Aruba AP27 RF Performance report

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Revision History

Released Date	Version	Record
2023/07/31	Rev 1.0	Initial Solution
2023/11/02	Rev 1.1	Update the format

Date: 02/11/2023
Author: Hennry

1.Test Information

Item	Description
Brand Name	HPE Aruba
DUT Equipment	AP-27
Test Location	Beijing
Test Condition	RayZone 2800
Test Engineer	Yanzhengsen
Test Environment	Microwave chamber
Manufacturer	Shanghai Amphenol Airwave Communication Electronics Co., Ltd. Beijing RD Branch Room5113,Hongxiang 1989 Cultural and Creative Industrial Park, Haidian District, Beijing
Test Date	2023/07/31

Test engineer signature:

4.Test Equipment & Calibration

Network analyzer and reference antennas are used for calibration. Path loss and cable loss for different frequency bands can be checked and calculated.

Instrument	Brand	Characteristics	Model No.	Serial No.	Calibration Date
Electric dipole sleeve antenna	GTS	600 MHz ~ 700 MHz	RA-L0607DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	700 MHz ~ 800 MHz	RA-L0708DP	19011001	Dec.14, 2022
Electric dipole sleeve antenna	GTS	800 MHz ~ 1000 MHz	RA-L0810DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	1100 MHz ~ 1300 MHz	RA-L1113DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	1400 MHz ~ 1700 MHz	RA-L1417DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	1700 MHz ~ 1900 MHz	RA-L1719DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	1900 MHz ~ 2300 MHz	RA-L1923DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	2300 MHz ~ 2900 MHz	RA-L2329DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	2900 MHz ~ 3200 MHz	RA-L2932DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	3200 MHz ~ 3800 MHz	RA-L3238DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	3800 MHz ~ 4400 MHz	RA-L3844DP	19011002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	4400 MHz ~ 4900 MHz	RA-L4449DP	202011003	Dec.14, 2022
Electric dipole sleeve antenna	GTS	4900 MHz ~ 5900 MHz	RA-L4959DP	202101002	Dec.14, 2022
Electric dipole sleeve antenna	GTS	5900 MHz ~ 6900 MHz	RA-L5969DP	202011003	Dec.14, 2022
Electric dipole sleeve antenna	GTS	6900 MHz ~ 8000 MHz	RA-L6980DP	202101002	Dec.14, 2022
MaxSign Libra	GTS	Control chamber System	RayZone2800C_Z		Non-Calibration Required

5.Antenna Details

Ant No.	Part Number	Operating Band	Type	Size(L*W*H)	Cable Length(mm)	Polarization type	Cable type	Material
A1	ANT1-AP27-Dual	WIFI 2+5G	Dipole	27.0*21.0*1	150	vertical	1.37 normal	PCB
A2	ANT2-AP27-Dual	WIFI 2+5G	Dipole	36.7*36.7*1	174	horizontal	1.37 normal	PCB

6.Antenna performance summary

	S11(dB)		Efficiency(%)	
	SPC	Test (Worst)	SPC	Test (Average)
Ant1 (2.4G+5G)	-10	-12.7/-10.5	70	70.5/70.1
Ant2 (2.4G+5G)	-10	-10.6/-11.3	70	72.2/70.5

6.Antenna performance summary

Item	SPC
Peak Gain (dBi)	3dBi<peak gain<5dBi
Horizontal cut Gain Flatness	<10dB

FR-4	Ant1 (2.4G+5G V)						Ant2 (2.4G+5G H)					
	2.4	2.45	2.5	5.1	5.5	5.85	2.4	2.45	2.5	5.1	5.5	5.85
Peak Gain (dBi)	1.70	1.75	2.53	2.58	2.23	2.46	2.64	2.83	3.0	3.37	2.9	2.97
Average Gain 85°	-0.85	-0.91	-0.94	-0.74	-1.37	-1.13	-0.69	-0.45	-0.60	-1.00	-2.34	-2.47
Average Gain Theta90	-0.85	-0.95	-0.84	-0.71	-1.31	-0.94	-0.47	-0.20	-0.46	-0.81	-1.53	-1.50
Flatness(dB) 85°	6.23	6.94	8.32	6.79	6.95	8.21	5.54	4.54	5.41	7.50	9.30	9.48
Flatness(dB) Theta 90	7.60	8.56	9.34	6.70	7.77	8.35	5.26	3.81	4.97	6.85	8.02	8.87

ANT1&ANT2	2.4	2.45	2.5	5.1	5.5	5.85
Uncorrelated Gain（dBi）	1.32	1.19	1.53	2.83	1.67	2.28

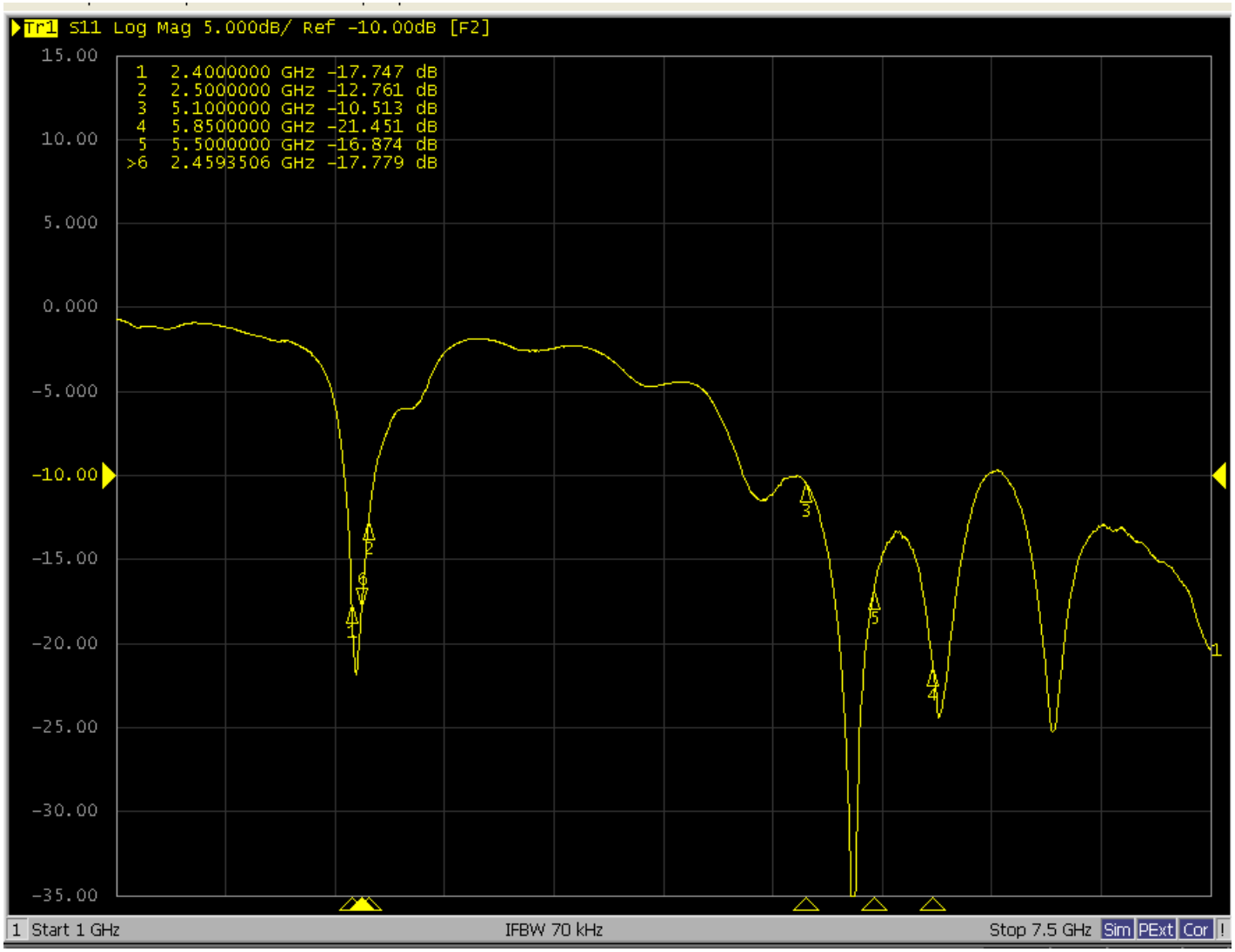
6.Antenna performance summary

SPC

频率 (GHz) 隔离度(dB)	2.4----2.5(worst)		5.1-5.85(worst)
Ant1&Ant2	20		20

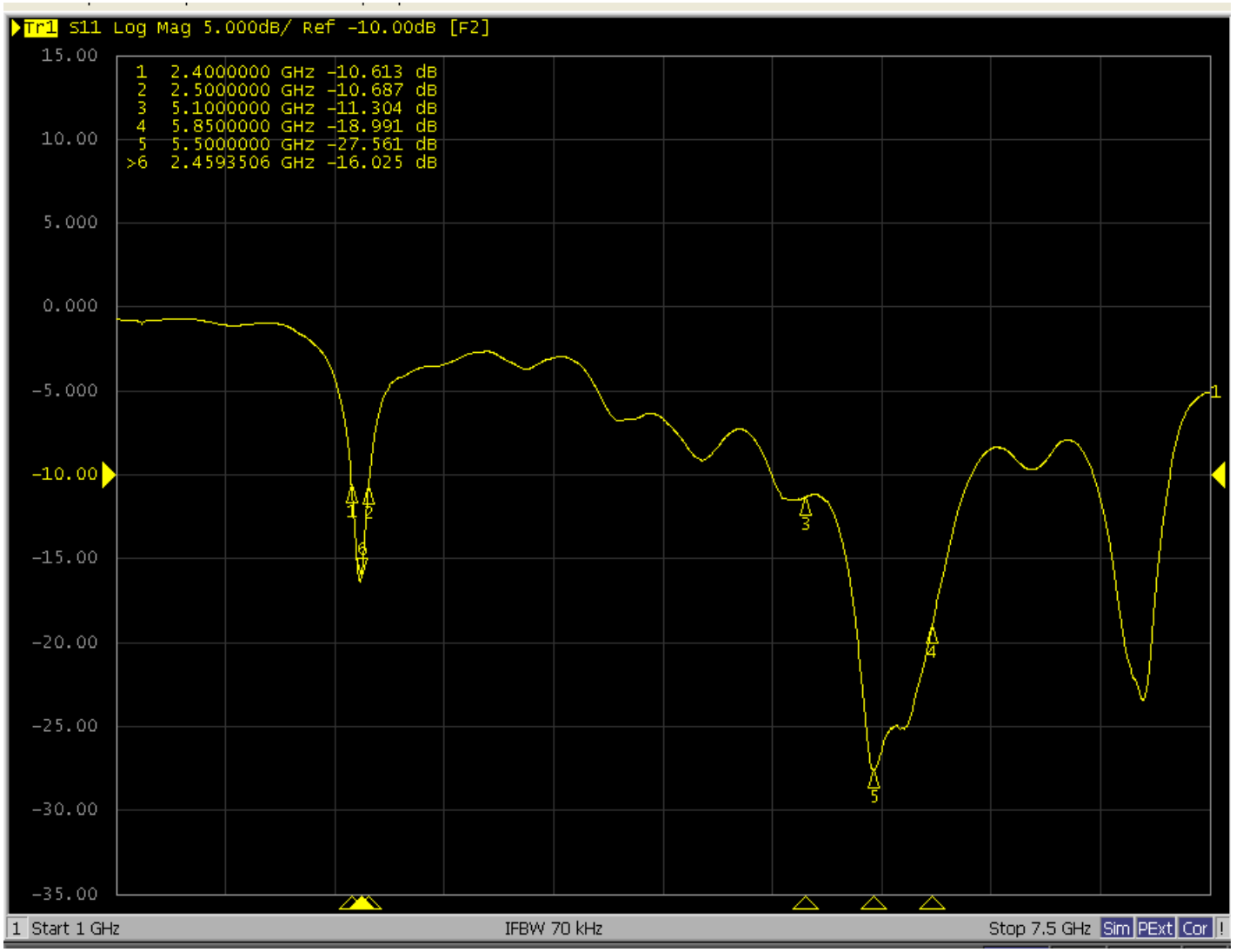
频率 (GHz) 隔离度(dB)	2.4----2.5(worst)		5.1-5.85(worst)
Ant1&Ant2	25		27

7.Antenna performance_Return loss



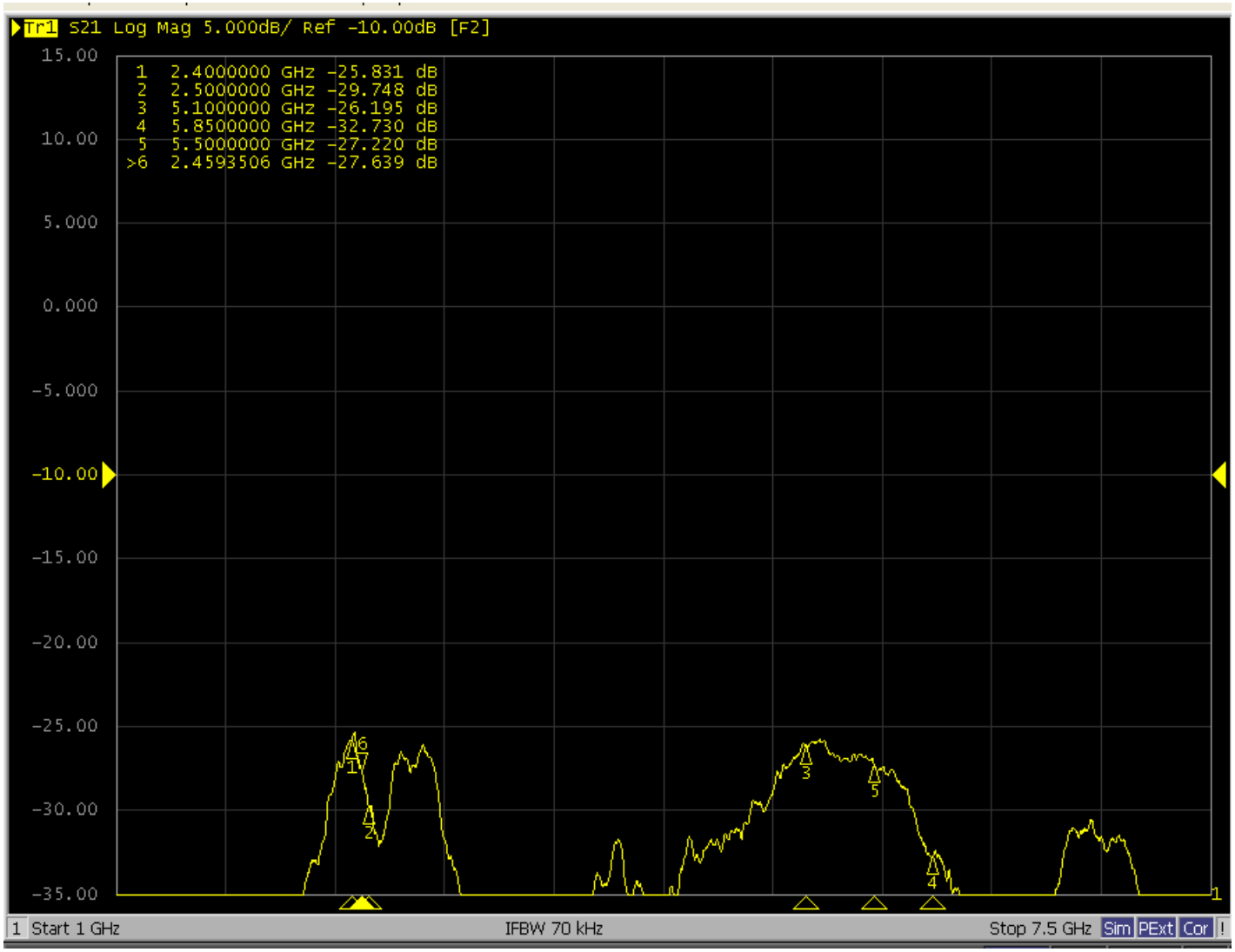
Ant1_V (2.4G+5G)

7.Antenna performance_Return loss



Ant2_H (2.4G+5G)

7.Antenna performance_Isolation



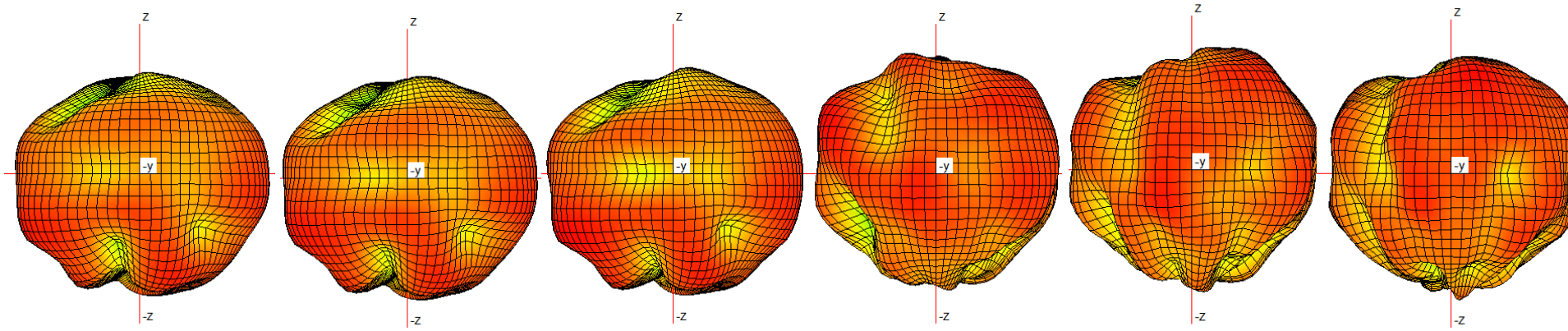
7.Antenna performance_Efficiency(%)

Ant1		Ant2	
Fre(Mhz)	Eff(%)	Fre(Mhz)	Eff(%)
2.4	68.67	2.4	71.54
2.45	70.19	2.45	71.30
2.5	73.72	2.5	73.91
5.1	70.27	5.1	76.87
5.5	69.71	5.5	70.72
5.85	70.77	5.85	71.35

8.Antenna performance_3D Pattern

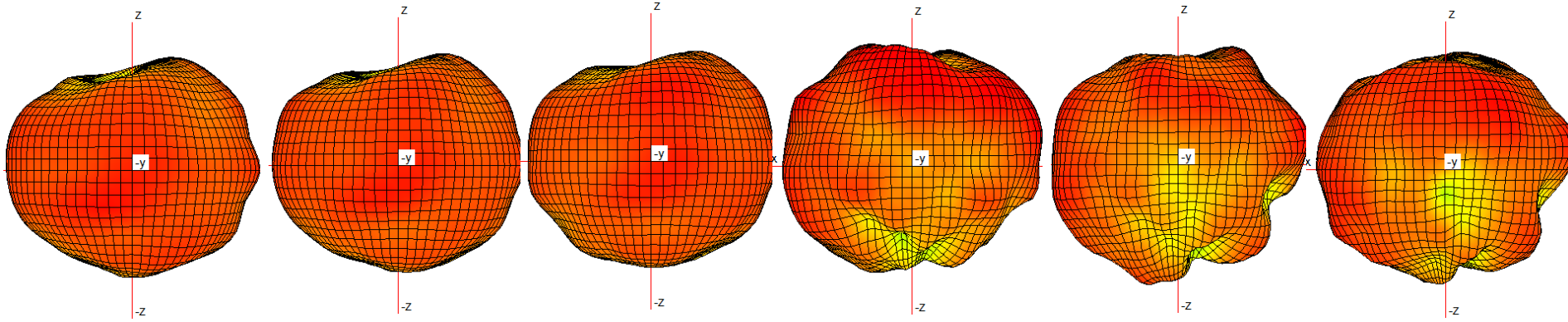
ANT1_V

2.4G 2.45G 2.5G 5.1G 5.5G 5.85G

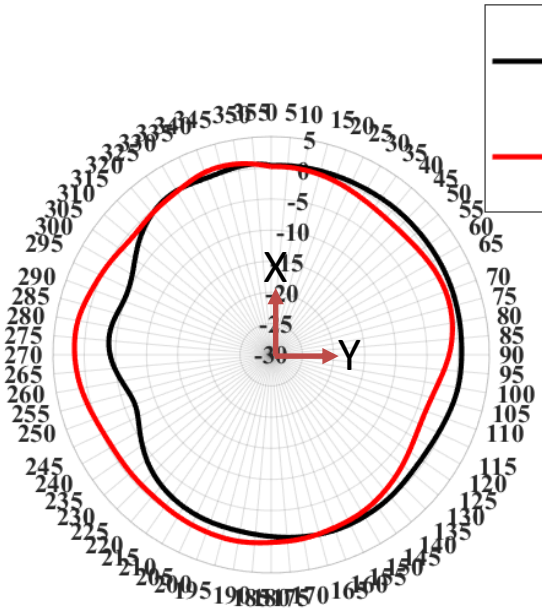


ANT2_H

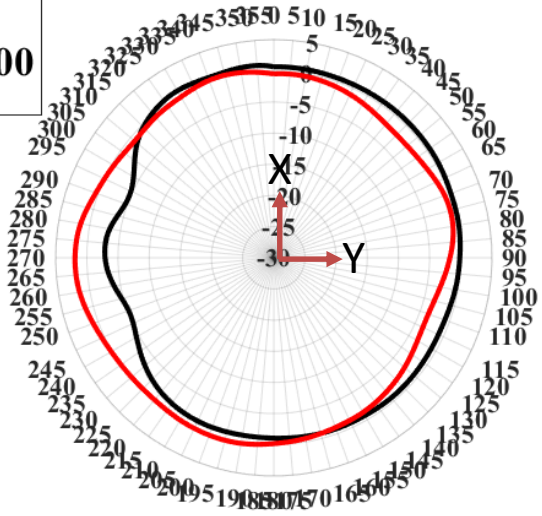
2.4G 2.45G 2.5G 5.1G 5.5G 5.85G



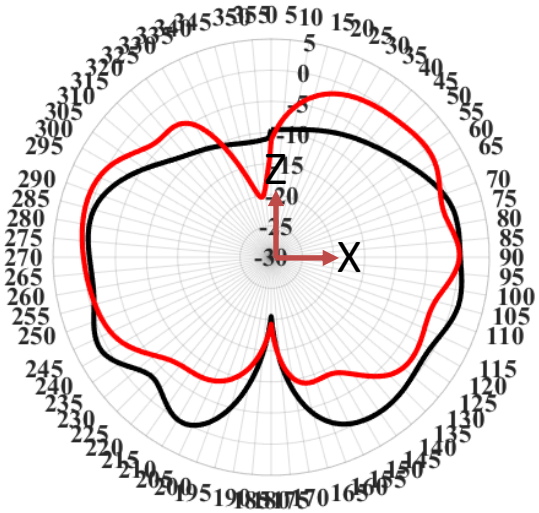
8.Antenna performance_2D Pattern



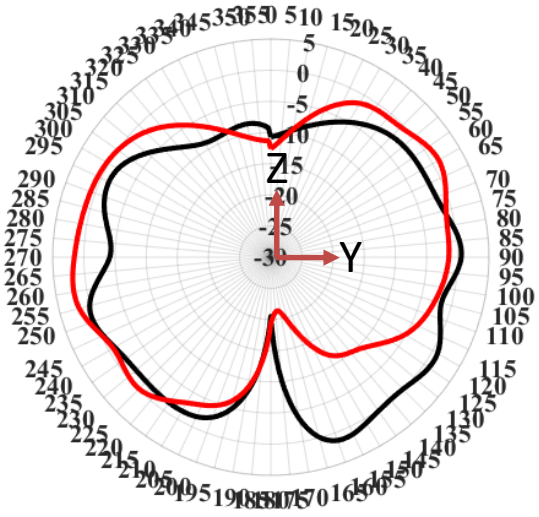
Theta 90 (xoy)



85° (xoy -5°)



PHI 0° (xoz)



PHI 90° (yoz)

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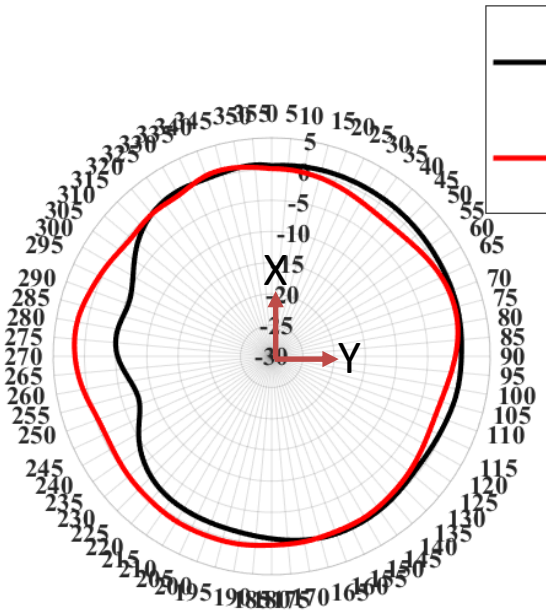
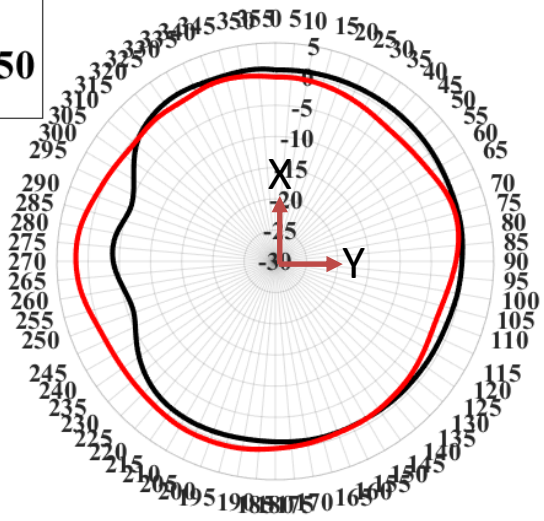
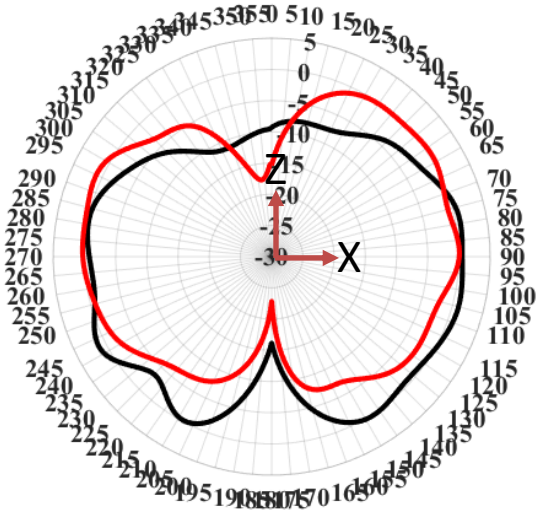


Theta 90 (xoy)



85° (xoy -5°)



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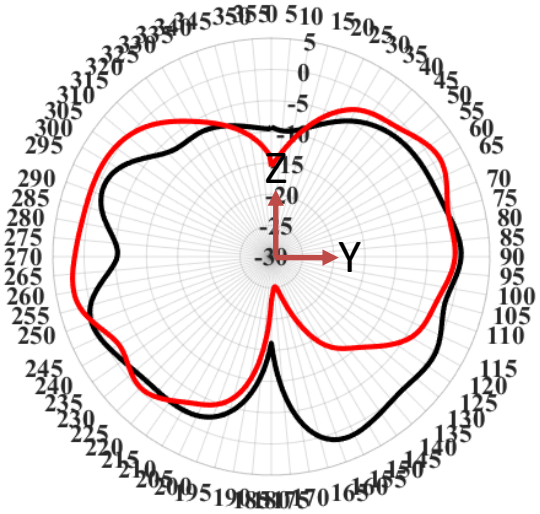

PHI 90° (yoz)

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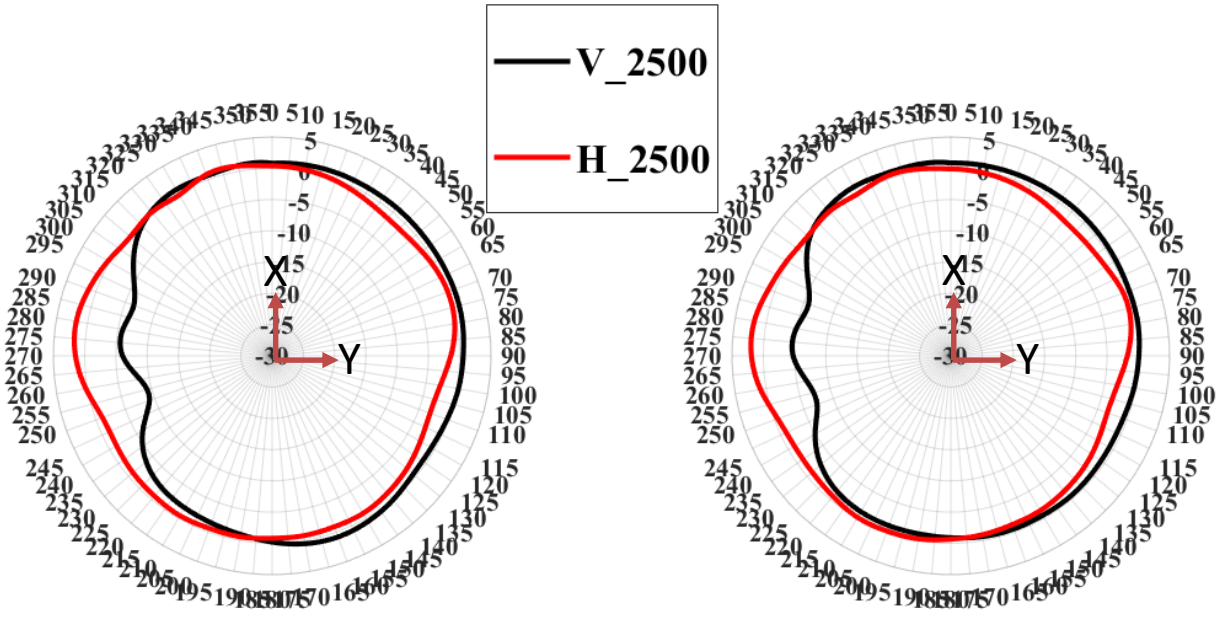
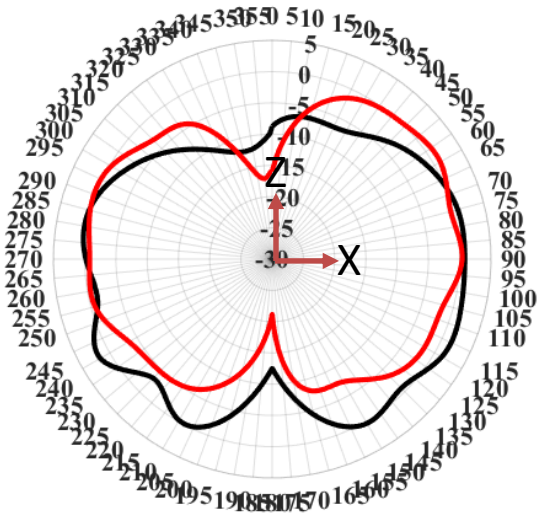
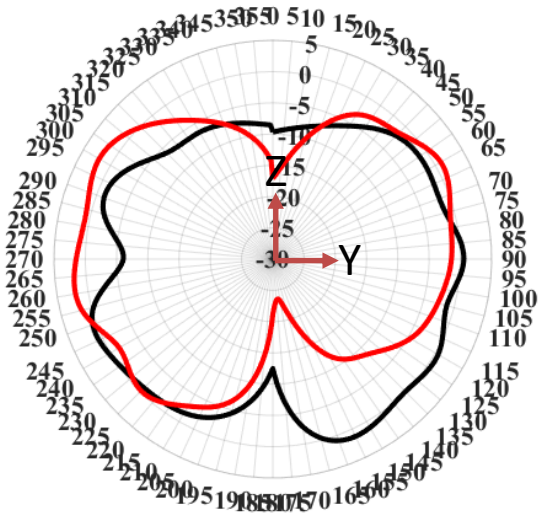


Theta 90 (xoy)

85° (xoy -5°)



PHI 0° (xoz)



PHI 90° (yoz)

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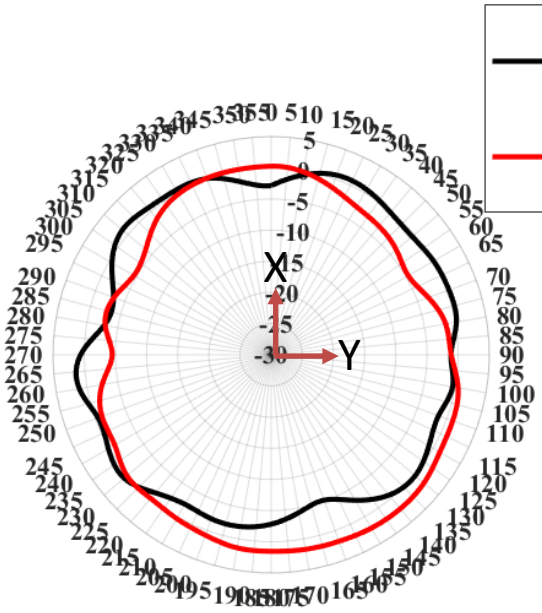
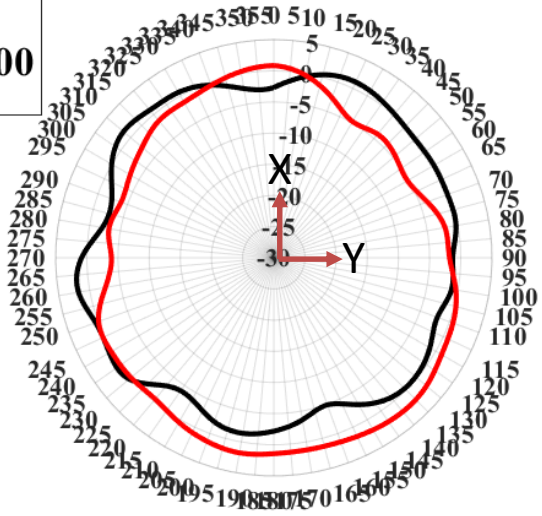
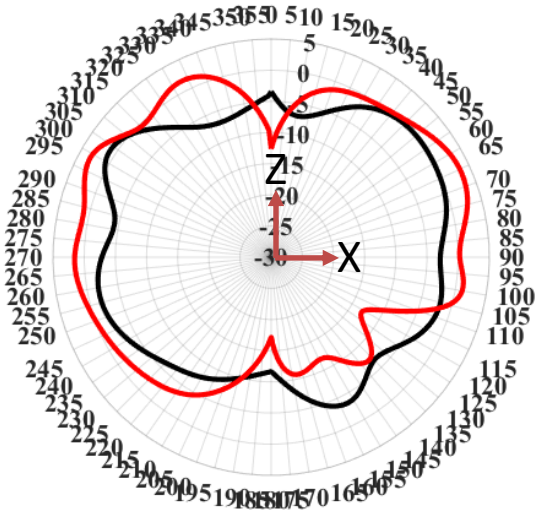


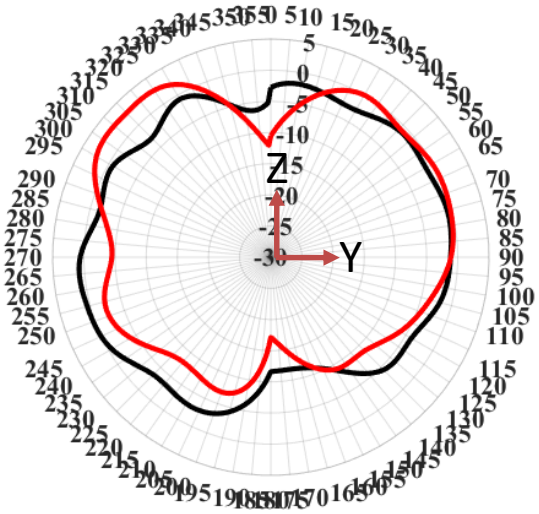
Theta 90 (xoy)



85° (xoy -5°)

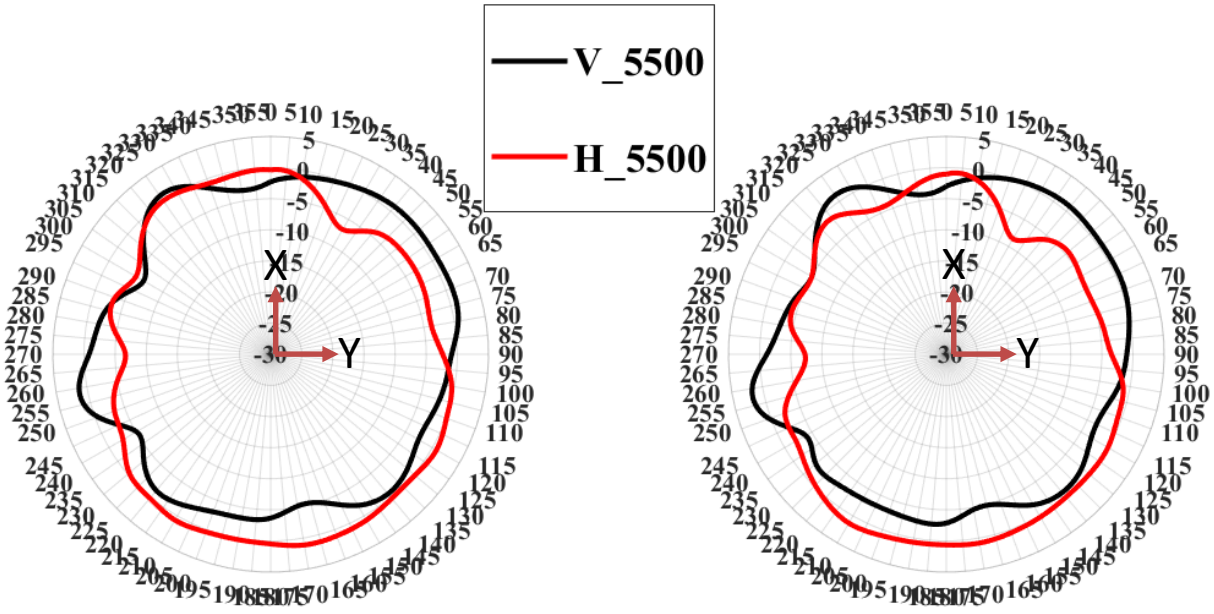


PHI 0° (xoz)



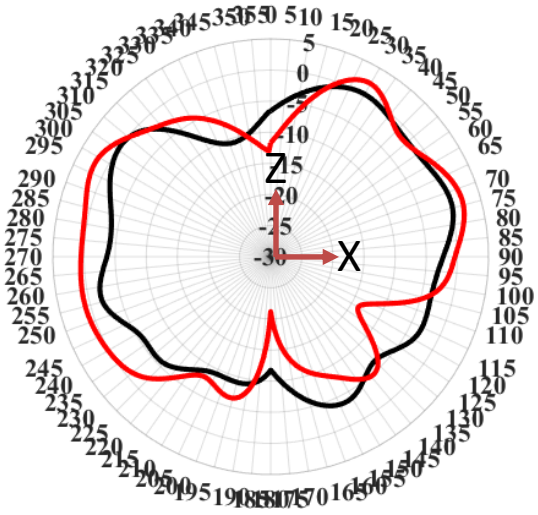
PHI 90° (yoz)

8.Antenna performance_2D Pattern

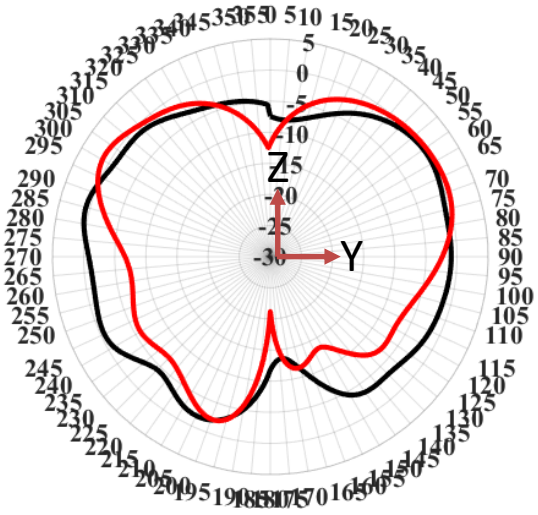


Theta 90 (xoy)

85° (xoy -5°)



PHI 0° (xoz)



PHI 90° (yoz)

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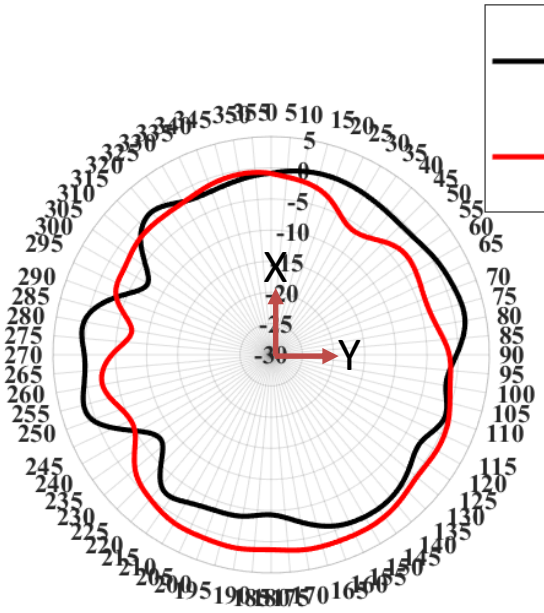
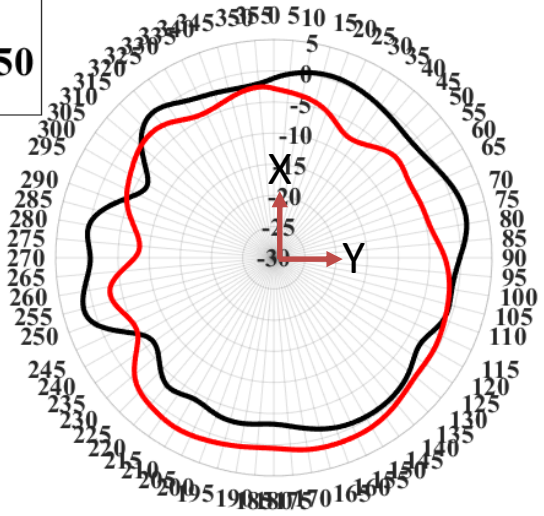
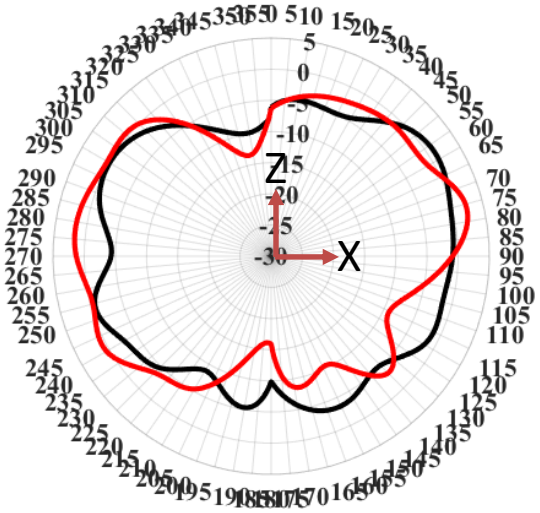


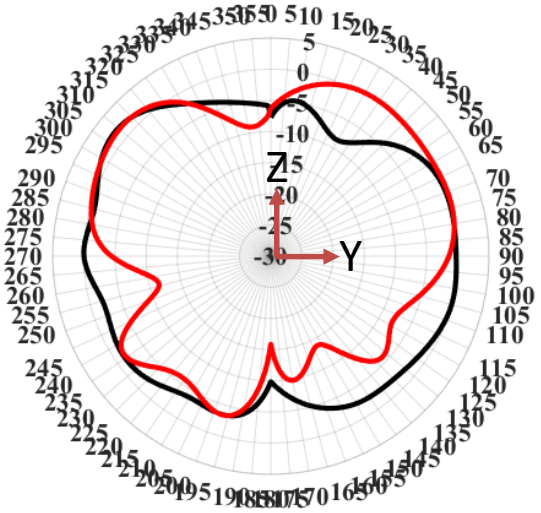
Theta 90 (xoy)



85° (xoy -5°)



PHI 0° (xoz)



PHI 90° (yoz)

9.Summary

S11, S21 ,Efficiency and Flatness can meet the SPC.