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TWINHEAD H12V
Antenna Test Report

Data 12/06/07

RD Manager	Supervisor	RD engineer	Sales engineer
Joy	Johnson	Henry	Bryan

1. Information Overview

1.1 Platform Information

	Description	Comments
Project Code of System		
Project Stage	■ ES ☐ EPR ☐ PPR ☐ MP	
Platform Type	▒ Notebook PC ☐ Tablet PC	

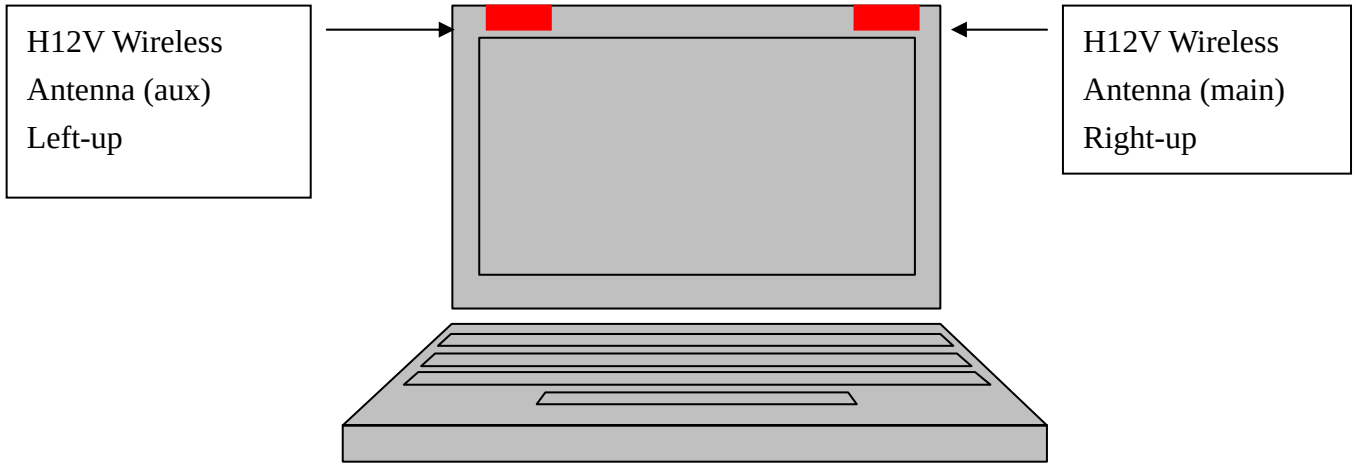
1.2 Antenna Information

Manufacturer		
Design Stage	☐ Handmade ☐ Machine ▒ Tooling	
Antenna (aux)		
Type	PIFA	
Model Name	H12V-L	
Part Number	TW12VWIPI01+A	
Antenna Location	Left-up of the panel	
Antenna Purpose	**Wireless LAN 802.11abg aux Antenna**	
Cable connect method	▒One line through ☐SSMCX ☐Transfer board	
Connector Manufacturer	I-PEX	
Connector type	U.FL	
Connector Part No.		
Frequency GHz	2.4 – 2.5, 5.15 – 5.85	
Impedance	50Ω	
Cable Manufacturer & PN	KURABE FWS5030	
Cable Diameter ψmm	1.13	
Total Cable Length	682.5mm	
Antenna (main)		
Type	PIFA	
Model Name	H12V-R	
Part Number	TW12VWIPI02+A	
Antenna Location	Right-up of the panel	
Antenna Purpose	**Wireless LAN 802.11abg main Antenna**	
Cable connect method	▒One line through ☐SSMCX ☐Transfer board	
Connector Manufacturer	I-PEX	
Connector type	U.FL	
Connector Part No.		
Frequency GHz	2.4 – 2.5, 5.15 – 5.85	
Impedance	50Ω	
Cable Manufacturer & PN	KURABE FWS5030	
Cable Diameter ψmm	1.13	
Cable Total Length	568mm	

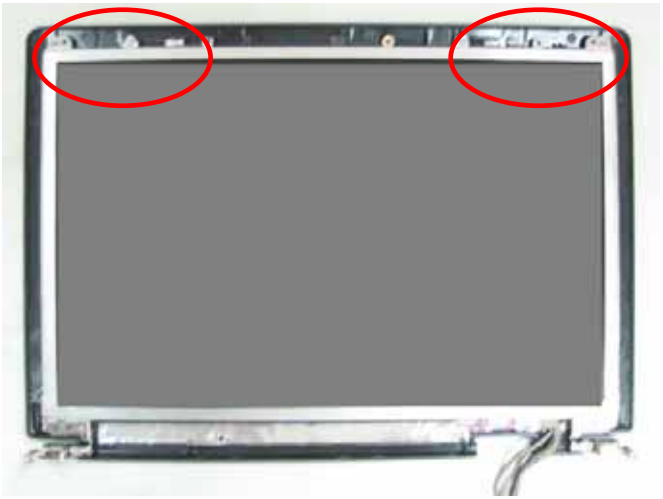
1.3 Design change history

Part Number	Description	Date

2. Antenna placement and Photo

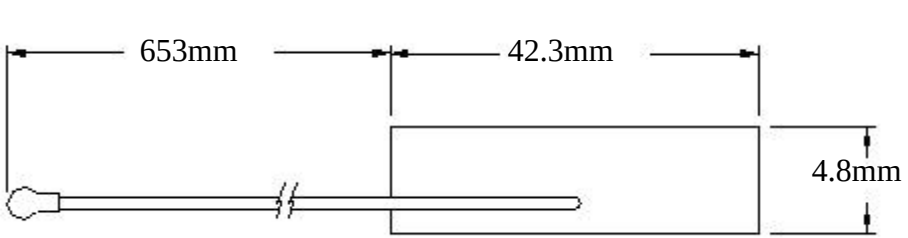


Antenna Assembly Photo

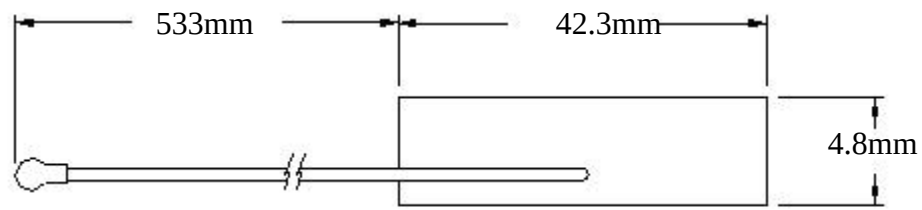


3. Antenna Dimension

3.1 Antenna (aux)

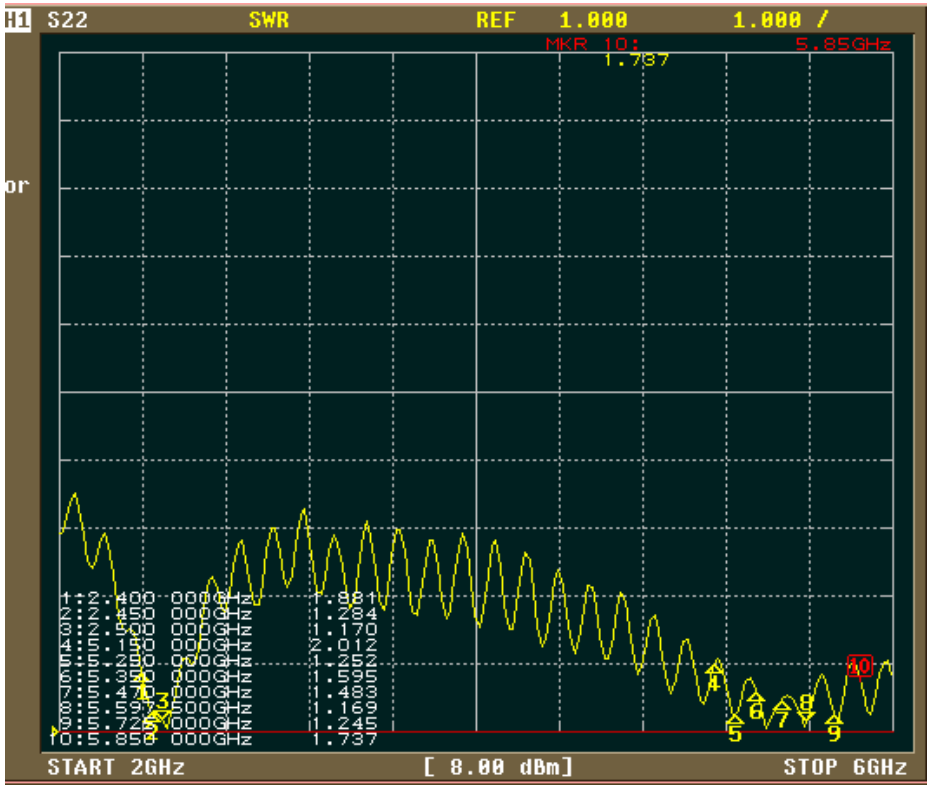
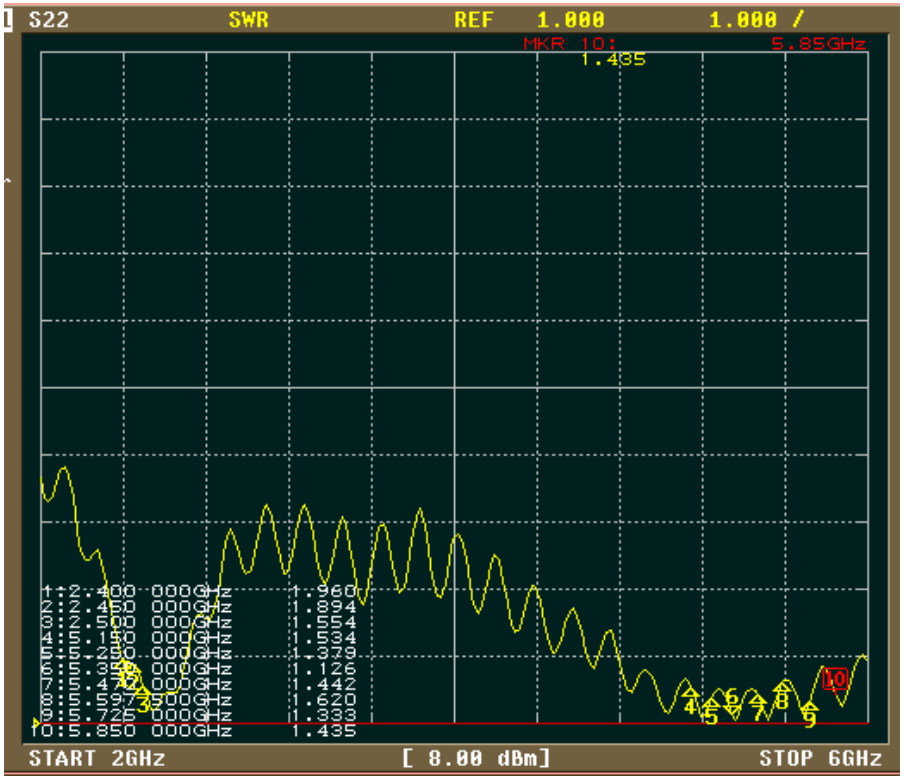


3.2 Antenna (main)



4. Voltage Standing Wave Ratio (VSWR)

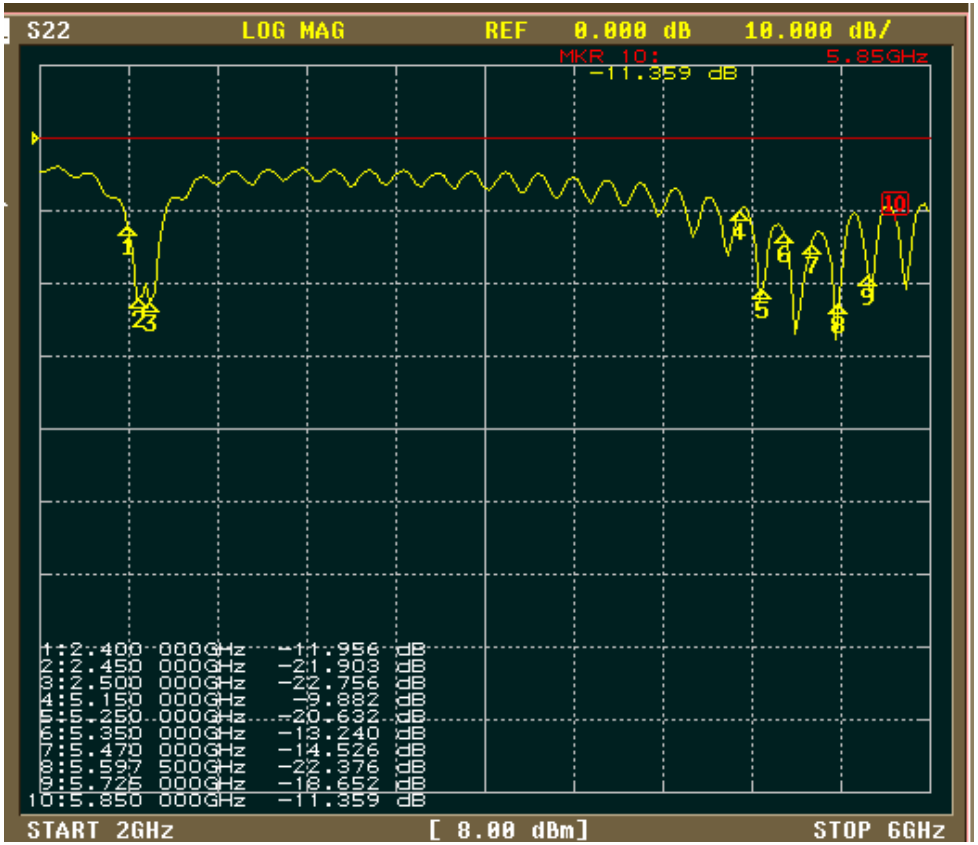
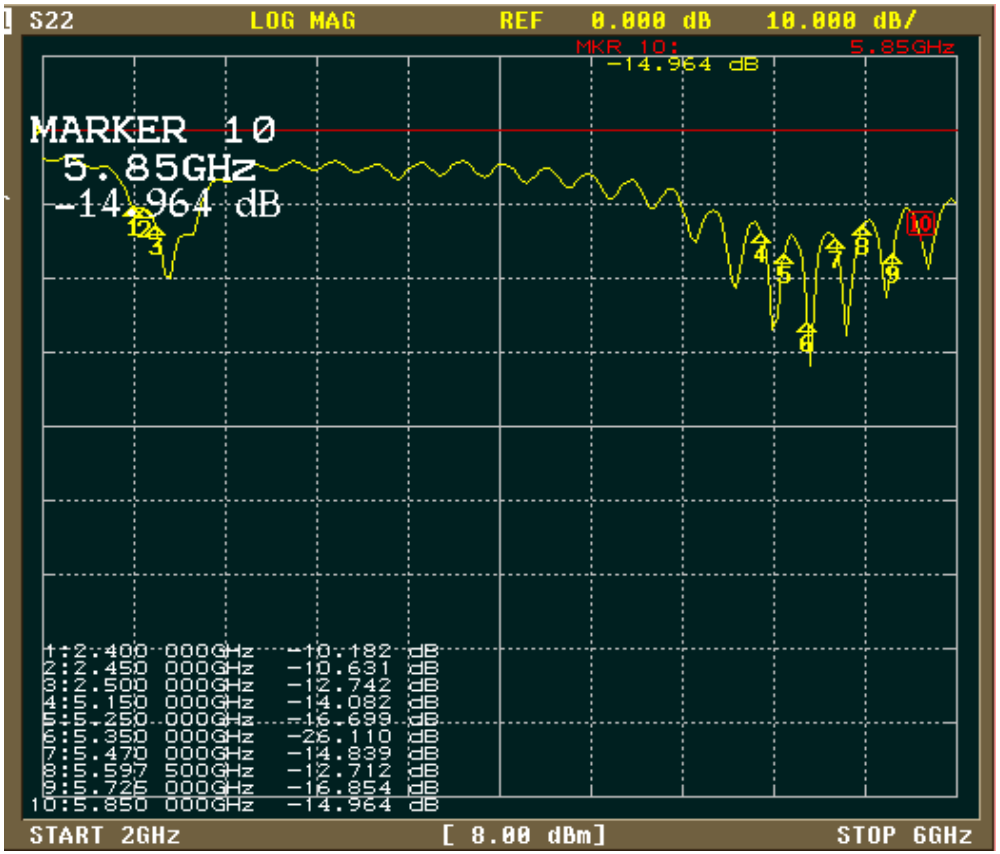
4.1 VSWR of WLAN antenna

Antenna Aux	Antenna Main
	

VSWR	2.4GHz	2.45GHz	2.5GHz	5.15GHz	5.25GHz	5.35GHz	5.47GHz	5.597GHz	5.725GHz	5.85GHz
AUX	1.88	1.28	1.17	2.01	1.25	1.59	1.48	1.16	1.24	1.73
MAIN	1.96	1.89	1.55	1.53	1.37	1.12	1.44	1.62	1.33	1.43

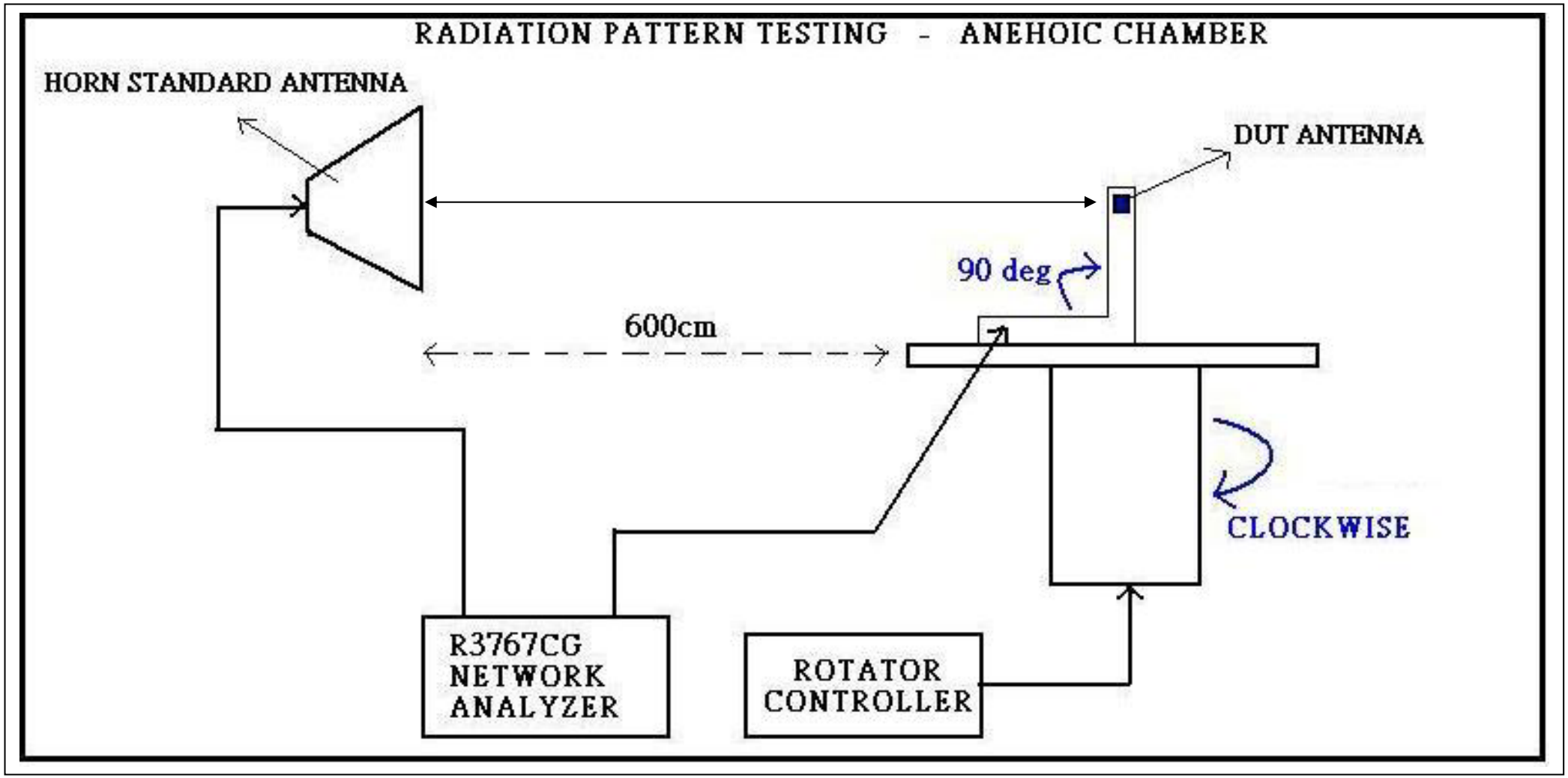
5. Return-loss

5.1 Return-loss of WLAN antenna

Antenna Aux	Antenna Main
	

Return Loss	2.4GHz	2.45GHz	2.5GHz	5.15GHz	5.25GHz	5.35GHz	5.47GHz	5.597GHz	5.725GHz	5.85GHz
AUX	-11.95	-21.90	-22.75	-9.88	-20.63	-13.24	-14.52	-22.37	-18.65	-11.35
MAIN	-10.18	-10.63	-12.74	-14.08	-16.69	-26.44	-14.83	-12.71	-16.85	-14.96

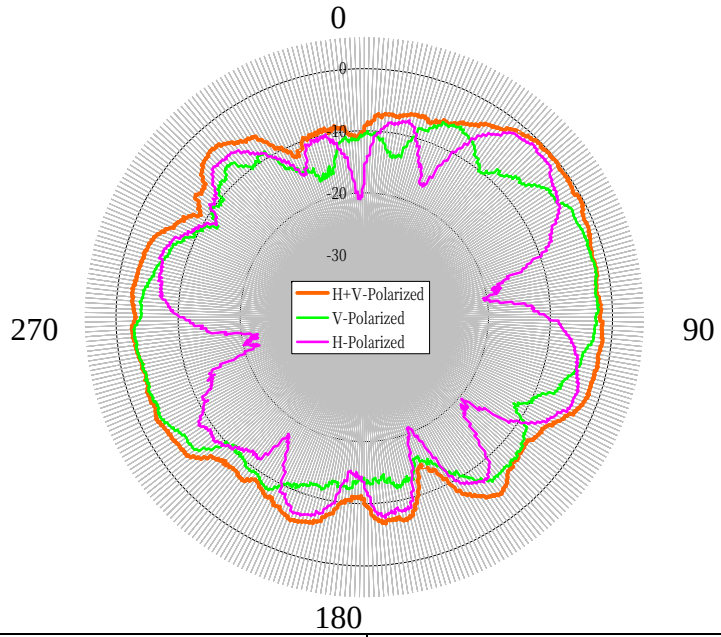
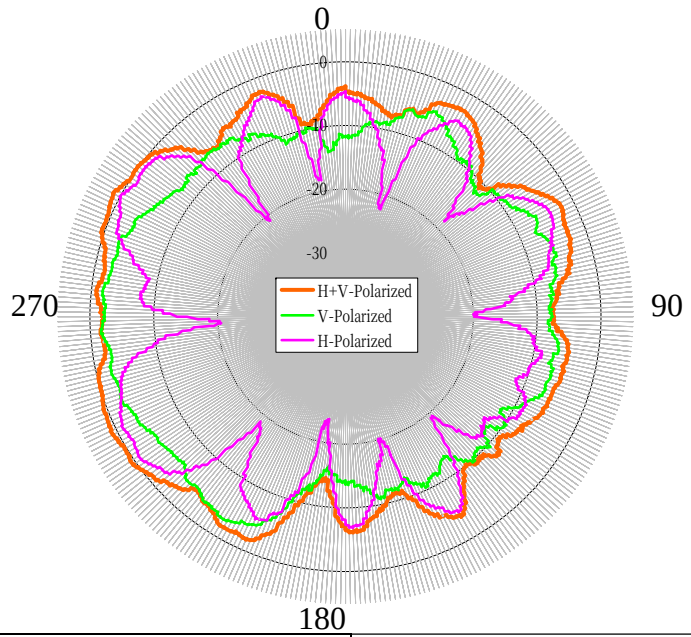
6. Antenna Radiation Pattern Testing Set Up



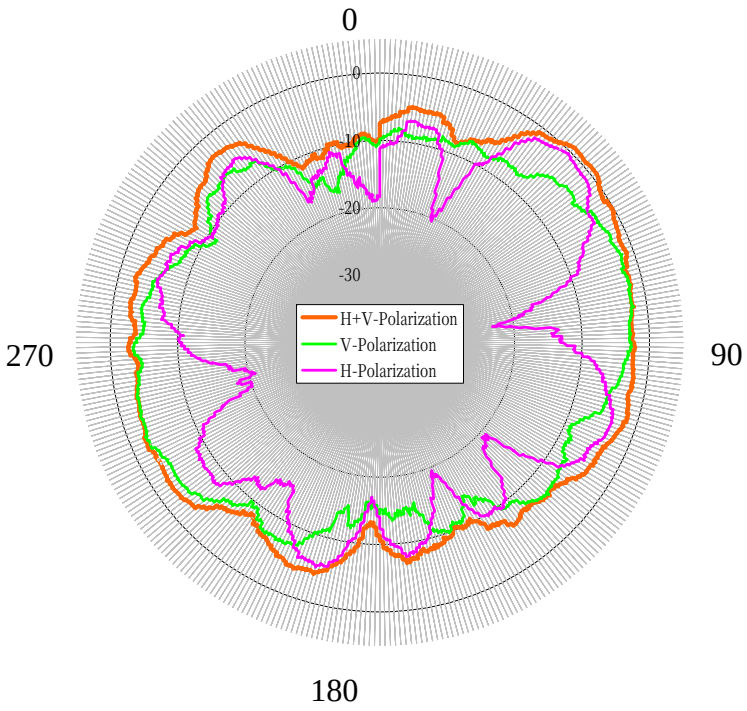
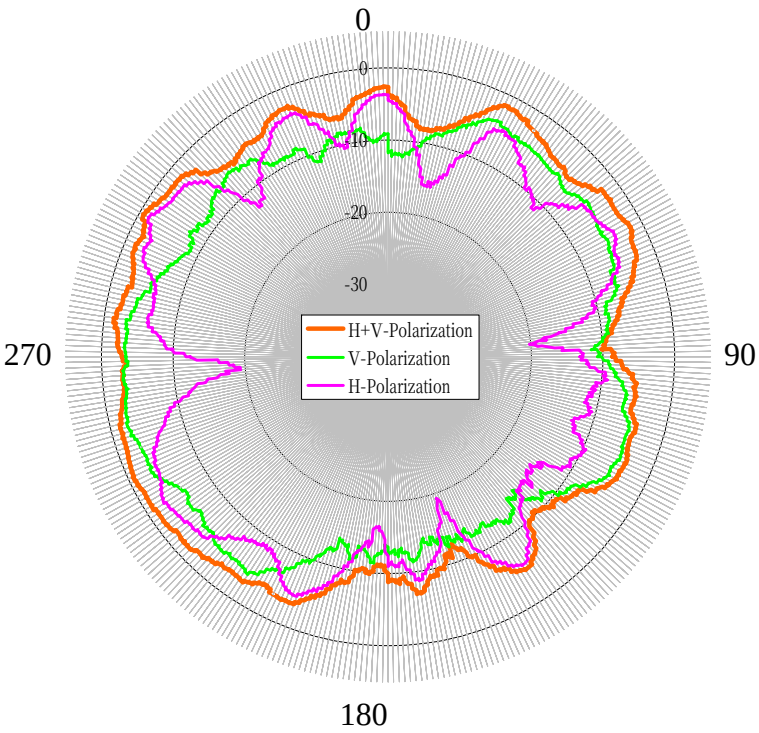
The radiation pattern and antenna gain shall be tested in an anechoic chamber. The anechoic chamber must be lined with absorptive materials. The measurements shall be made at the connector end of the cable for antenna assembly. The antennas must be installed in a fully populated platform to include a complete display and display plastics.

7. Radiation Pattern of XY Plane Testing Result

7.1 2.4 GHz

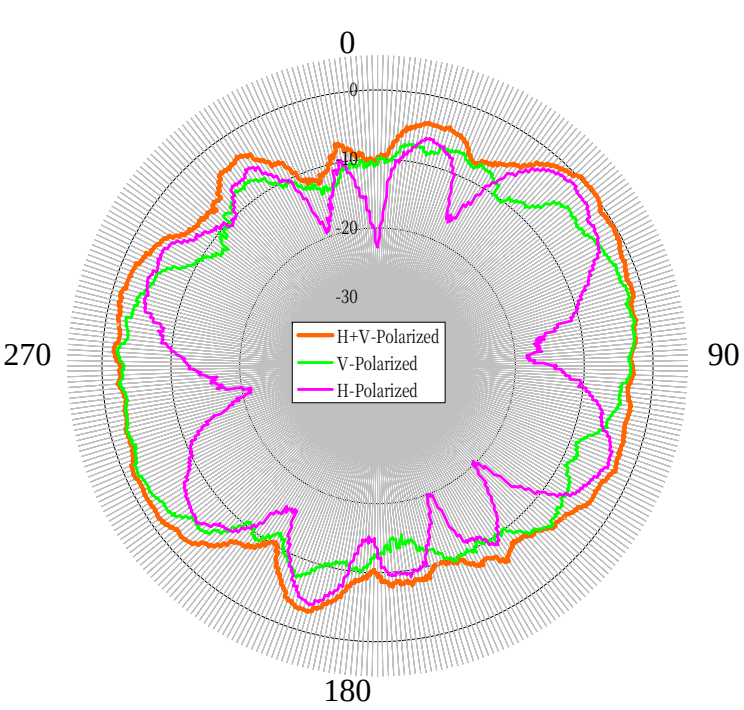
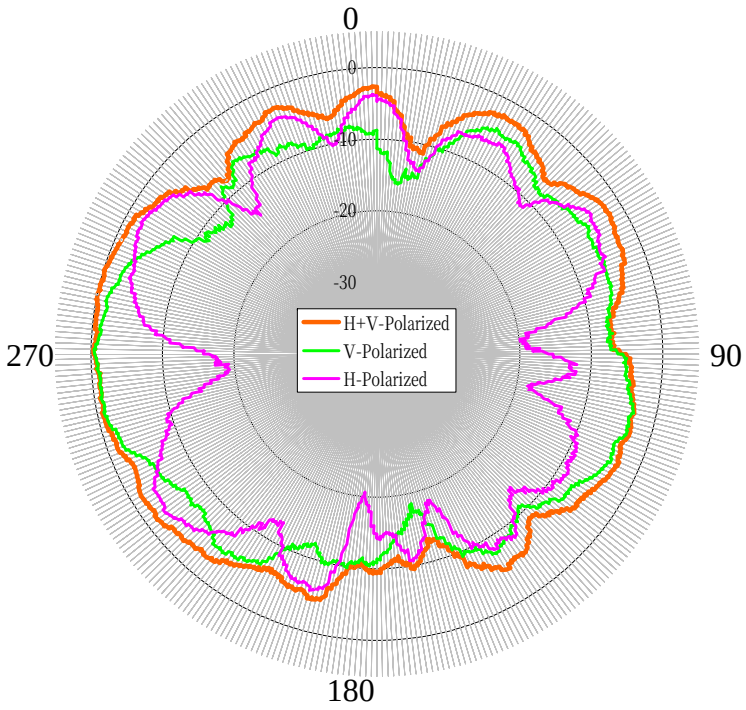
Antenna (aux)			Antenna (main)		
					
Horn Antenna Polarization	**Gain of XY Plane (Azimuth)**		**Horn Antenna Polarization**	**Gain of XY Plane (Azimuth)**	
V	**Peak**	-1.84	**V**	**Peak**	-1.65
	Average	-6.67		**Average**	-6.48
H	**Peak**	-1.11	**H**	**Peak**	0.03
	Average	-8.03		**Average**	-6.50
H + V	**Peak**	-0.18	**H + V**	**Peak**	1.21
	Average	-4.29		**Average**	-3.48
V Gain >= -4 Area	**19.98%**		**V Gain >= -4 Area**	**18.23%**	
V Gain >= -5 Area	**26.06%**		**V Gain >= -5 Area**	**24.23%**	

7.2 2.45 GHz

Antenna (aux)	Antenna (main)
	

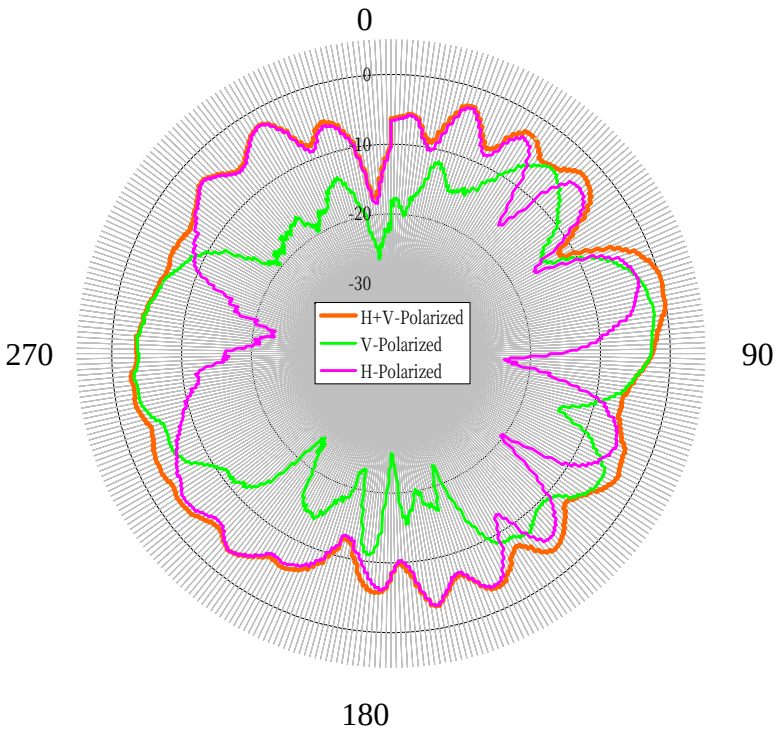
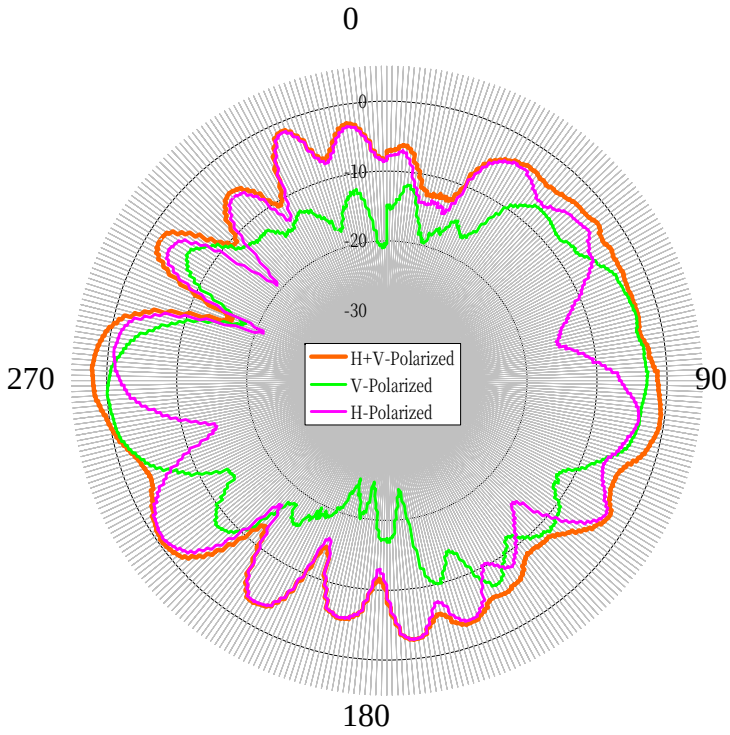
Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-1.78	V	Peak	-2.37
	Average	-6.34		Average	-6.71
H	Peak	-0.42	H	Peak	-1.40
	Average	-7.90		Average	-7.11
H + V	Peak	0.86	H + V	Peak	-0.60
	Average	-4.04		Average	-3.90
V Gain >= -4 Area	20.57%		V Gain >= -4 Area	10.82%	
V Gain >= -5 Area	29.98%		V Gain >= -5 Area	20.90%	

7.3 2.5 GHz

Antenna (aux)	Antenna (main)
	

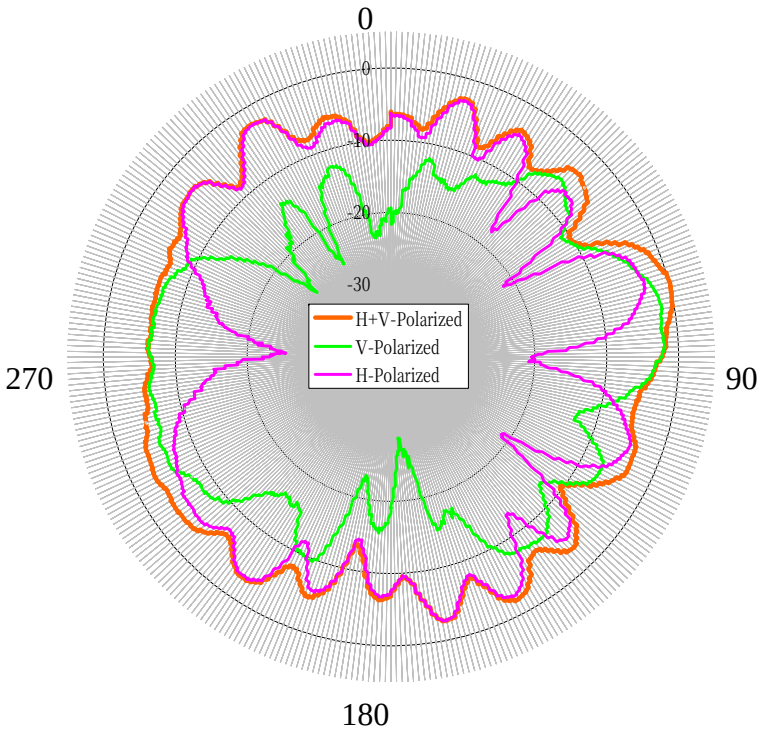
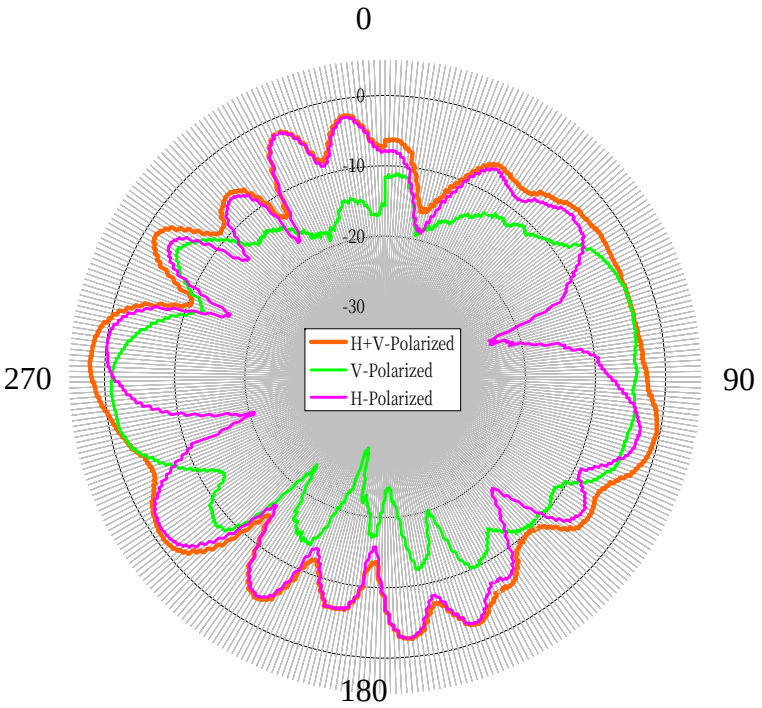
Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-1.81	V	Peak	-0.44
	Average	-6.15		Average	-6.07
H	Peak	-1.19	H	Peak	-2.25
	Average	-7.75		Average	-7.66
H + V	Peak	0.33	H + V	Peak	0.06
	Average	-3.87		Average	-3.78
Gain >= -4 Area	24.48%		Gain >= -4 Area	15.15%	
Gain >= -5 Area	31.31%		Gain >= -5 Area	23.56%	

7.4 5.15 GHz

Antenna (aux)	Antenna (main)
	

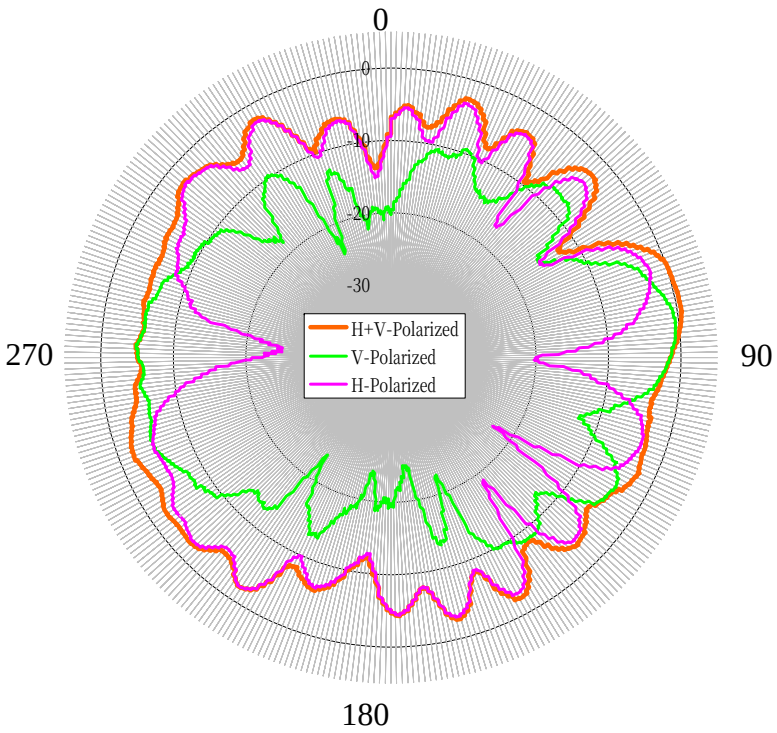
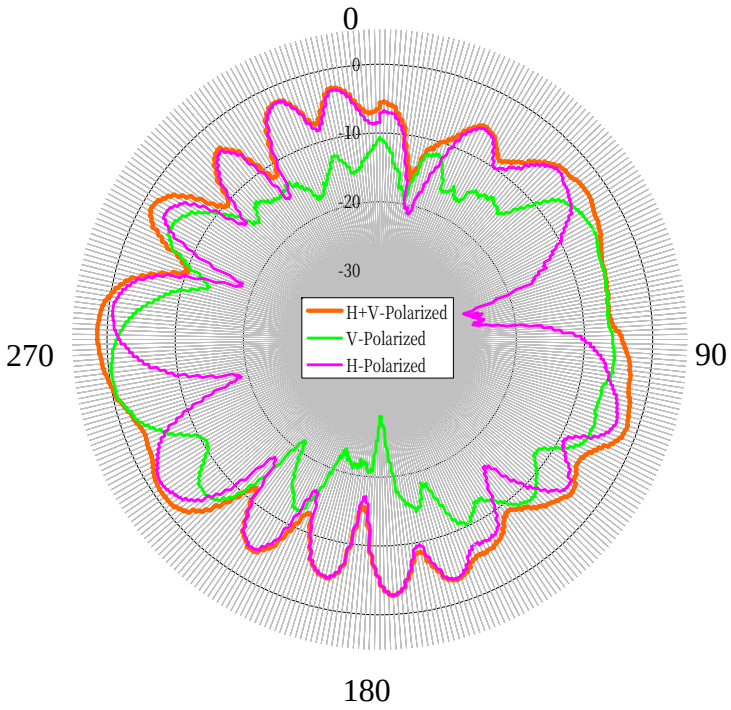
Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-1.88	V	Peak	-0.06
	Average	-8.26		Average	-7.37
H	Peak	-2.32	H	Peak	-0.84
	Average	-6.87		Average	-5.82
H + V	Peak	0.11	H + V	Peak	2.13
	Average	-4.50		Average	-3.52
Gain >= -4 Area	11.74%		Gain >= -4 Area	18.65%	
Gain >= -5 Area	16.32%		Gain >= -5 Area	21.40%	

7.5 5.25 GHz

Antenna (aux)	Antenna (main)
	

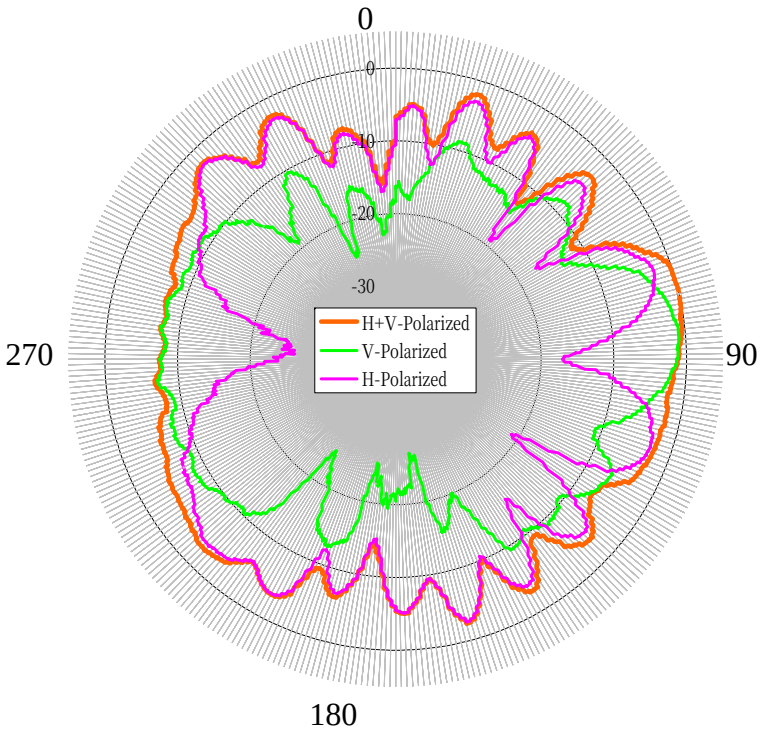
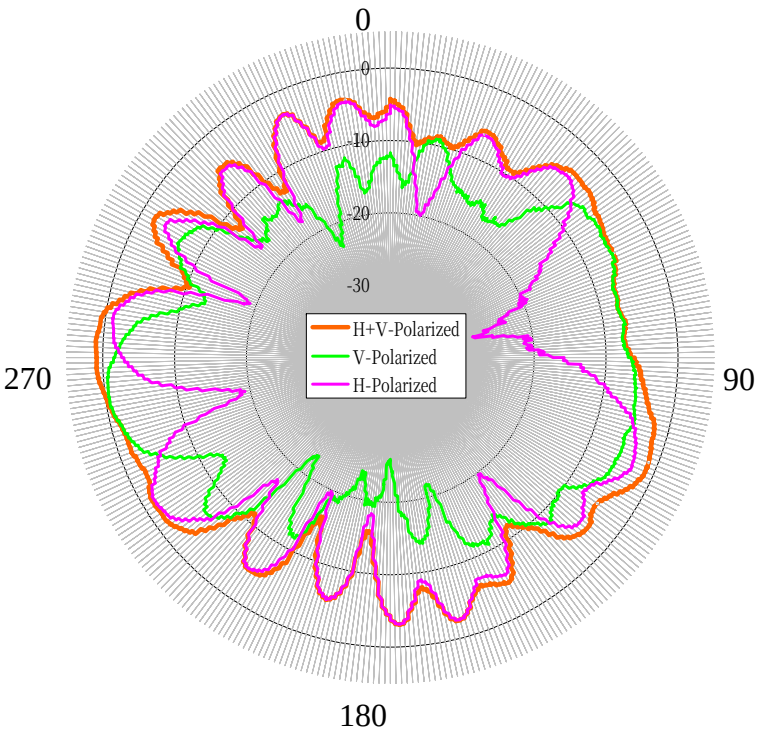
Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-1.68	V	Peak	-0.86
	Average	-8.75		Average	-7.79
H	Peak	-2.58	H	Peak	-0.11
	Average	-7.02		Average	-6.10
H + V	Peak	0.13	H + V	Peak	2.13
	Average	-4.79		Average	-3.85
Gain >= -4 Area	6.83%		Gain >= -4 Area	12.49%	
Gain >= -5 Area	7.99%		Gain >= -5 Area	22.90%	

7.6 5.35 GHz

Antenna (aux)	Antenna (main)
	

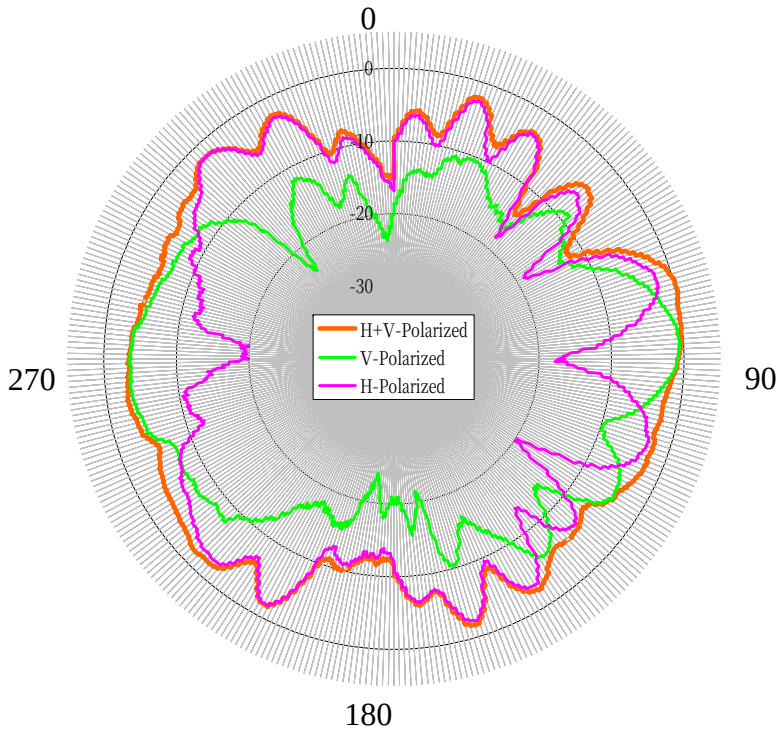
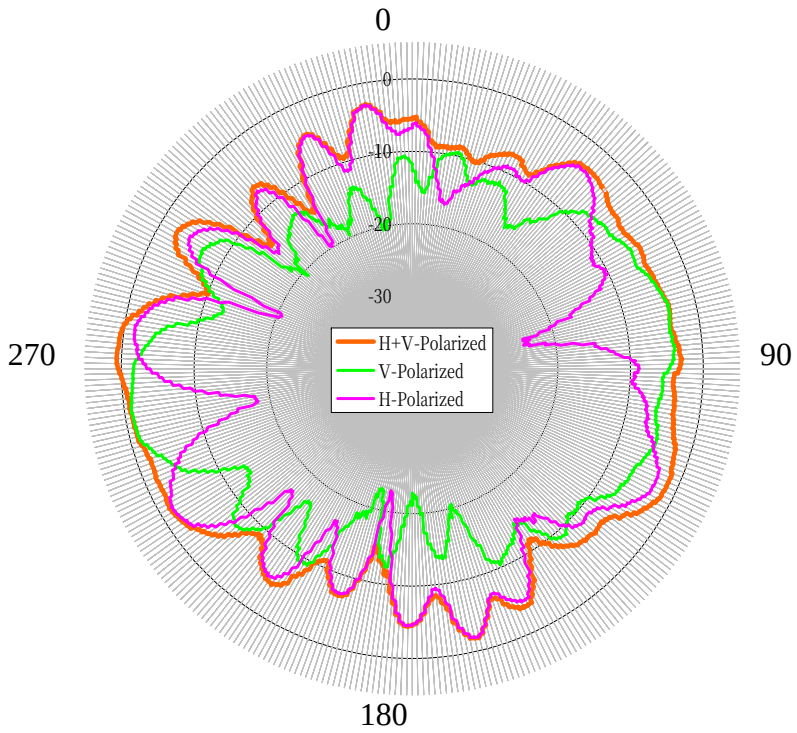
Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-0.45	V	Peak	-0.36
	Average	-8.22		Average	-8.03
H	Peak	-2.09	H	Peak	-0.64
	Average	-6.22		Average	-6.32
H + V	Peak	0.58	H + V	Peak	1.45
	Average	-4.10		Average	-4.08
Gain >= -4 Area	7.41%		Gain >= -4 Area	7.49%	
Gain >= -5 Area	10.74%		Gain >= -5 Area	9.16%	

7.7 5.47 GHz

Antenna (aux)	Antenna (main)
	

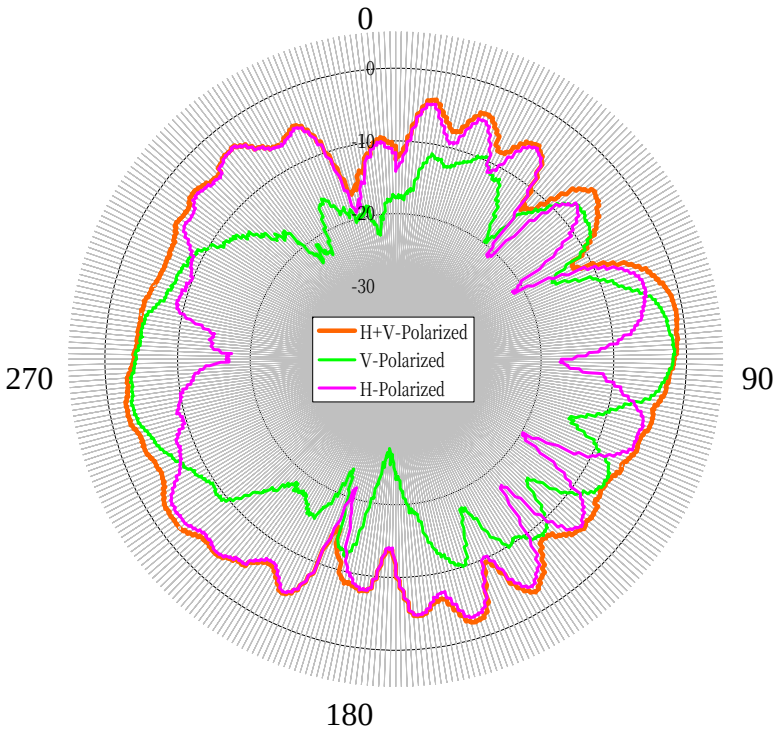
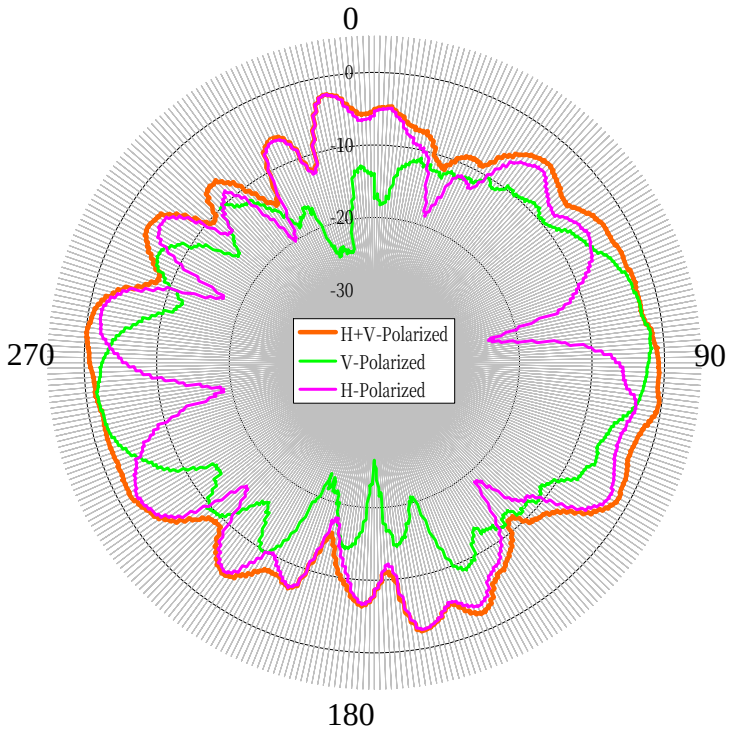
Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-0.90	V	Peak	-0.48
	Average	-8.92		Average	-8.22
H	Peak	-2.44	H	Peak	-1.03
	Average	-6.85		Average	-6.82
H + V	Peak	0.02	H + V	Peak	1.01
	Average	-4.75		Average	-4.45
Gain >= -4 Area	7.33%		Gain >= -4 Area	7.74%	
Gain >= -5 Area	8.33%		Gain >= -5 Area	8.99%	

7.8 5.5975 GHz

Antenna (aux)	Antenna (main)
	

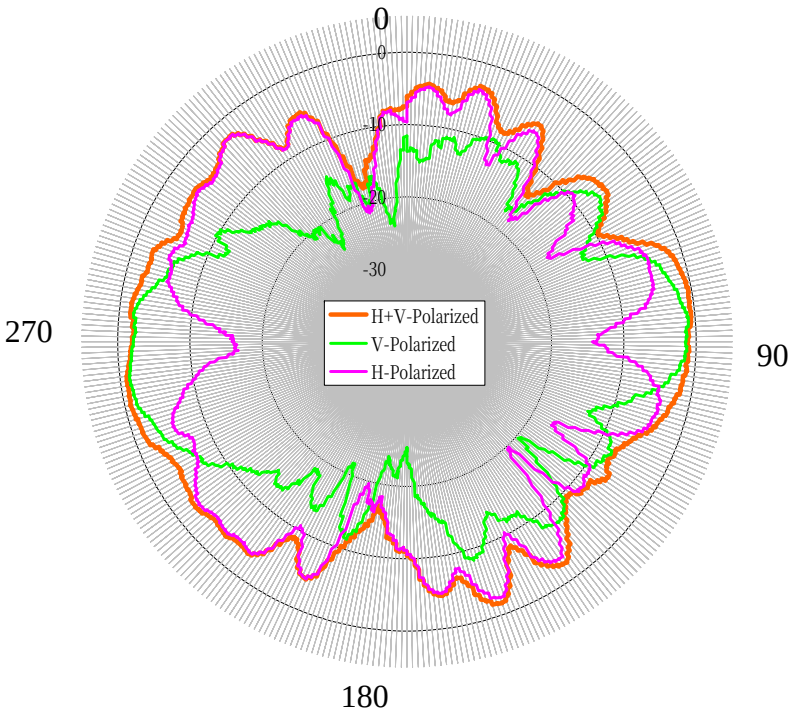
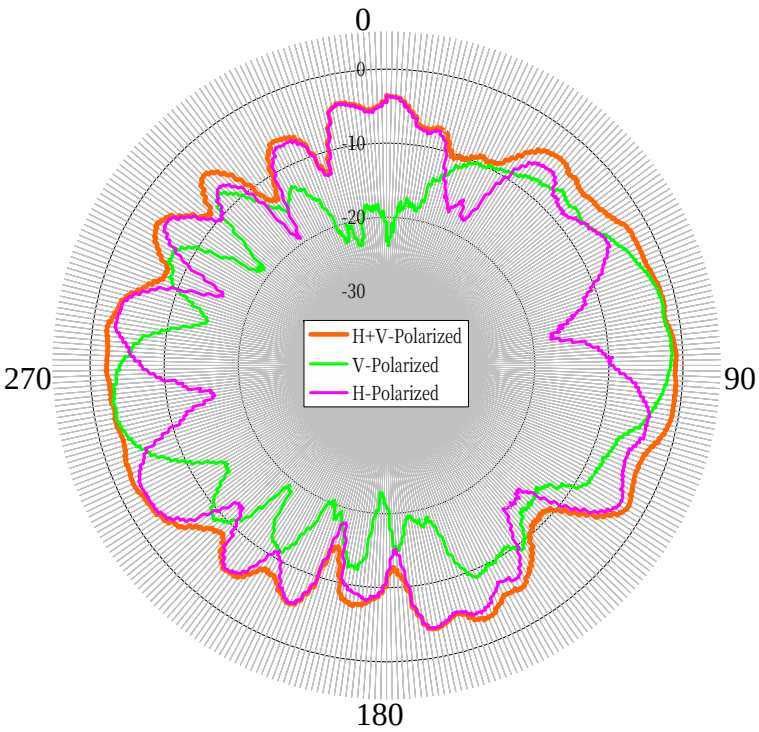
Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-0.55	V	Peak	-0.93
	Average	-7.90		Average	-7.98
H	Peak	-1.84	H	Peak	-1.47
	Average	-6.62		Average	-6.96
H + V	Peak	0.24	H + V	Peak	0.67
	Average	-4.21		Average	-4.43
Gain >= -4 Area	11.91%		Gain >= -4 Area	9.41%	
Gain >= -5 Area	17.32%		Gain >= -5 Area	14.90%	

7.9 5.725 GHz

Antenna (aux)	Antenna (main)
	

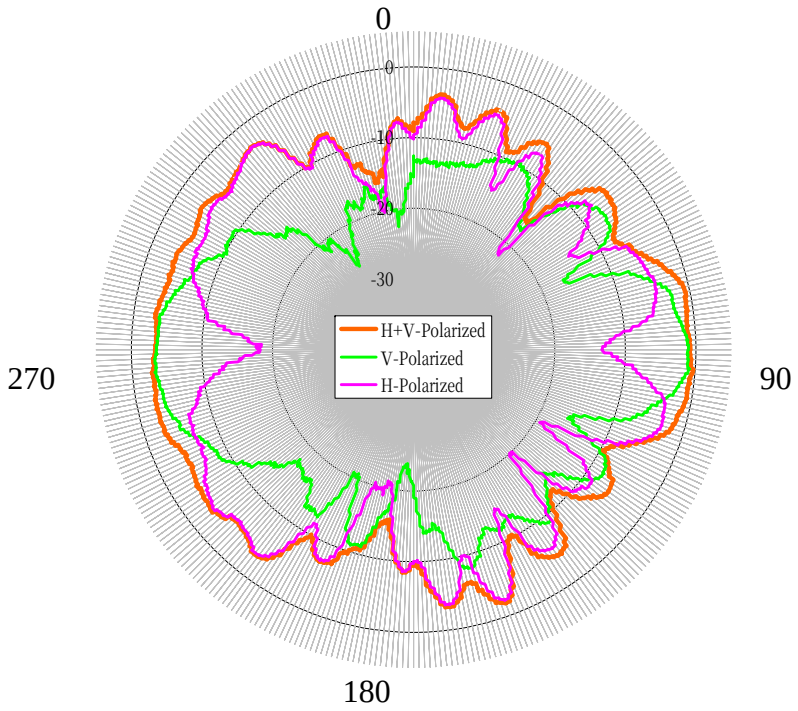
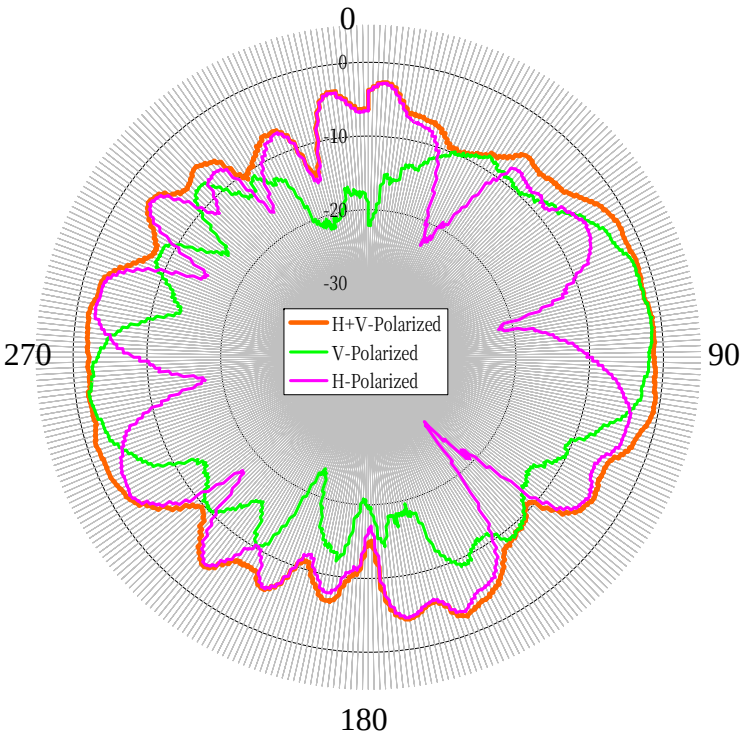
Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-1.60	V	Peak	-1.54
	Average	-8.79		Average	-7.82
H	Peak	-2.95	H	Peak	-1.67
	Average	-7.24		Average	-6.67
H + V	Peak	-0.86	H + V	Peak	-0.14
	Average	-4.94		Average	-4.20
Gain >= -4 Area	9.58%		Gain >= -4 Area	16.15%	
Gain >= -5 Area	14.24%		Gain >= -5 Area	18.48%	

7.10 5.785 GHz

Antenna (aux)	Antenna (main)
	

Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-0.97	V	Peak	-1.43
	Average	-7.72		Average	-7.97
H	Peak	-2.36	H	Peak	-3.00
	Average	-6.99		Average	-7.08
H + V	Peak	-0.45	H + V	Peak	-0.83
	Average	-4.33		Average	-4.49
Gain >= -4 Area	16.99%		Gain >= -4 Area	14.49%	
Gain >= -5 Area	19.15%		Gain >= -5 Area	17.57%	

7.11 5.85 GHz

Antenna (aux)	Antenna (main)
	

Horn Antenna Polarization	Gain of XY Plane (Azimuth)		Horn Antenna Polarization	Gain of XY Plane (Azimuth)	
V	Peak	-0.89	V	Peak	-1.23
	Average	-8.35		Average	-7.62
H	Peak	-2.24	H	Peak	-2.43
	Average	-7.34		Average	-6.96
H + V	Peak	-0.27	H + V	Peak	-0.64
	Average	-4.81		Average	-4.27
Gain >= -4 Area	12.99%		Gain >= -4 Area	17.32%	
Gain >= -5 Area	16.07%		Gain >= -5 Area	20.07%	