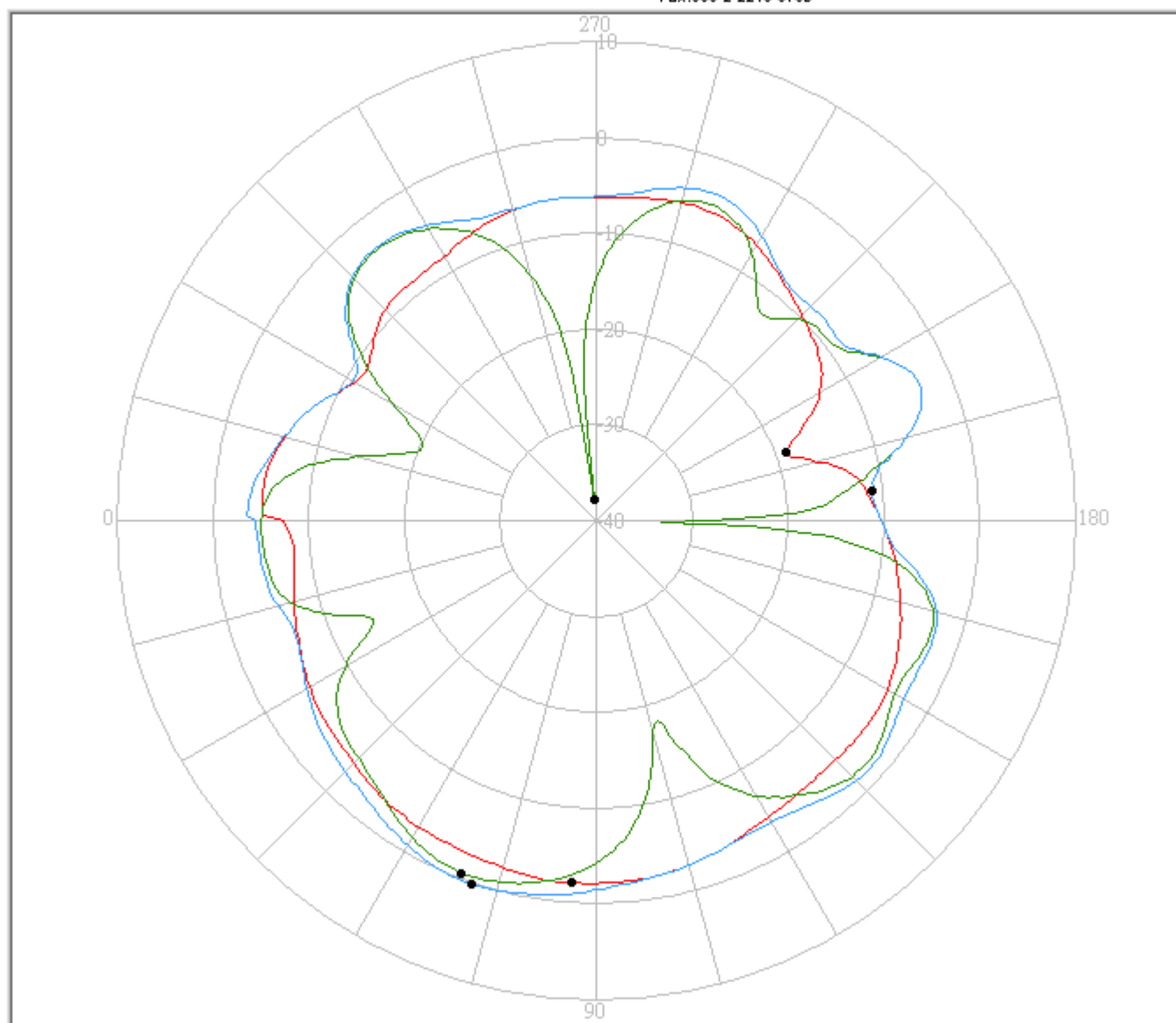
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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	RIGHT	2500.00	-2.13 / 86.00	-18.93 / 200.00	-5.79	Ver.	2005/12/15
2		S50	RIGHT	2500.00	-0.64 / 69.00	-37.85 / 277.00	-5.81	Hor.	2005/12/15
3		S50	RIGHT	2500.00	0.06 / 71.00	-11.09 / 186.00	-4.00	V+H	2005/12/15

d. 4.9GHz



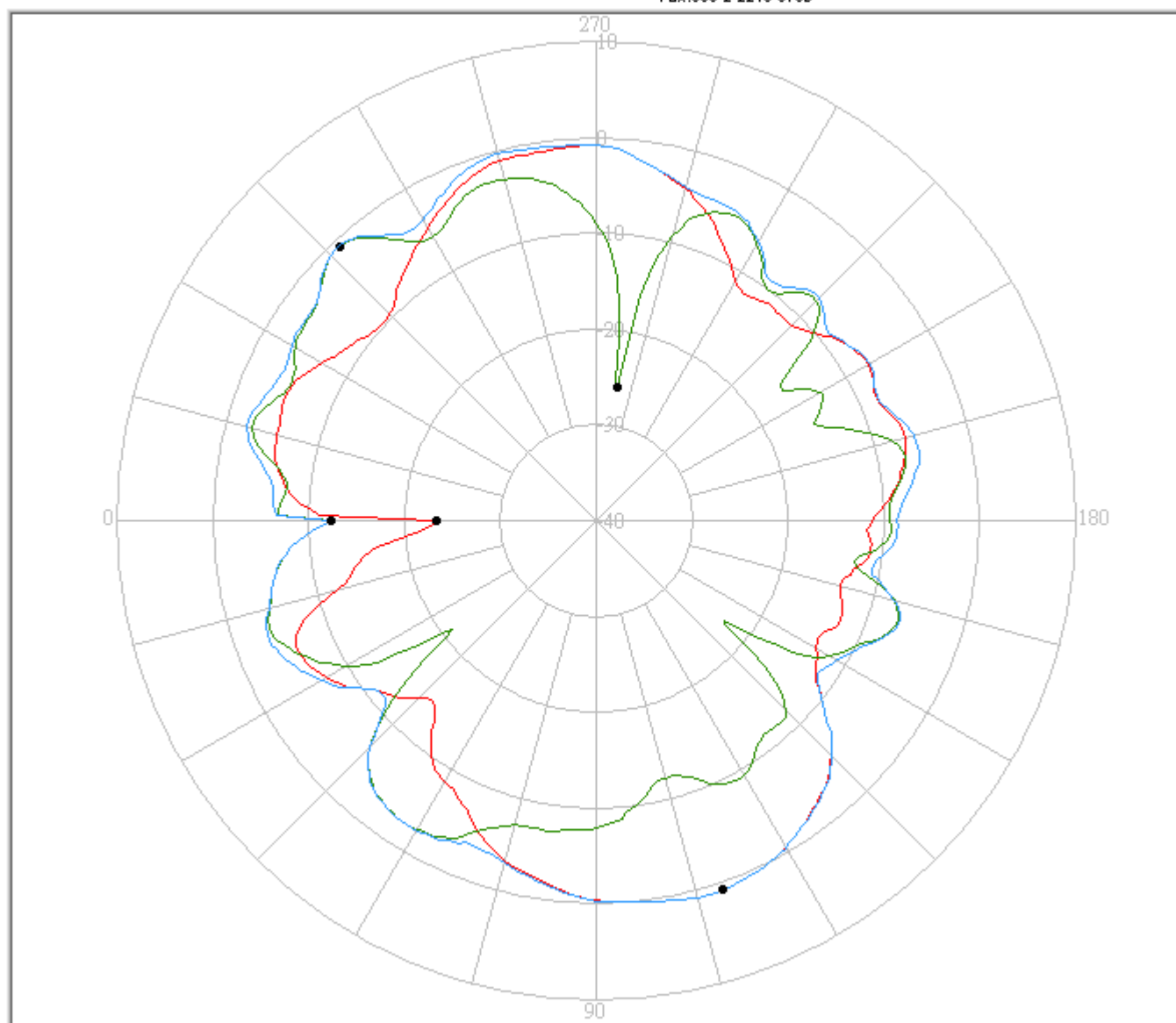
eService for Customer Satisfaction

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		S50	RIGHT	4900.00	0.75 / 109.00	-23.37 / 0.00	-4.91	Ver.	2005/12/15
2		S50	RIGHT	4900.00	-0.83 / 313.00	-25.84 / 261.00	-6.58	Hor.	2005/12/15
3		S50	RIGHT	4900.00	0.76 / 109.00	-12.34 / 0.00	-3.55	V+H	2005/12/15

e. 5.075GHz



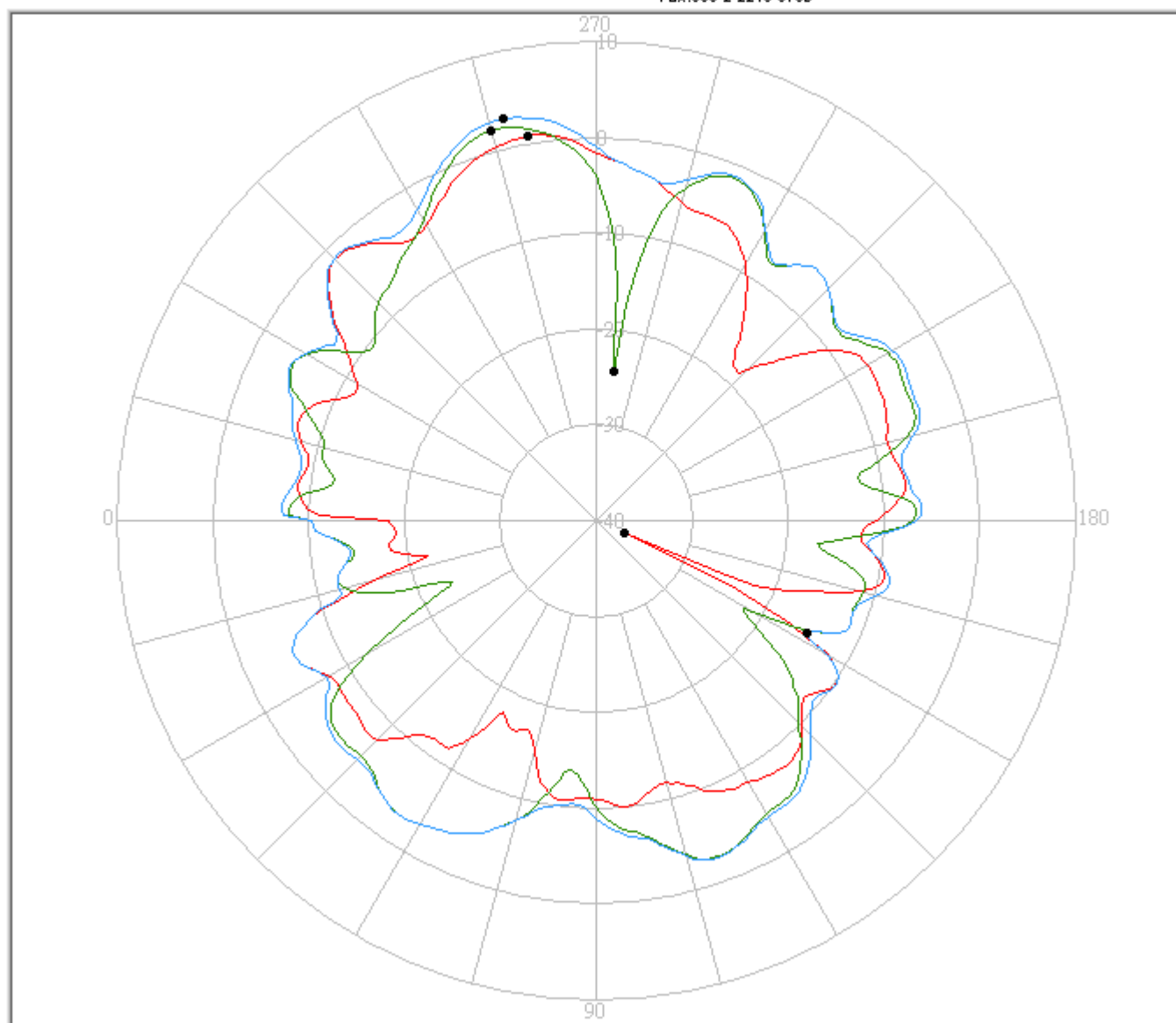
eService for Customer Satisfaction

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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		S50	RIGHT	5075.00	0.75 / 280.00	-36.89 / 156.00	-6.78	Ver.	2005/12/15
2		S50	RIGHT	5075.00	2.16 / 285.00	-24.32 / 263.00	-5.51	Hor.	2005/12/15
3		S50	RIGHT	5075.00	2.96 / 283.00	-15.08 / 152.00	-4.23	V+H	2005/12/15

f. 5.15GHz



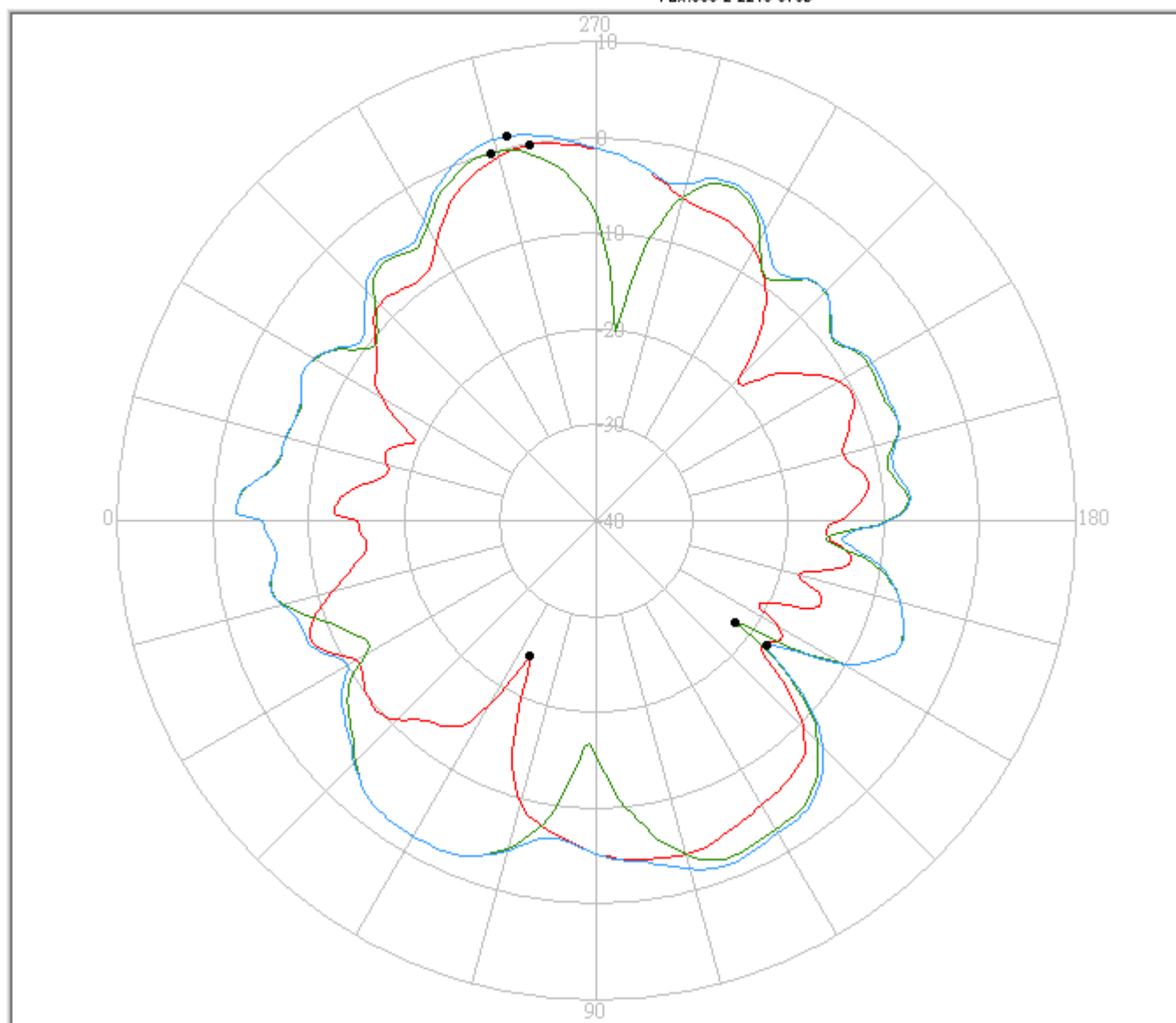
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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	RIGHT	5150.00	-0.21 / 280.00	-24.23 / 64.00	-7.47	Ver.	2005/12/15
2		S50	RIGHT	5150.00	-0.09 / 286.00	-22.02 / 144.00	-5.45	Hor.	2005/12/15
3		S50	RIGHT	5150.00	1.13 / 283.00	-17.93 / 144.00	-4.35	V+H	2005/12/15

g. 5.25GHz

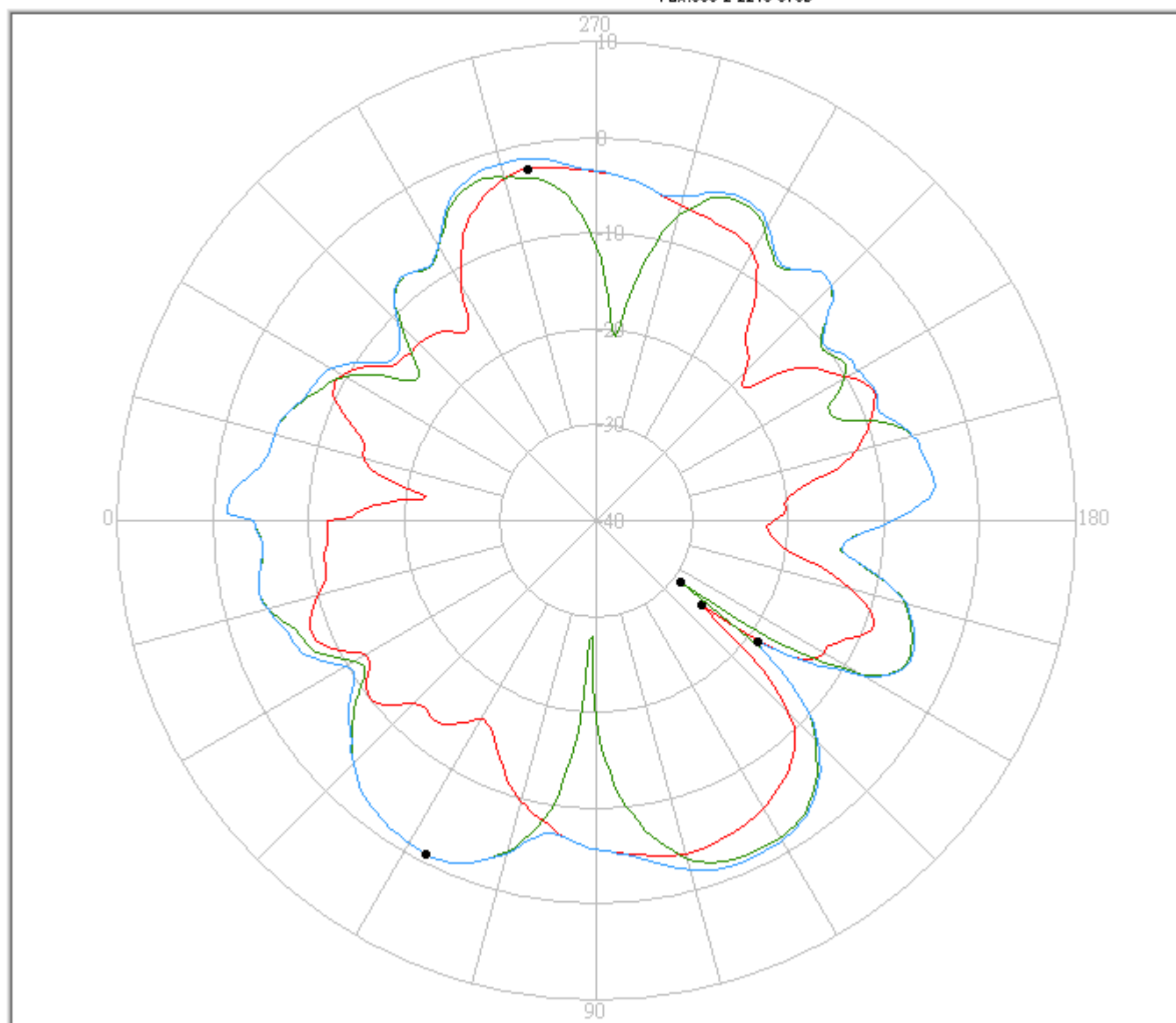


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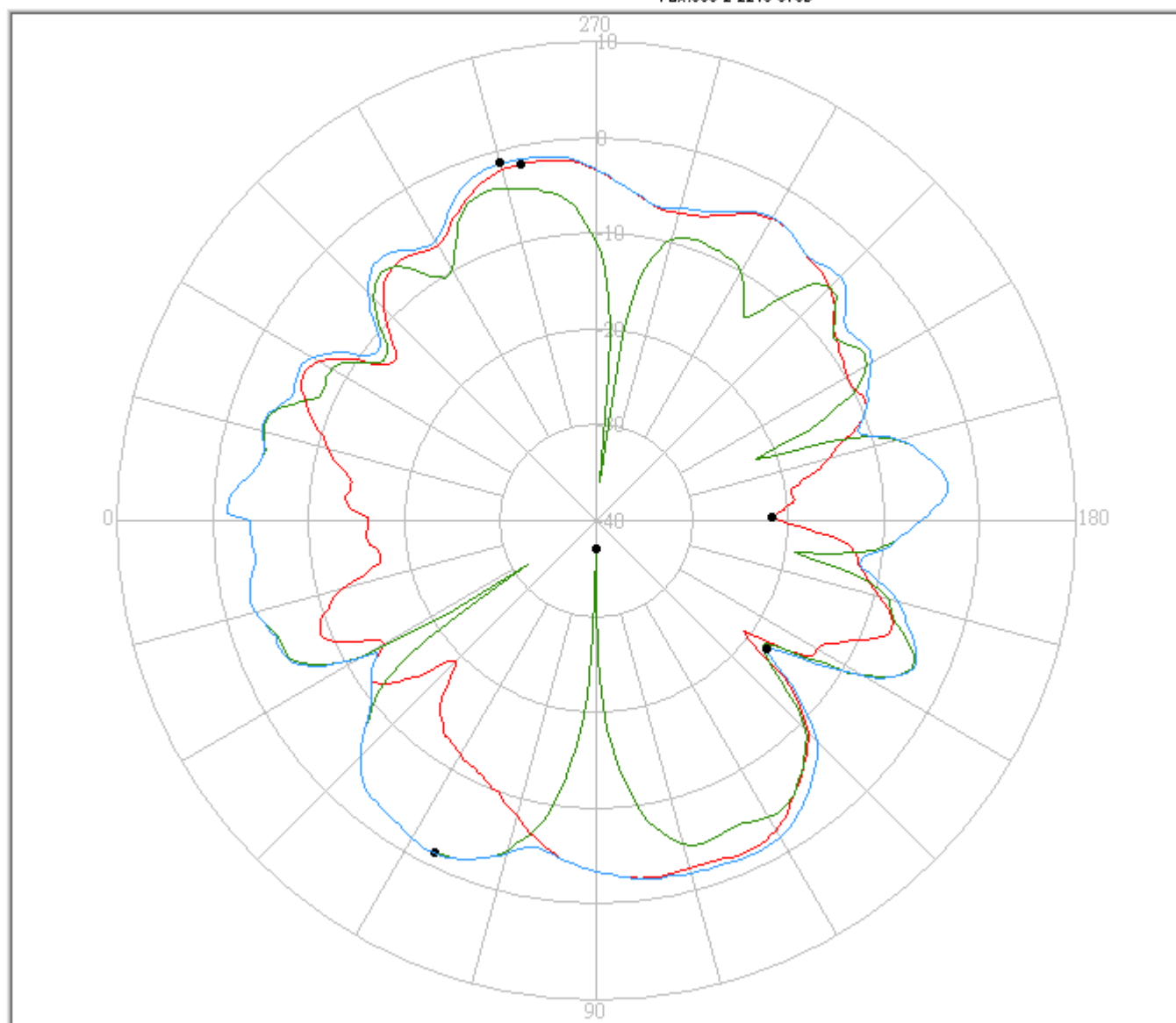
Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	RIGHT	5250.00	-2.60 / 281.00	-25.94 / 141.00	-8.56	Ver.	2005/12/15
2		S50	RIGHT	5250.00	-0.90 / 63.00	-29.14 / 144.00	-5.58	Hor.	2005/12/15
3		S50	RIGHT	5250.00	-0.90 / 63.00	-18.98 / 143.00	-4.71	V+H	2005/12/15

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	 S50	RIGHT	5350.00	-1.98 / 282.00	-21.62 / 181.00	-6.80	Ver.	2005/12/15
2	 S50	RIGHT	5350.00	-1.45 / 64.00	-37.11 / 89.00	-6.24	Hor.	2005/12/15
3	 S50	RIGHT	5350.00	-1.40 / 285.00	-17.65 / 143.00	-4.42	V+H	2005/12/15

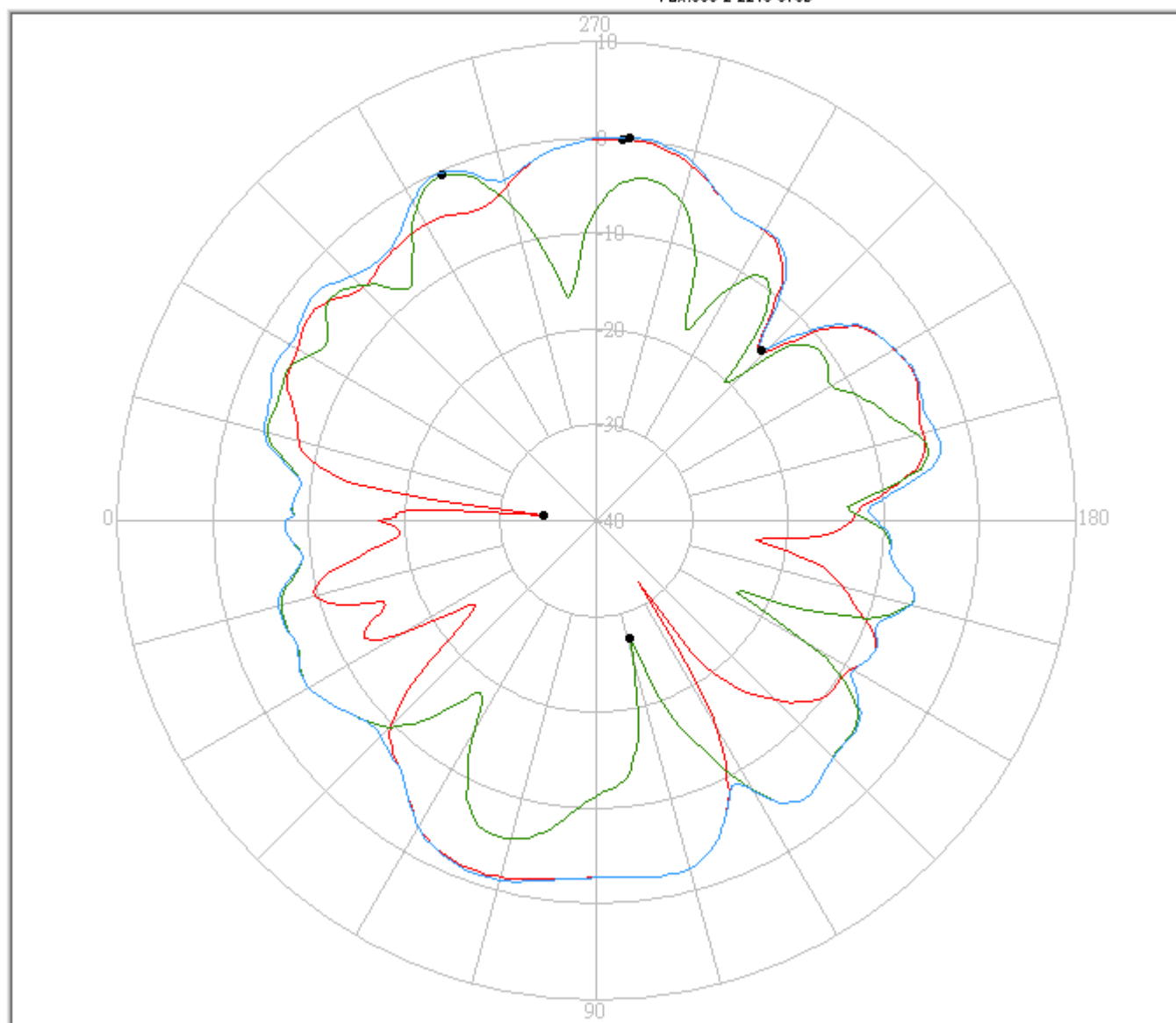
i. 5.47GHz



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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	RIGHT	5470.00	-0.12 / 266.00	-34.41 / 354.00	-5.28	Ver.	2005/12/15
2		S50	RIGHT	5470.00	-0.52 / 294.00	-27.24 / 106.00	-7.11	Hor.	2005/12/15
3		S50	RIGHT	5470.00	0.13 / 265.00	-15.34 / 226.00	-3.99	V+H	2005/12/15

j. 5.597GHz

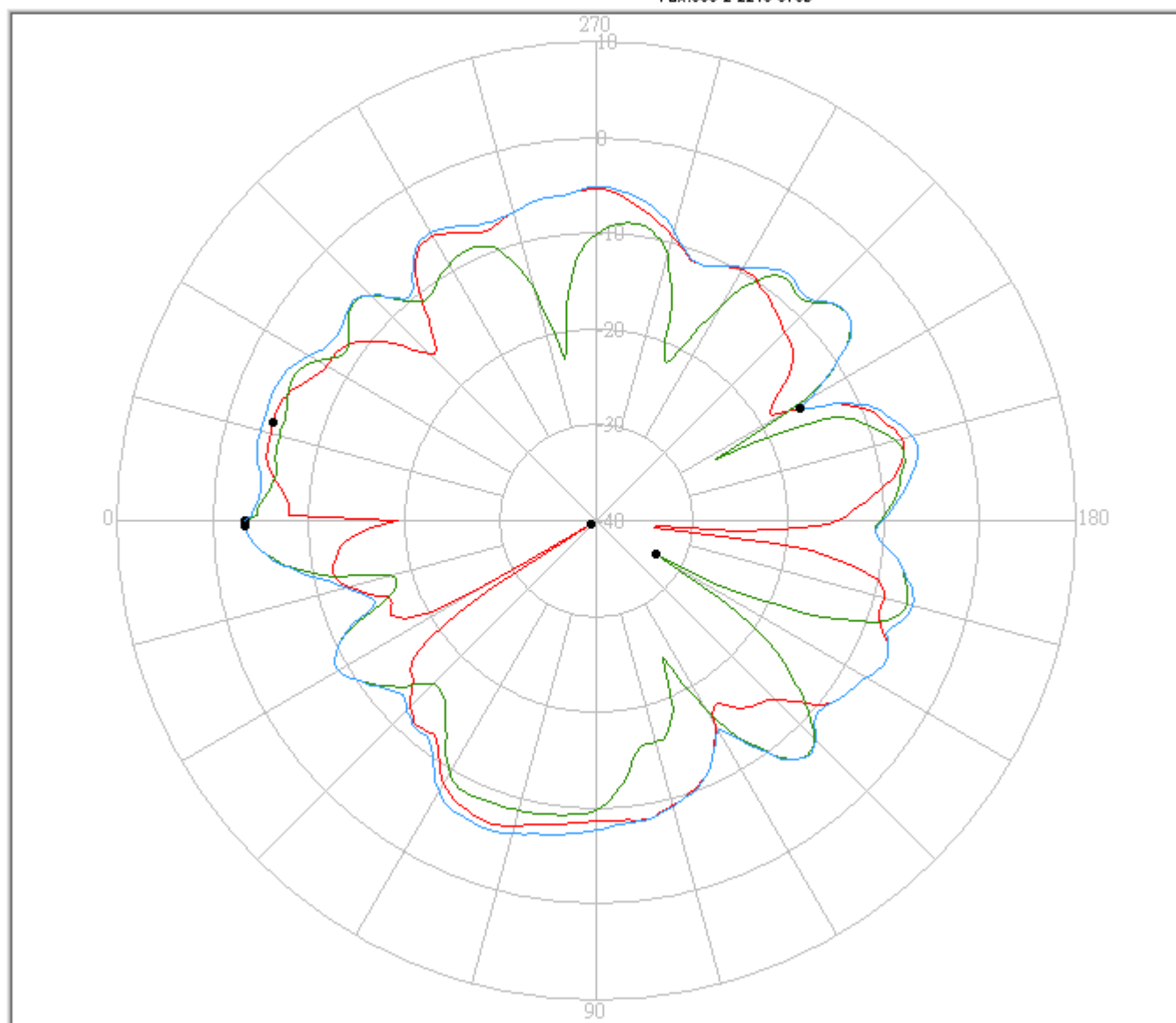


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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	RIGHT	5597.50	-4.81 / 343.00	-39.39 / 32.00	-9.06	Ver.	2005/12/15
2		S50	RIGHT	5597.50	-3.45 / 0.00	-32.87 / 150.00	-9.34	Hor.	2005/12/15
3		S50	RIGHT	5597.50	-3.45 / 1.00	-15.76 / 209.00	-7.30	V+H	2005/12/15

k. 5.725GHz

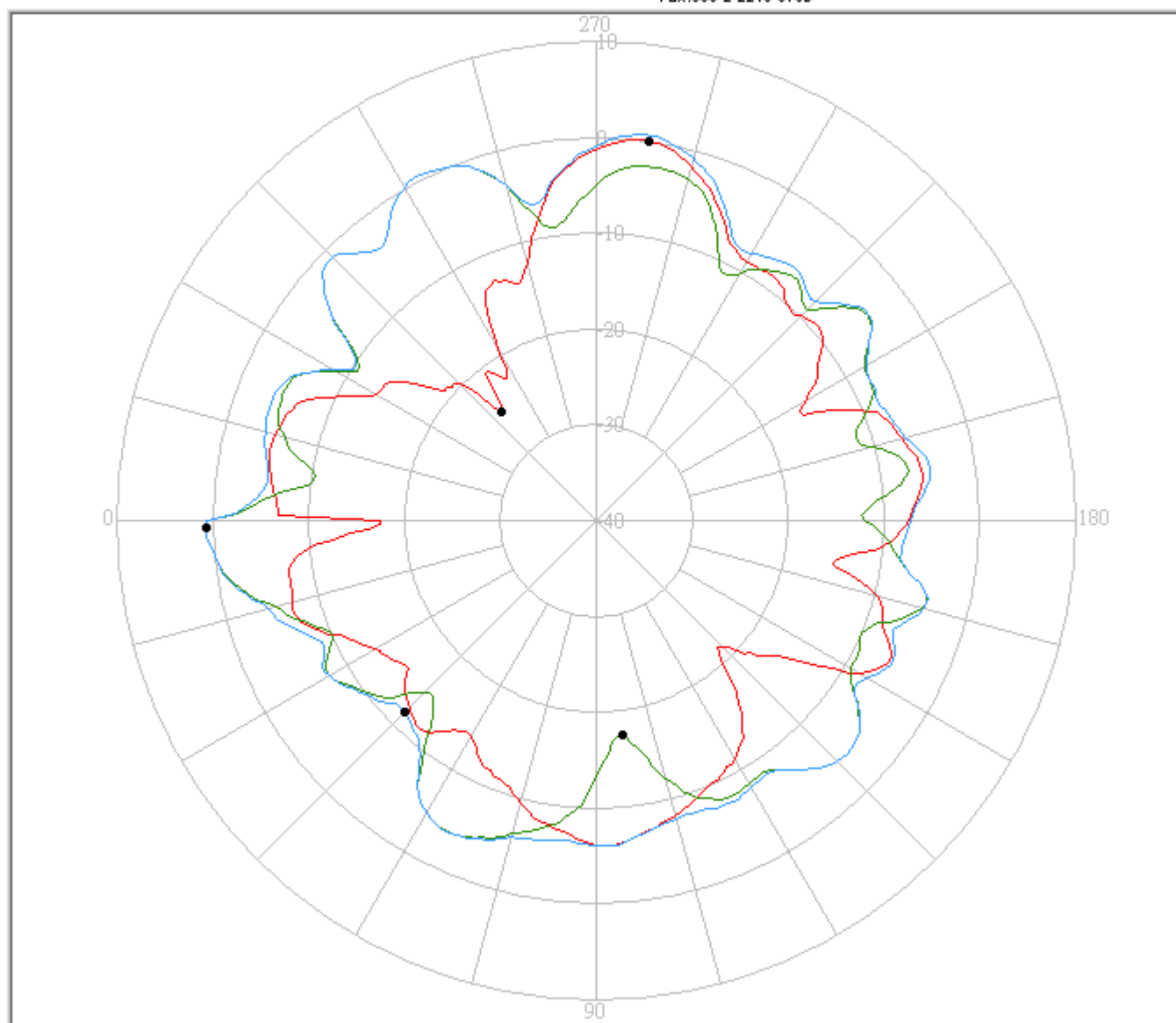


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Fax:886-2-2218-5760



Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	RIGHT	5725.00	0.00 / 262.00	-24.98 / 311.00	-7.95	Ver.	2005/12/15
2		S50	RIGHT	5725.00	0.73 / 1.00	-17.48 / 97.00	-5.57	Hor.	2005/12/15
3		S50	RIGHT	5725.00	0.73 / 1.00	-11.81 / 45.00	-4.46	V+H	2005/12/15

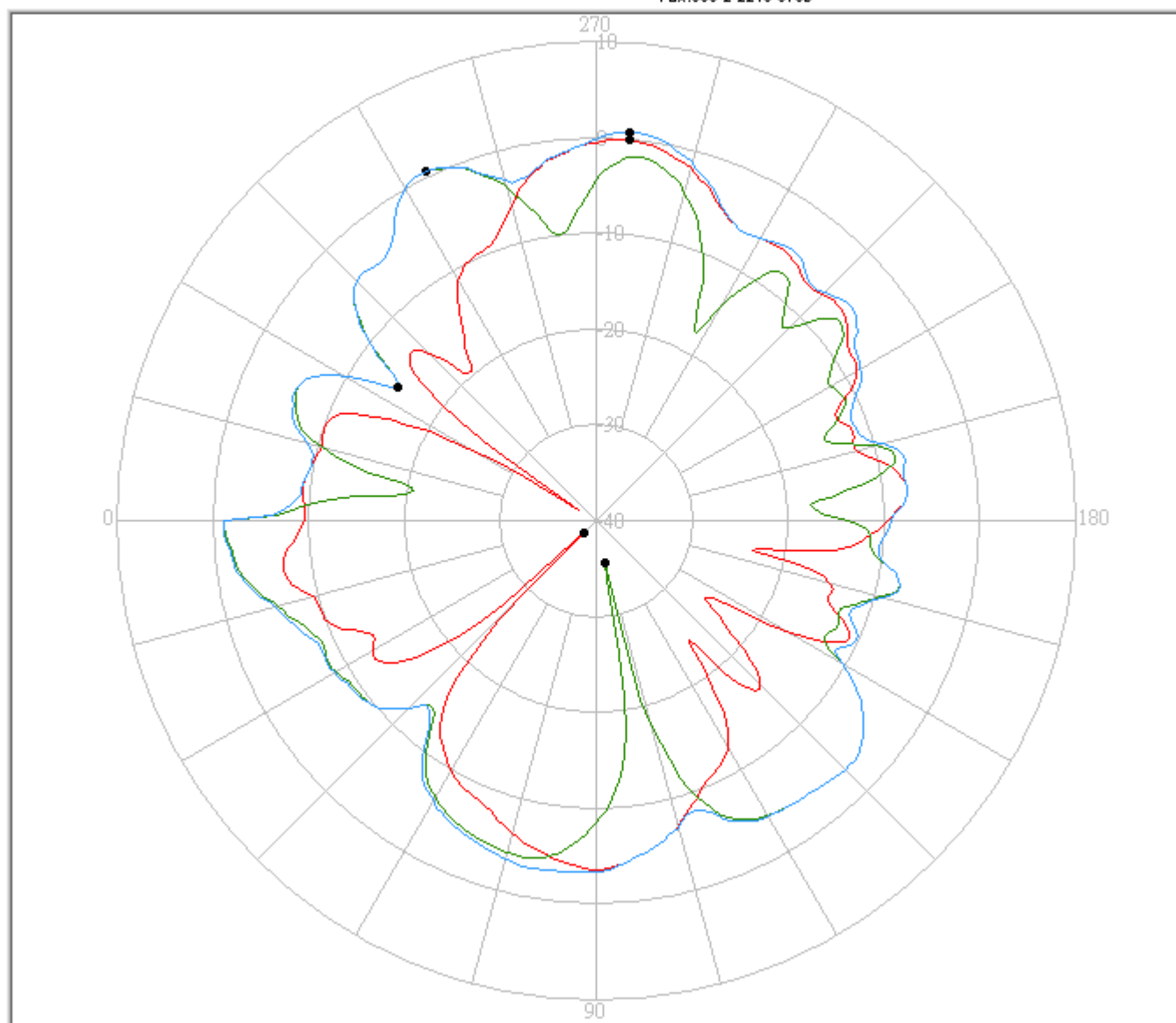
1. 5.785GHz



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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		S50	RIGHT	5785.00	-0.08 / 265.00	-38.14 / 44.00	-7.58	Ver.	2005/12/15
2		S50	RIGHT	5785.00	0.50 / 296.00	-35.58 / 102.00	-6.26	Hor.	2005/12/15
3		S50	RIGHT	5785.00	0.66 / 265.00	-14.98 / 326.00	-4.77	V+H	2005/12/15

m. 5.85GHz



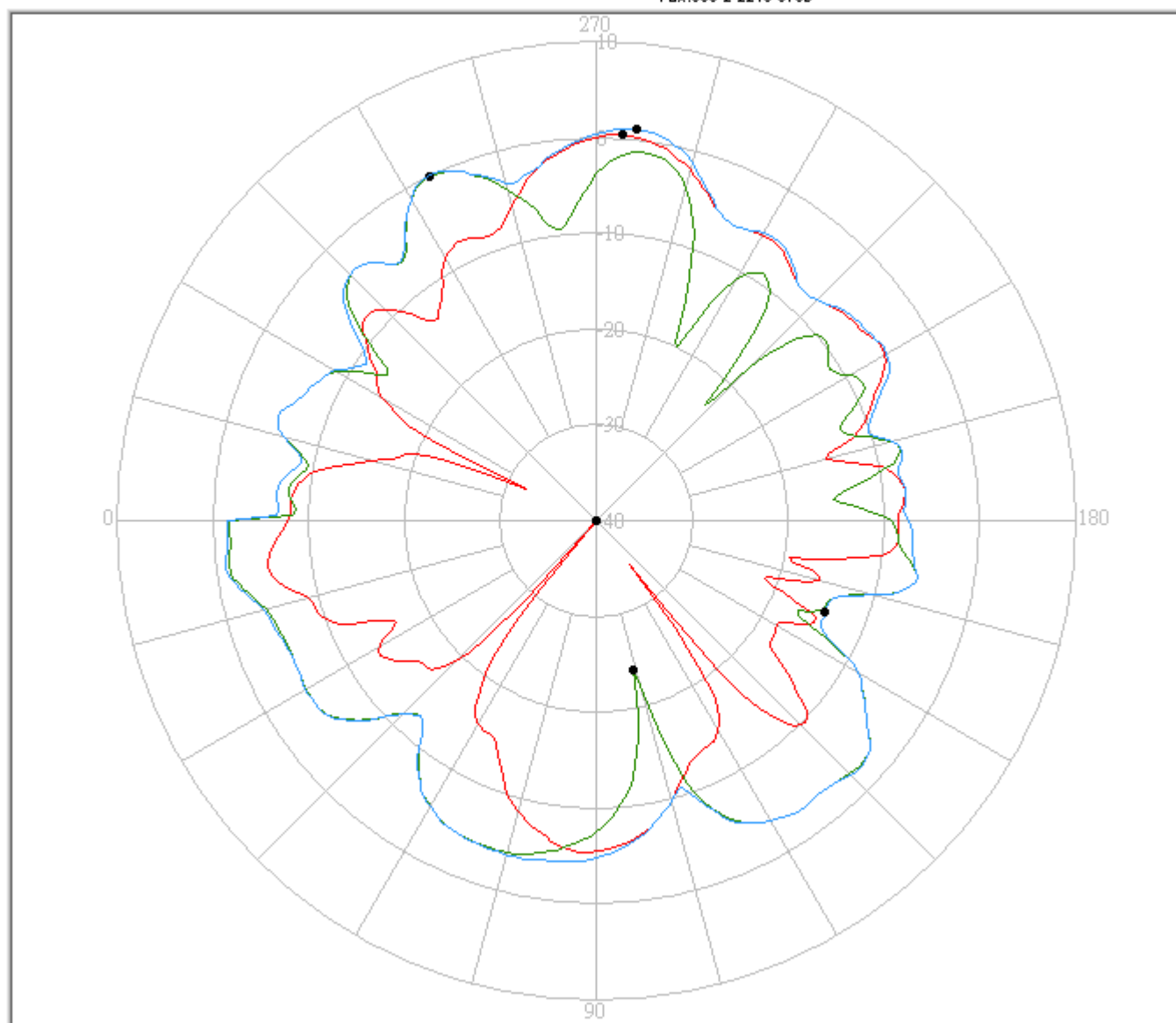
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Fax:886-2-2218-5760



Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	Red	S50	RIGHT	5850.00	0.32 / 266.00	-40.07 / 50.00	-7.59	Ver.	2005/12/15
2	Green	S50	RIGHT	5850.00	-0.13 / 296.00	-23.89 / 104.00	-5.82	Hor.	2005/12/15
3	Blue	S50	RIGHT	5850.00	1.08 / 264.00	-14.39 / 158.00	-4.52	V+H	2005/12/15

n. 5.875GHz

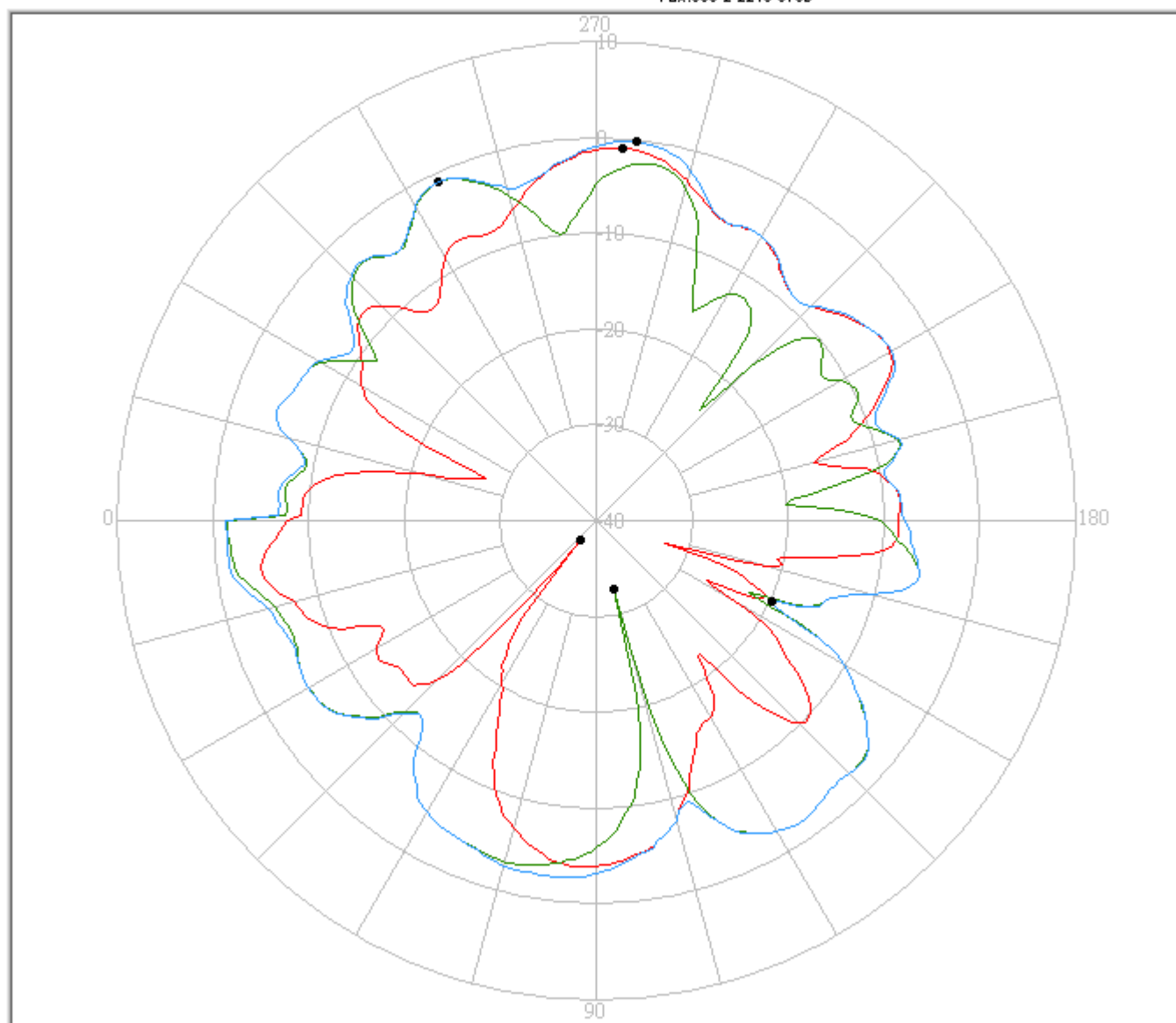


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Antenna Pattern Measurement

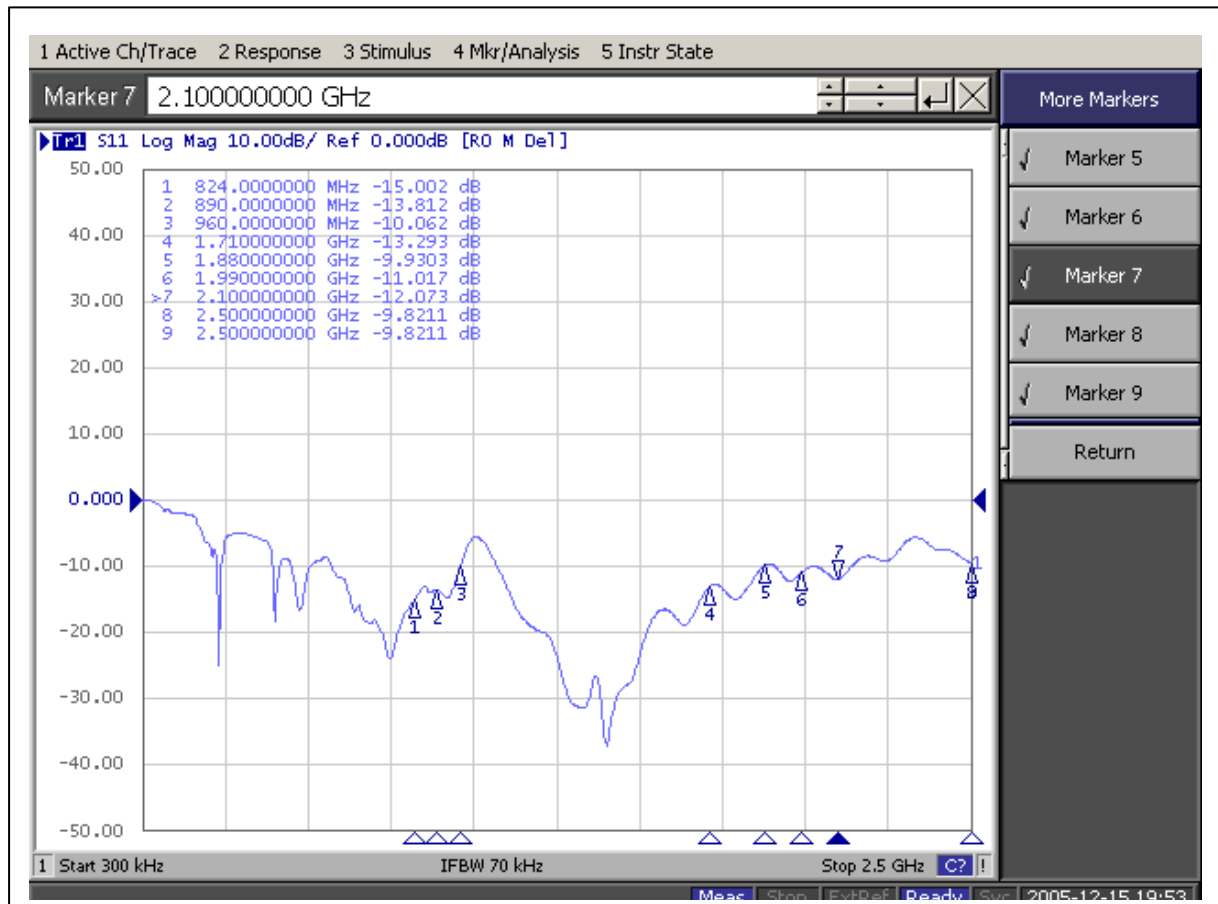
4F, No. 108-1, Min Chuan Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C. Tel:886-2-2218-2189,
Fax:886-2-2218-5760



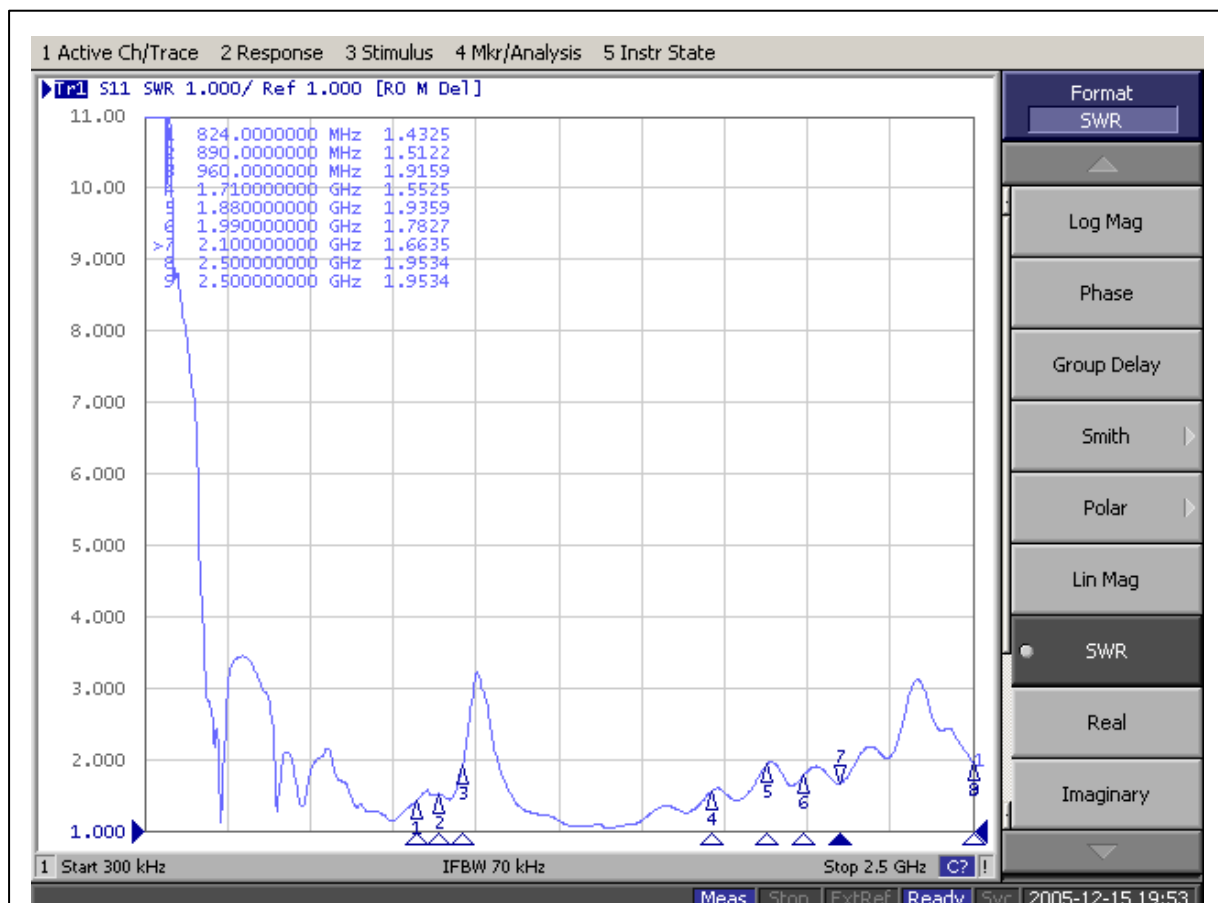
Pattern	Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	S50	RIGHT	5875.00	-1.07 / 266.00	-37.39 / 51.00	-7.76	Ver.	2005/12/15
2	S50	RIGHT	5875.00	-1.08 / 295.00	-32.57 / 104.00	-5.87	Hor.	2005/12/15
3	S50	RIGHT	5875.00	-0.28 / 264.00	-19.88 / 155.00	-4.62	V+H	2005/12/15

Ant./GPRS

GPRS / Return Loss



GPRS/VSWR



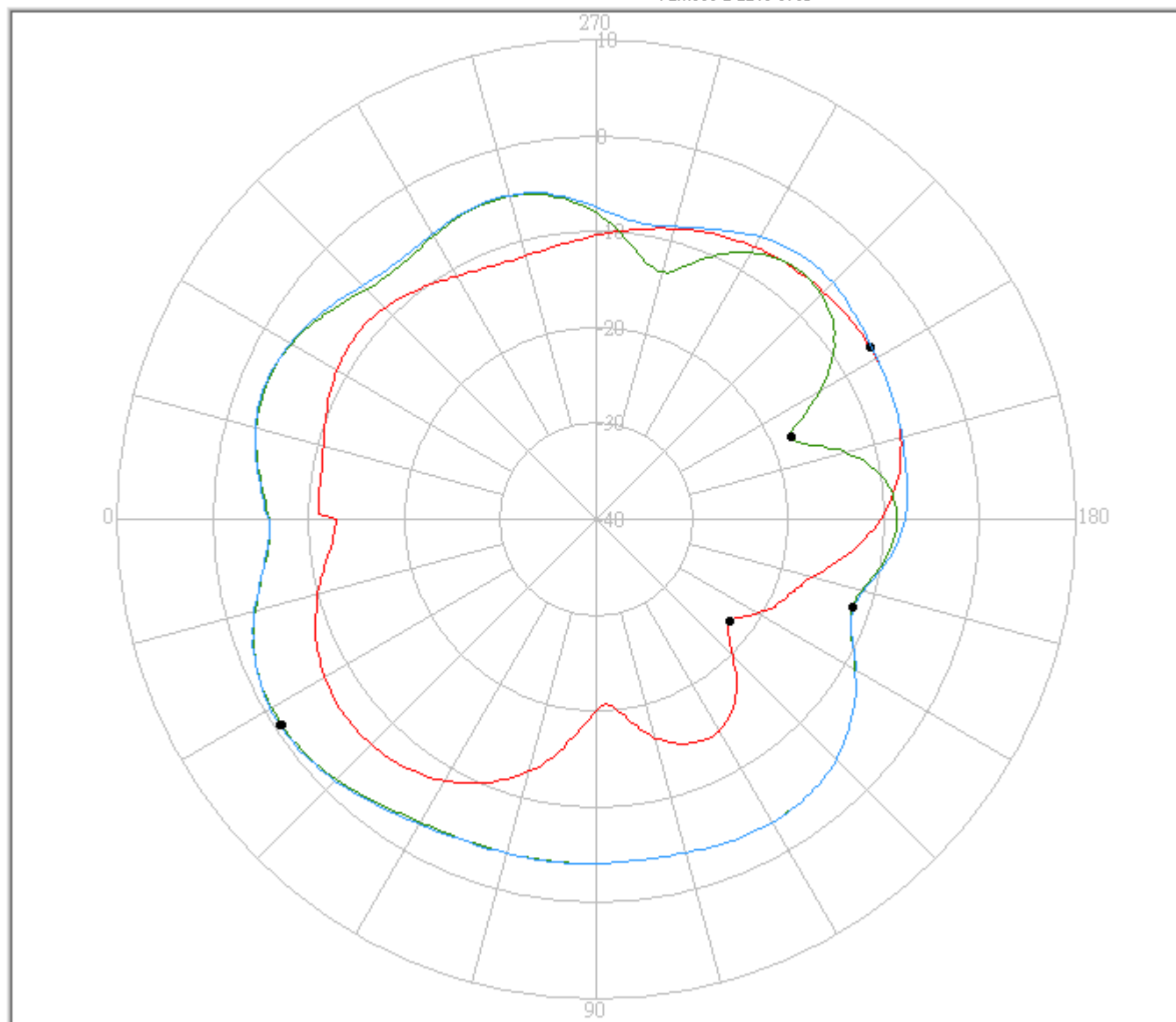
6. Gain & Pattern –GPRS

a. 824MHz



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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	GPRS	824.00	-6.30 / 212.00	-22.48 / 143.00	-9.77	Ver.	2005/12/15
2		S50	GPRS	824.00	-0.80 / 33.00	-18.00 / 203.00	-5.10	Hor.	2005/12/15
3		S50	GPRS	824.00	-0.68 / 33.00	-11.68 / 161.00	-4.62	V+H	2005/12/15

b.896MHz



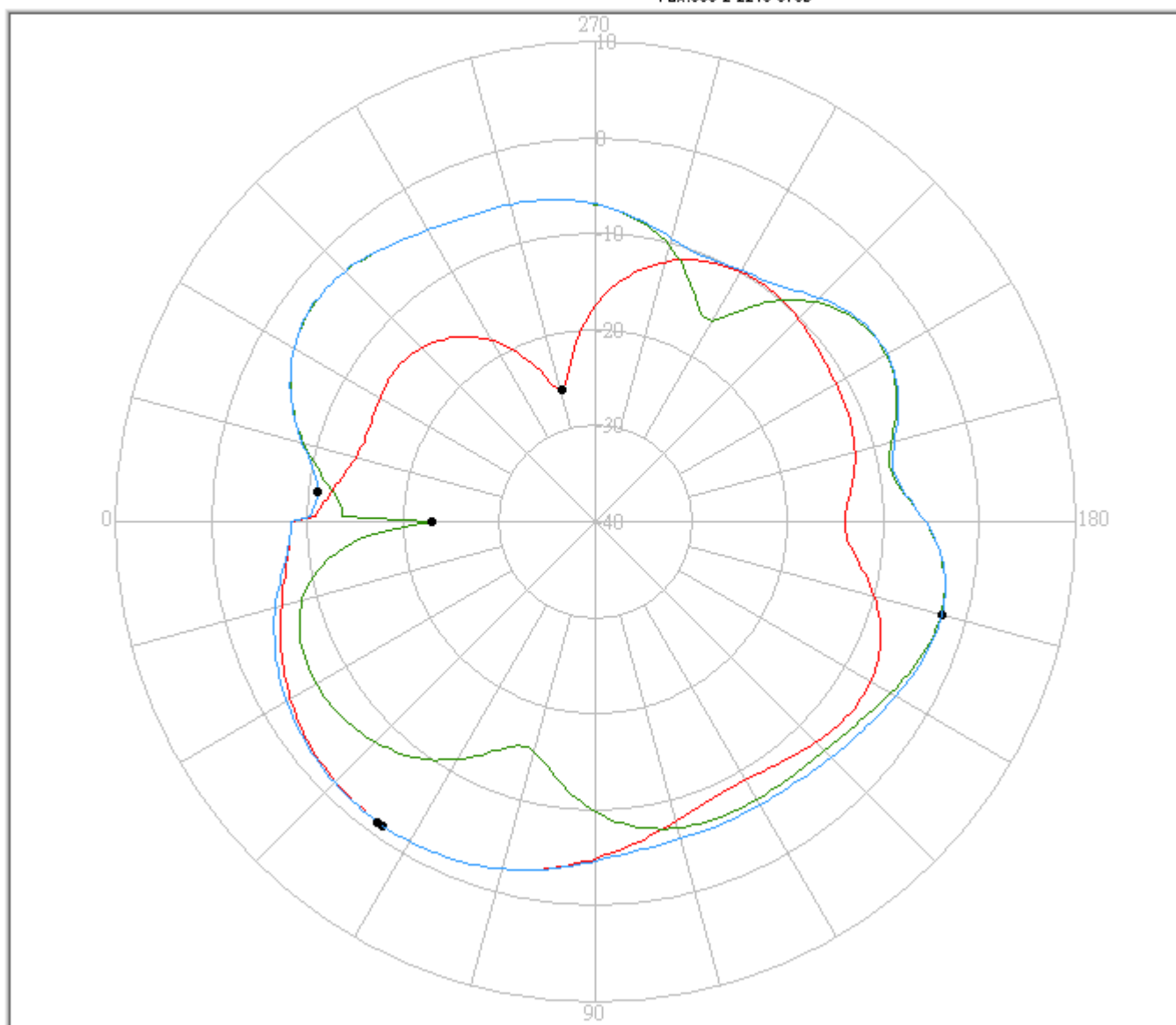
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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	Red	S50	GPRS	896.00	-1.42 / 55.00	-25.86 / 284.00	-7.32	Ver.	2005/12/15
2	Green	S50	GPRS	896.00	-2.74 / 165.00	-23.06 / 0.00	-6.66	Hor.	2005/12/15
3	Blue	S50	GPRS	896.00	-1.38 / 54.00	-10.95 / 354.00	-4.77	V+H	2005/12/15

c.960MHz



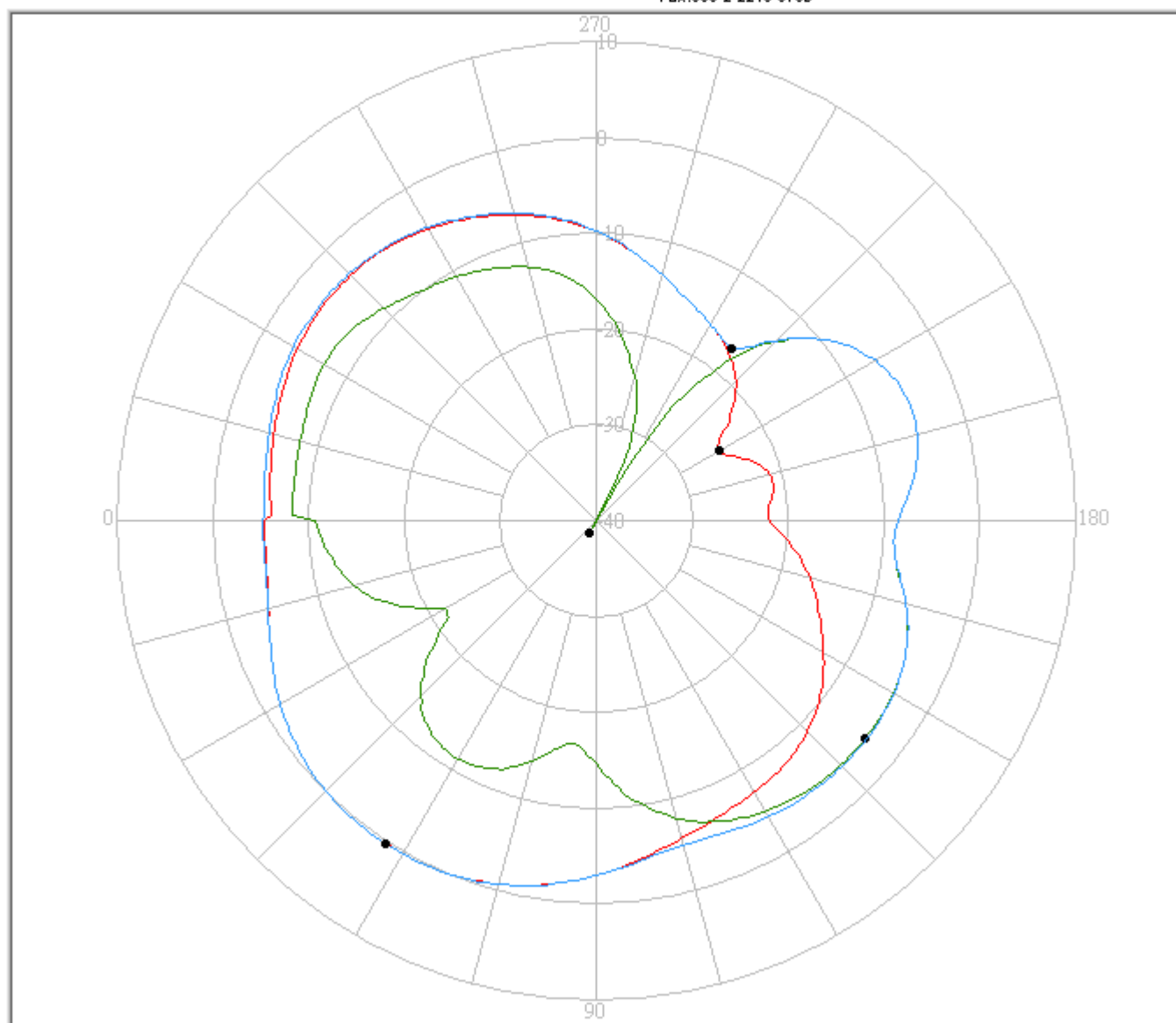
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Fax:886-2-2218-5760



Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	Red	S50	GPRS	960.00	0.26 / 57.00	-25.26 / 210.00	-5.27	Ver.	2005/12/15
2	Green	S50	GPRS	960.00	-3.89 / 141.00	-41.49 / 242.00	-8.79	Hor.	2005/12/15
3	Blue	S50	GPRS	960.00	0.27 / 57.00	-17.15 / 232.00	-4.25	V+H	2005/12/15

d.1.71G



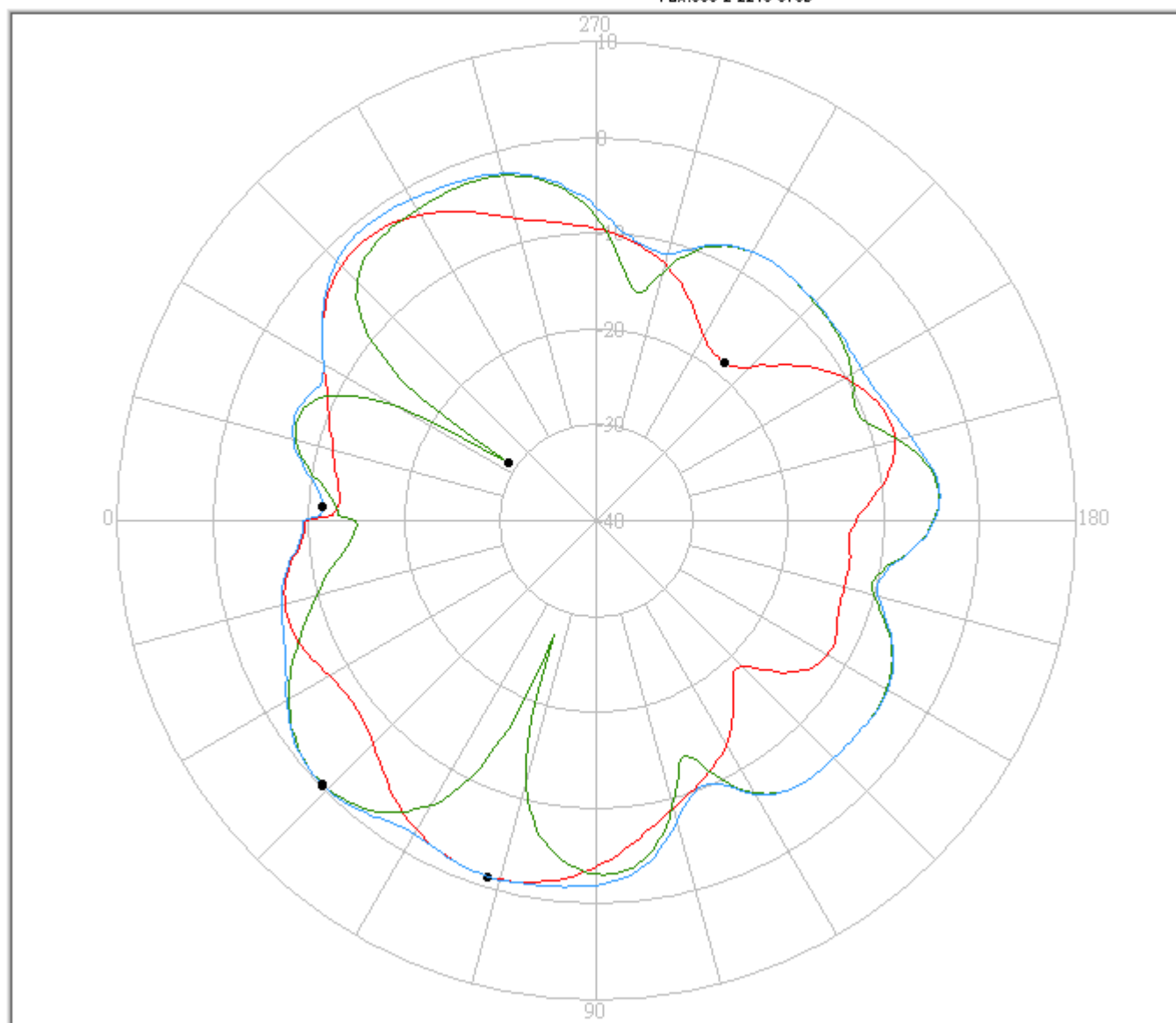
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Pattern		Model No.	Test Mode	Freq(MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1		S50	GPRS	1710.00	-1.19 / 73.00	-18.82 / 231.00	-7.08	Ver.	2005/12/15
2		S50	GPRS	1710.00	-0.39 / 44.00	-29.06 / 327.00	-5.88	Hor.	2005/12/15
3		S50	GPRS	1710.00	-0.31 / 44.00	-11.45 / 357.00	-4.45	V+H	2005/12/15