wg Well Green Technology Co., Ltd

No. 20, Alley51 ,Lane 118,ShuangLian Sec.2,Mintzu Rd.,
PingJen City, TaoYuan Hsien, Taiwan, R.O.C
TEL: (03)420-6428 FAX: (03) 420-6418

TWINHEAD F17P
Antenna Test Report

Data 07/30/2004

RD Manager	Supervisor	RD engineer	Sales engineer
David	Johnson	Tim	Jerry

1. Information Overview

1.1 Project Information

	Description	Comments
Project Code of System	F17P	
Project Stage	■ Prototype □ EPR □ PPR □ MP	
Platform Type	■ Notebook PC □ Tablet PC	

1.2 Antenna Information

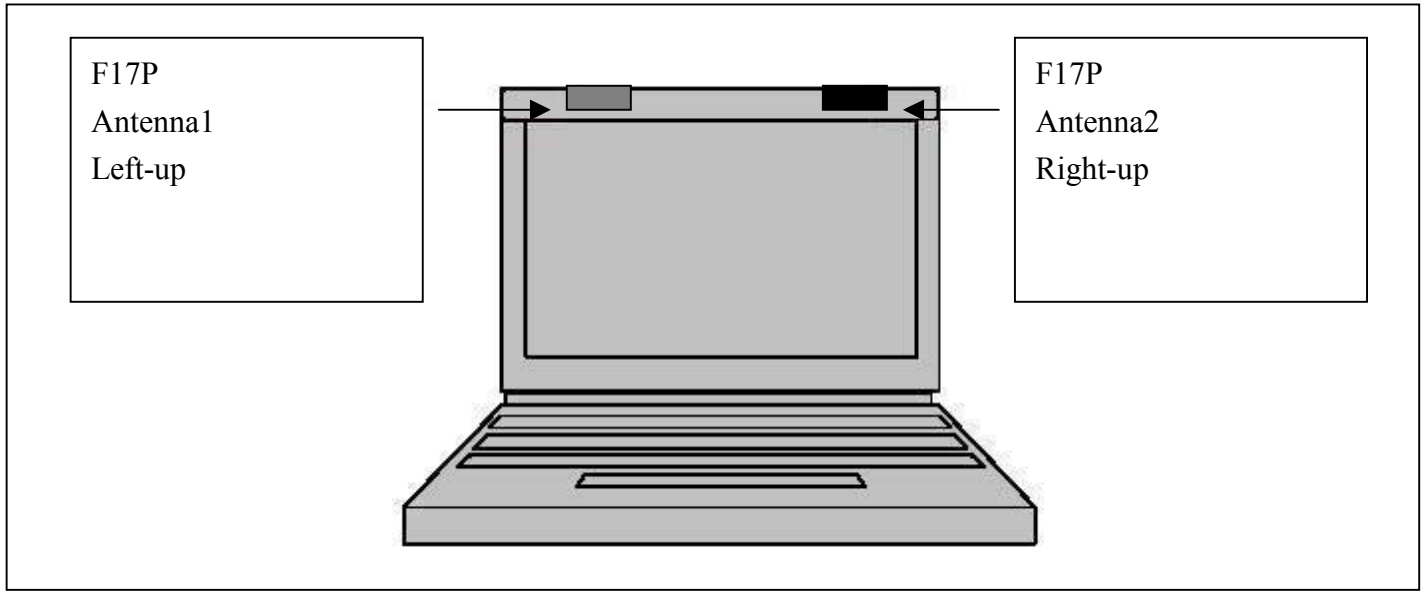
Manufacturer	Well Green Technology Co., Ltd.	
Design Stage	□ Handmade □ Machine ■ Tooling	

Antenna 1		
Type	PIFA	
Model Name		
Part Number		
Antenna Location	Left-up of the panel	
Antenna Purpose	Wireless LAN 802.11b/g Main Antenna	
Cable Diameter ϕ mm	1.13	
Connector Manufacturer	IPEX	
Frequency GHz	2.4 – 2.5	

Antenna 2		
Type	PIFA	
Model Name		
Part Number		
Antenna Location	Right-up of the panel	
Antenna Purpose	Wireless LAN Aux Antenna	
Cable Diameter ϕ mm	1.13	
Connector Manufacturer	IPEX	
Frequency GHz	2.4 – 2.5	

Antenna 3 - unavailable		
Type		
Model Name		
Part Number		
Antenna Location		
Antenna Purpose		
Cable Diameter ϕ mm		
Connector Manufacturer		
Frequency GHz		

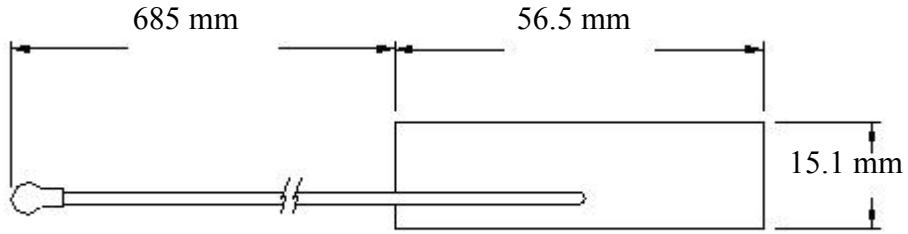
2. Antenna placement and Photo

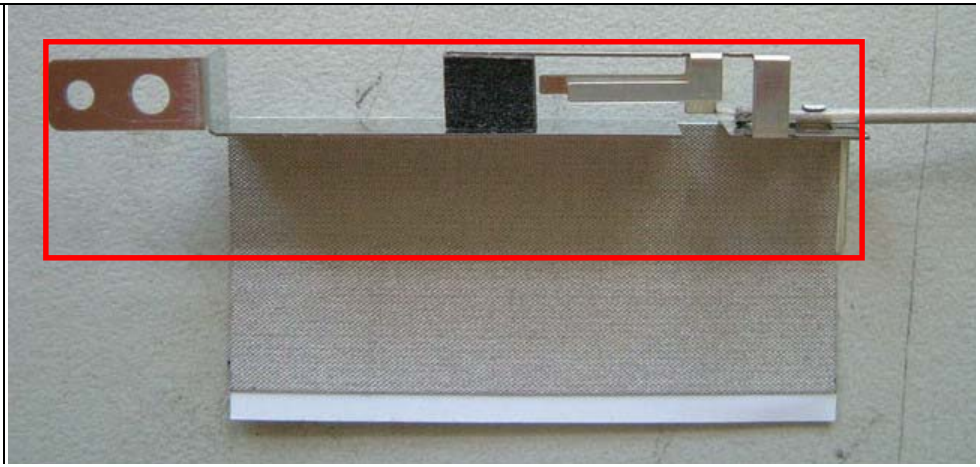


Antenna Assembly Photo

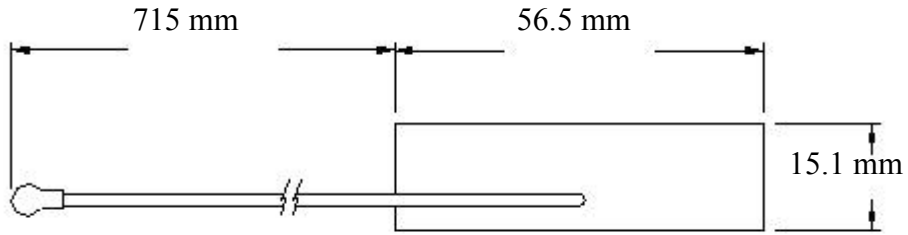
3. Antenna Dimension

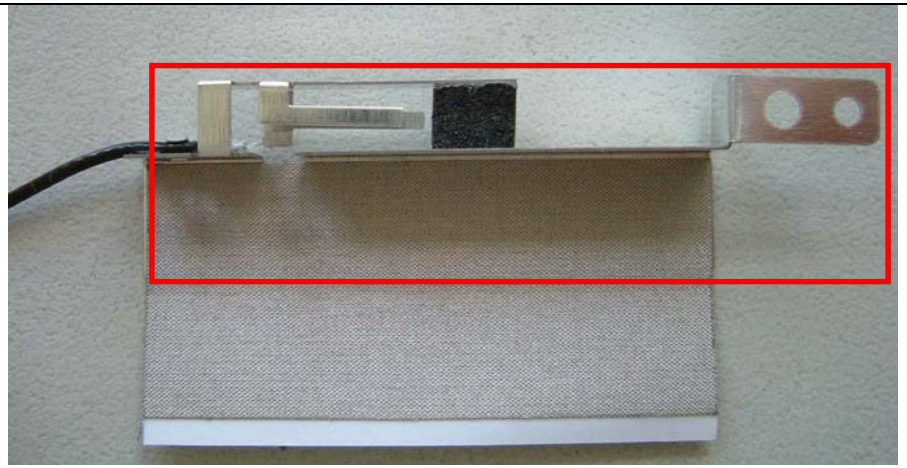
3.1 Antenna 1





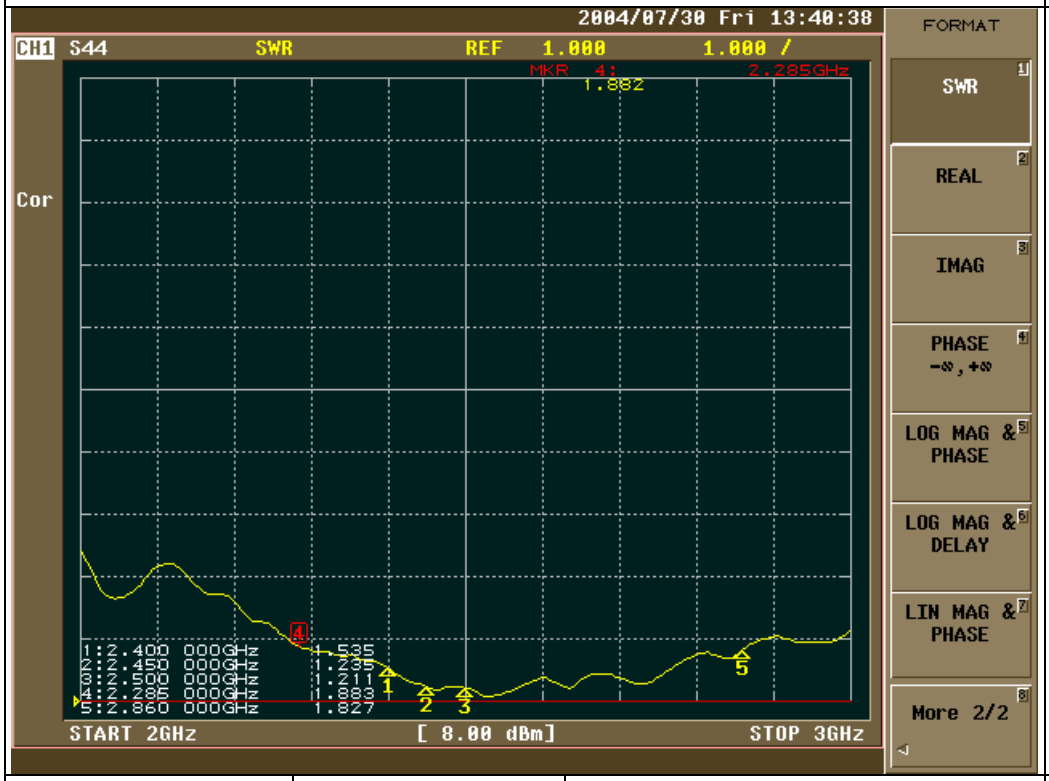
3.2 Antenna 2





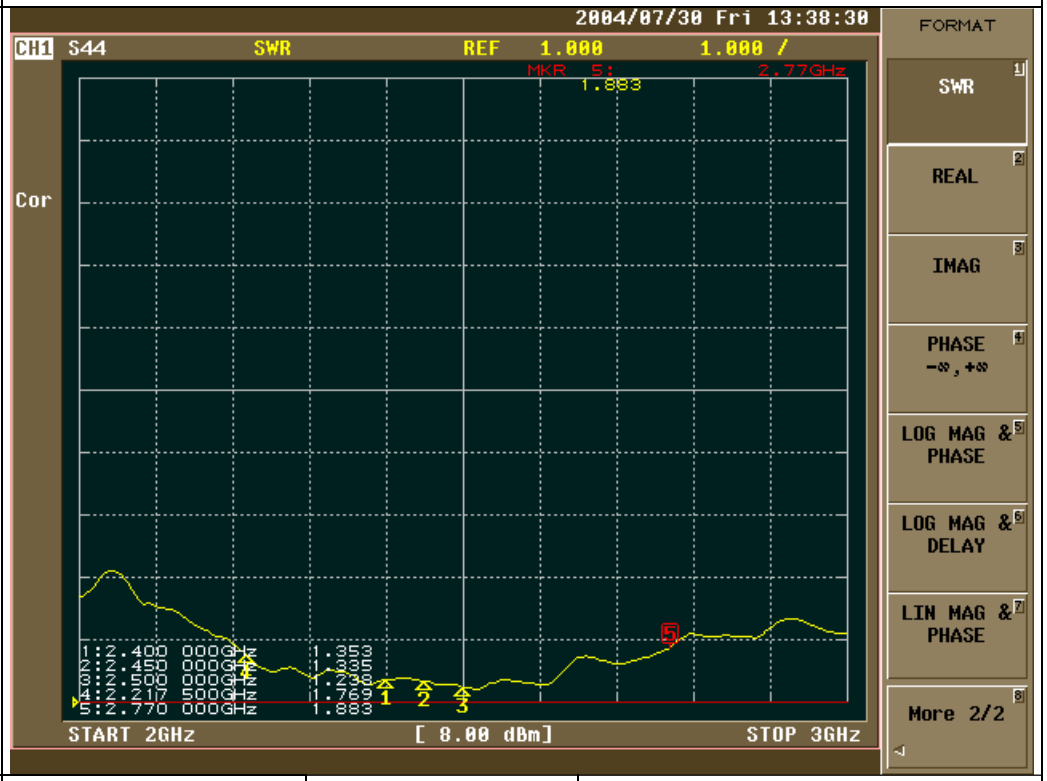
4. Voltage Standing Wave Ratio (VSWR)

Antenna 1



Center freq. @MHz	Bandwidth @MHz	VSWR		
		2.4GHz	2.45GHz	2.5GHz
2450	570	1.535	1.235	1.211

Antenna 2



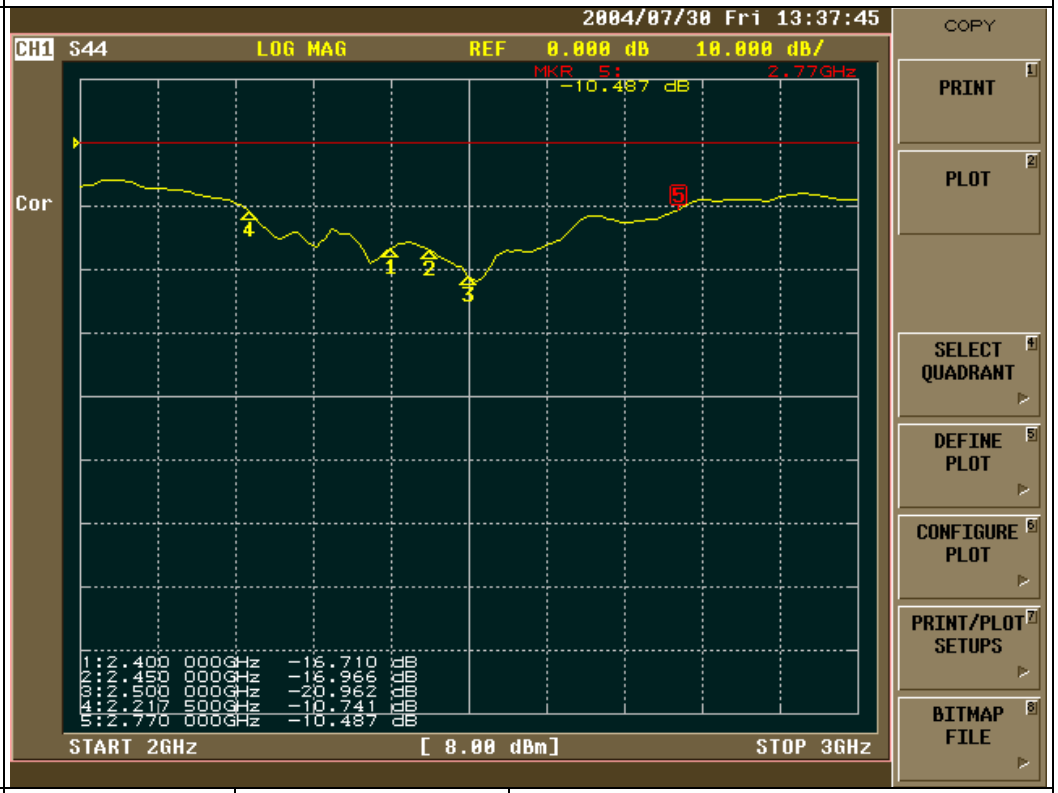
Center freq. @MHz	Bandwidth @MHz	VSWR		
		2.4GHz	2.45GHz	2.5GHz
2450	550	1.353	1.335	1.238

5. Return Loss

Antenna 1

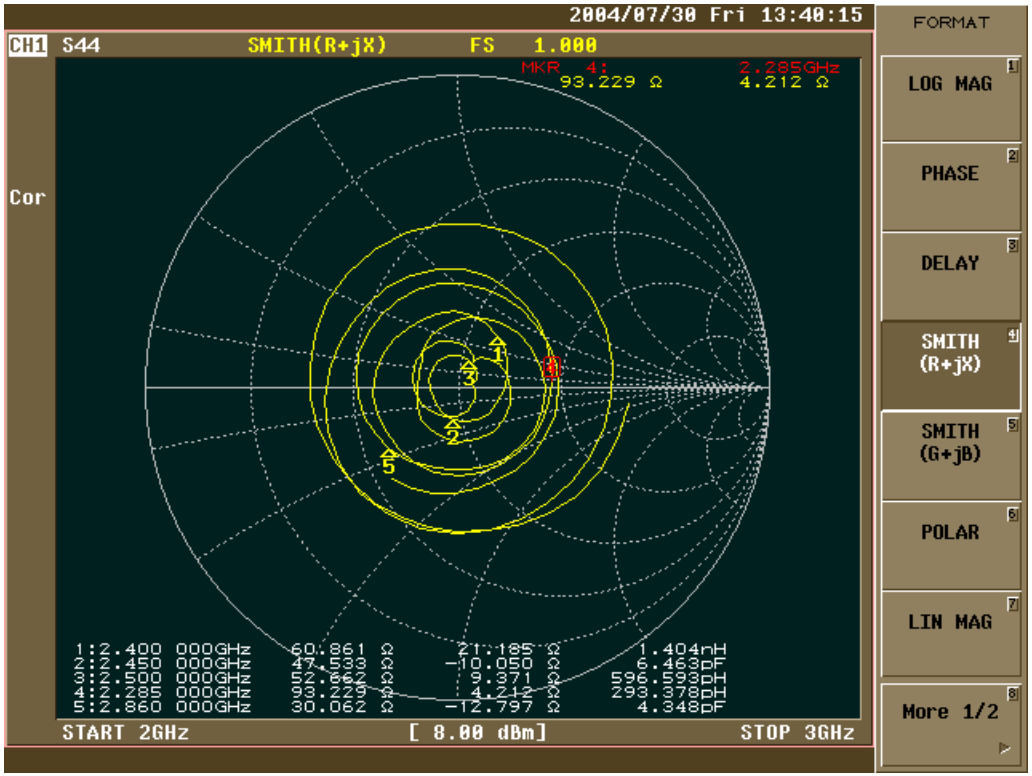
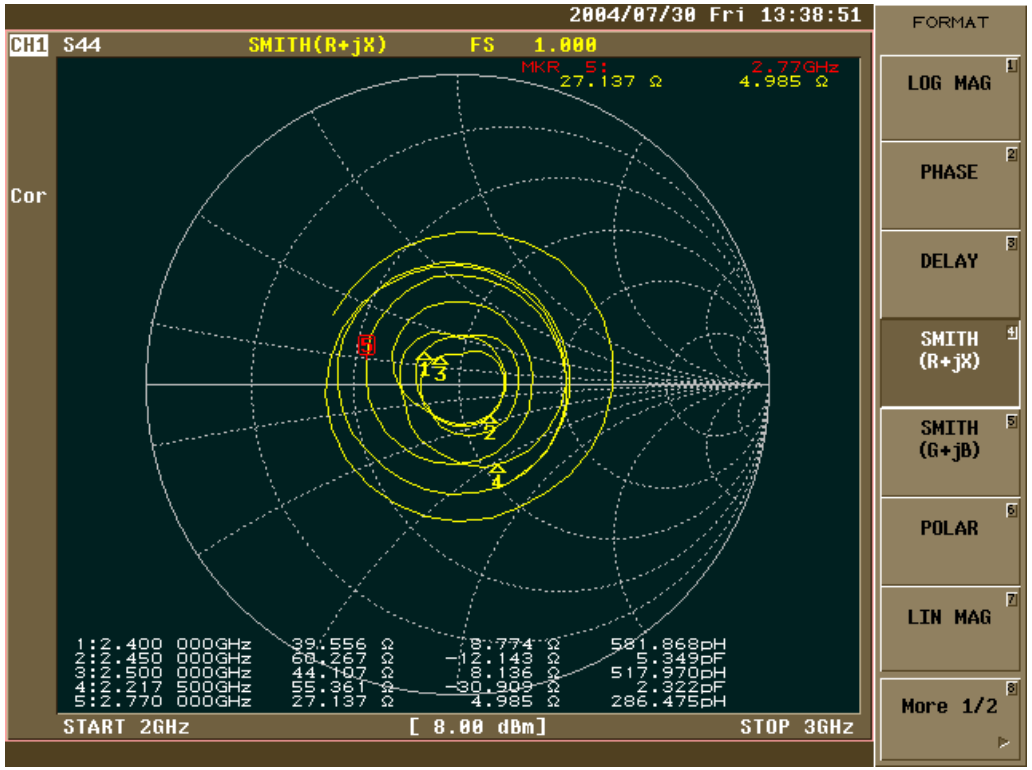
Center freq. @MHz	Bandwidth @MHz	Return Loss		
		2.4GHz	2.45GHz	2.5GHz
2450	570	13.321	19.644	20.247

Antenna 2

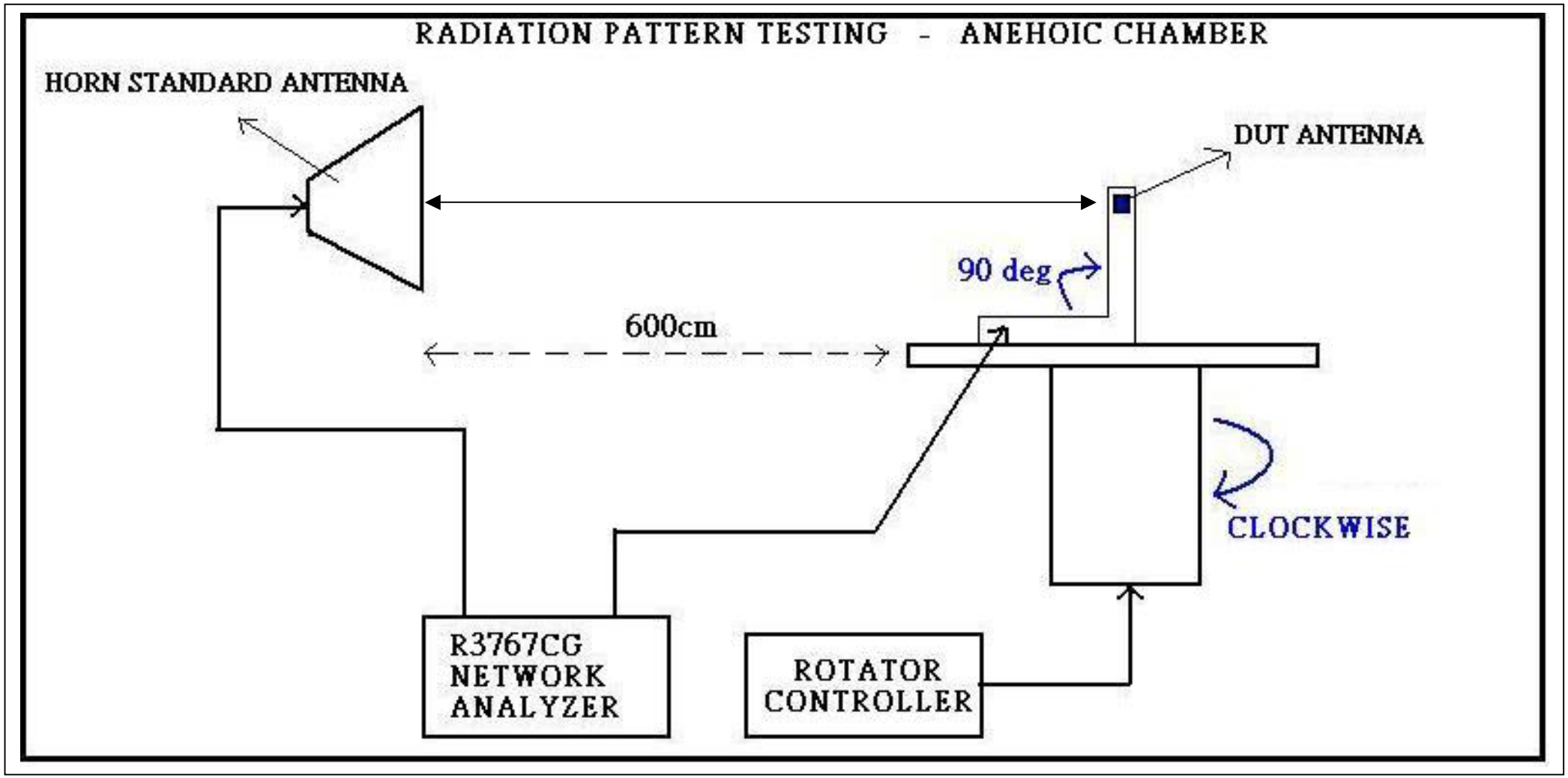


Center freq. @MHz	Bandwidth @MHz	Return Loss		
		2.4GHz	2.45GHz	2.5GHz
2450	550	16.710	16.966	20.962

6. Smith Chart

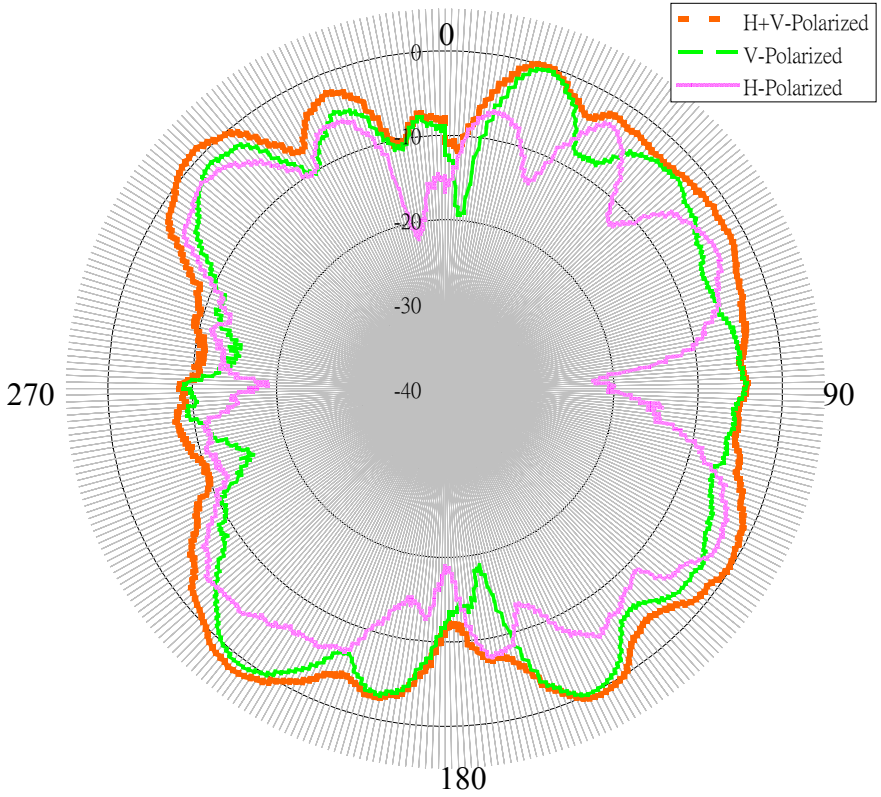
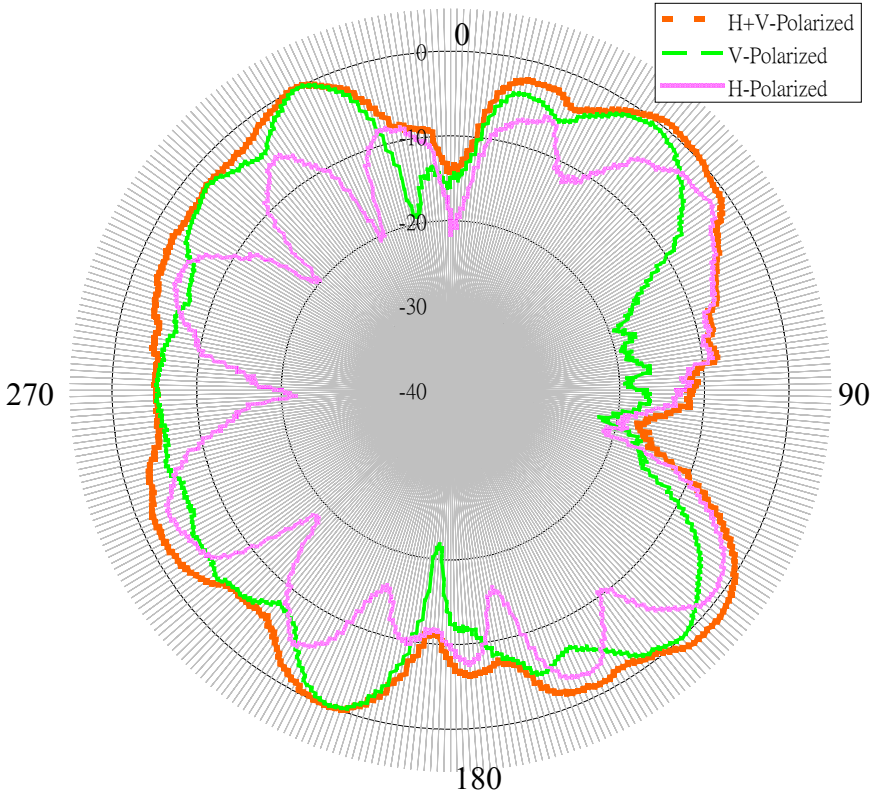
Antenna 1	Antenna 2
	

7. Antenna Radiation Pattern Testing Set Up



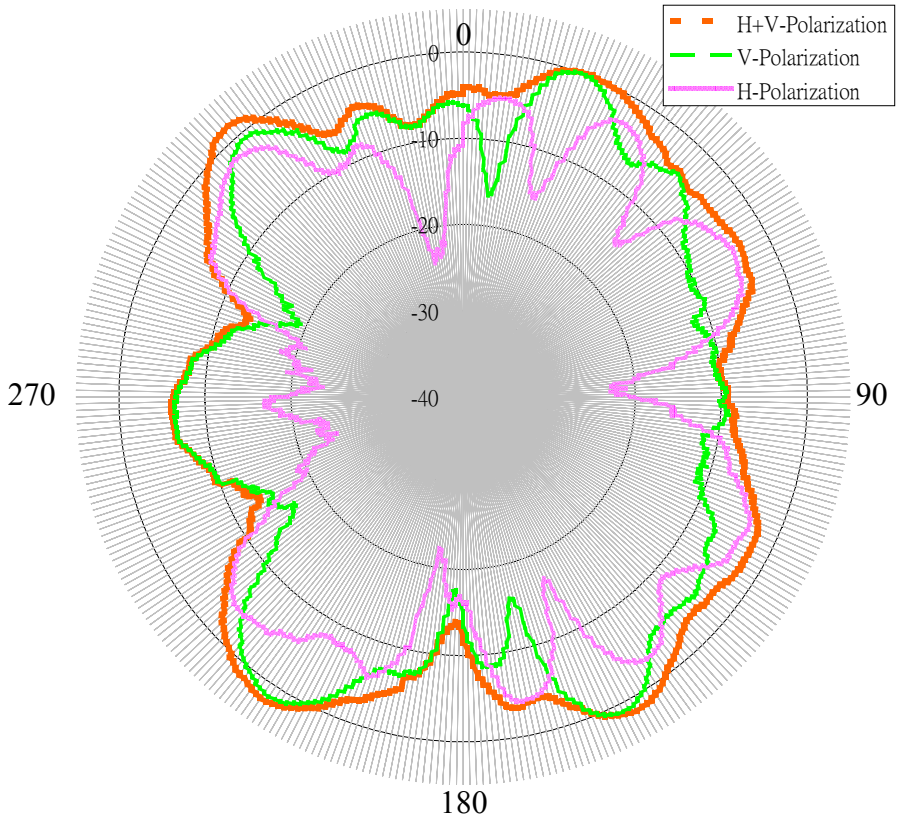
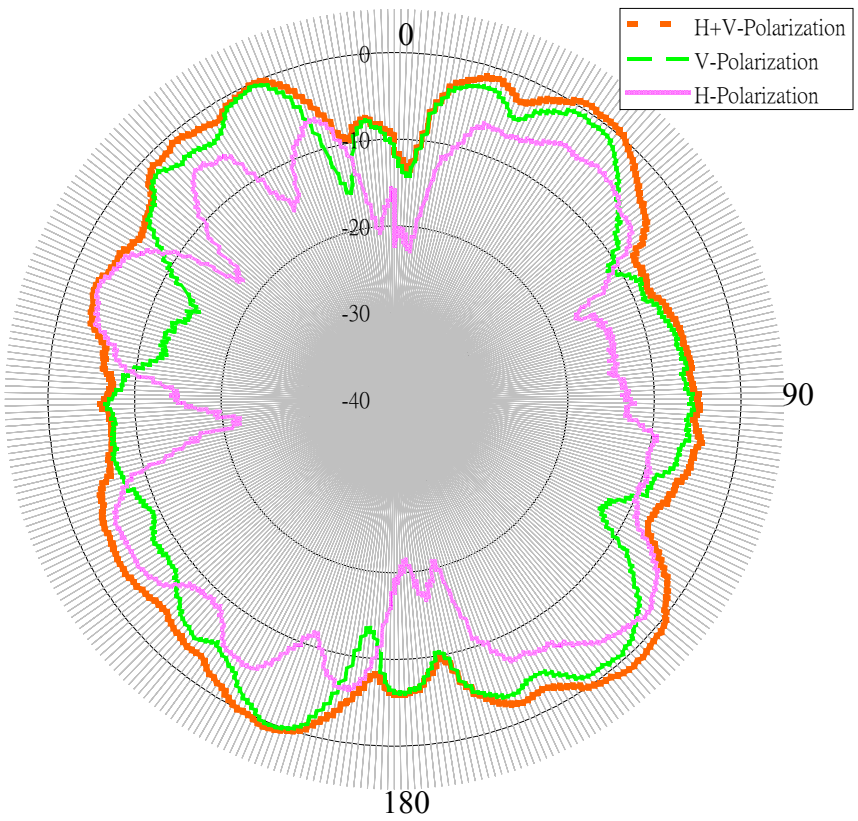
8. Radiation Pattern of XY Plane Testing Result

8.1 2.4 GHz

Antenna 1	Antenna 2
	

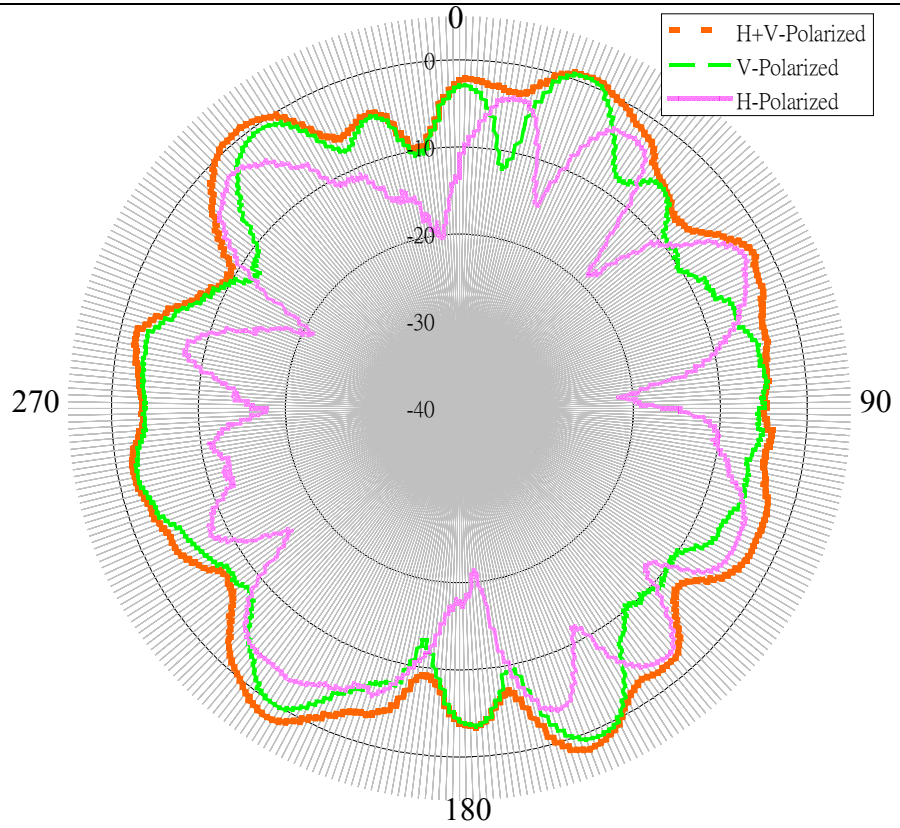
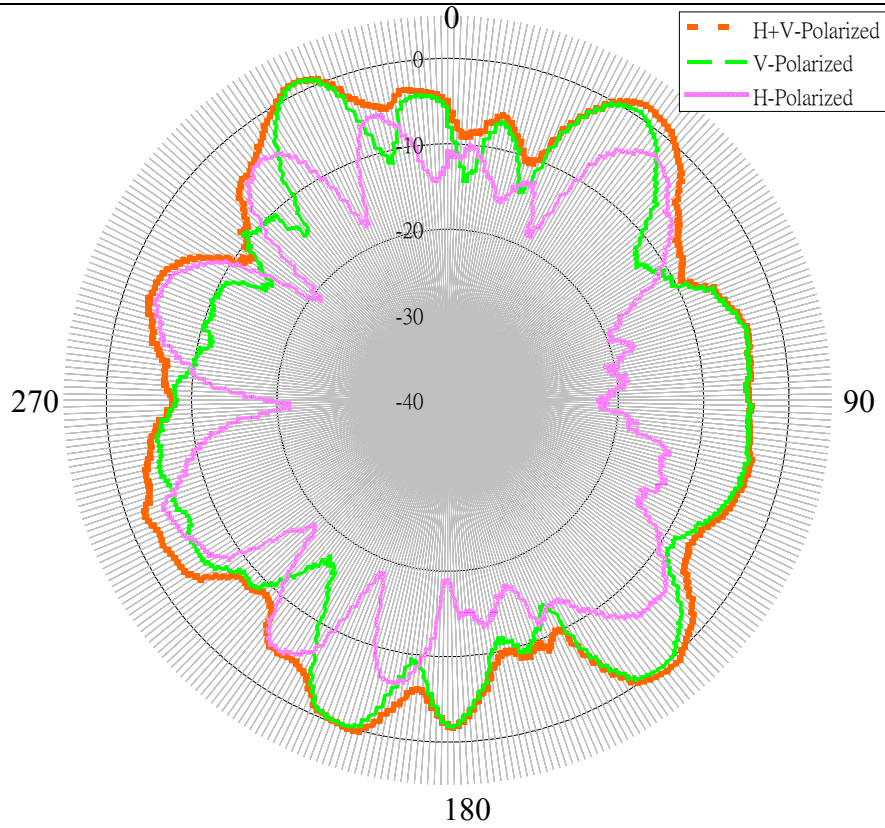
Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	0.83	V	Peak	0.02
	Average	-4.91		Average	-5.02
H	Peak	-2.18	H	Peak	-0.73
	Average	-7.29		Average	-7.17
H + V	Peak	1.79	H + V	Peak	1.70
	Average	-2.93		Average	-2.95
V Gain >= -4 Area	28.98%		V Gain >= -4 Area	28.23%	
V Gain >= -5 Area	40.05%		V Gain >= -5 Area	36.97%	

8.2 2.45 GHz

Antenna 1	Antenna 2
	

Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	1.49	V	Peak	0.27
	Average	-5.25		Average	-4.91
H	Peak	-1.76	H	Peak	-1.66
	Average	-7.36		Average	-7.52
H + V	Peak	2.14	H + V	Peak	1.41
	Average	-3.17		Average	-3.01
V Gain >= -4 Area	20.65%		V Gain >= -4 Area	31.06%	
V Gain >= -5 Area	27.23%		V Gain >= -5 Area	39.47%	

8.3 2.5 GHz

Antenna 1	Antenna 2
	

Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	0.94	V	Peak	1.19
	Average	-4.56		Average	-5.09
H	Peak	-2.45	H	Peak	-2.42
	Average	-7.24		Average	-8.88
H + V	Peak	1.92	H + V	Peak	1.70
	Average	-2.68		Average	-3.57
Gain >= -4 Area	31.39%		Gain >= -4 Area	20.15%	
Gain >= -5 Area	38.88%		Gain >= -5 Area	34.39%	