DV8946 Ant Passive Test Report

SDMC-GJRD-SOP-006

Record for version modification

Date	Revision	Modify Content	Author
2023-3-21	V1.0	1st Version	Leon_Wu

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1 Test Summary

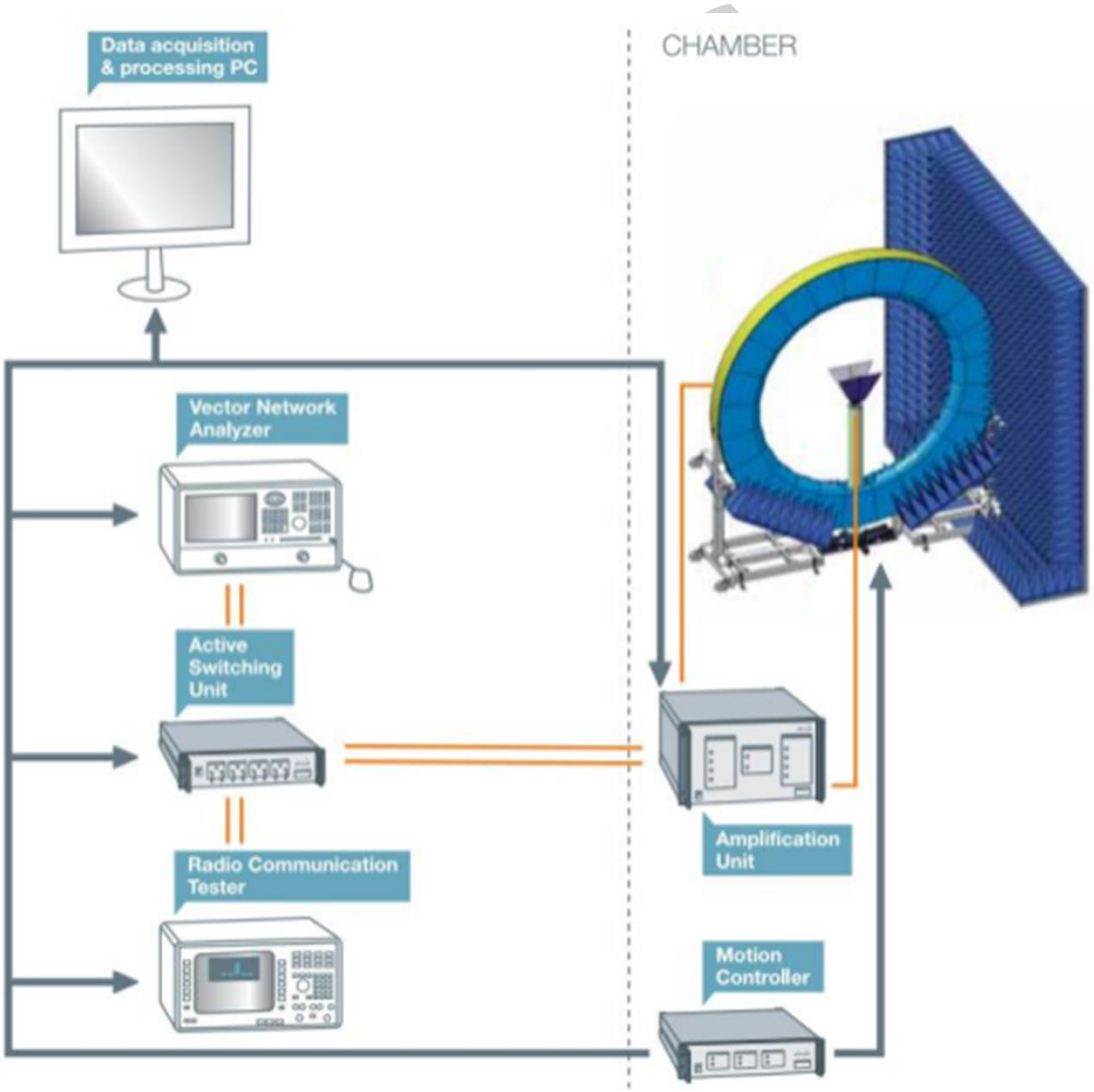
No.	Sample Name	Test item	Conclusion
1	DV8946	VSWR	Pass
2		Isolation	Pass
3		Efficiency & Gain	Pass
4		2D & 3D Radiation Pattern	Pass

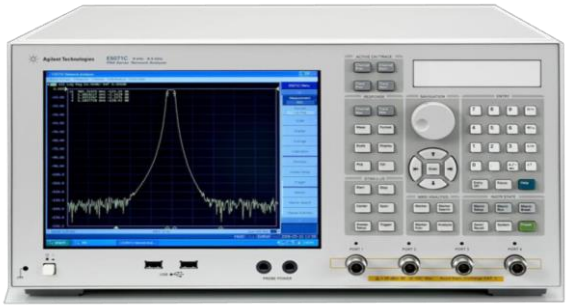
2 Test Information

Model No.	DV8946
HW Version	MB.081.A
SW Version	t4g4_1026-1627.img
CPU	Amlogic S905X4
DDR	RS256M32LZ4D2BNP-62BT
Wi-Fi Module	FG6222BSRC-03
Tester	Leon Wu
Reviewer	Stark Xu
Approver	Zoau
Date	2024.06.21

3 Testing Environment

Chamber	XH Chamber
Wireless Communication Tester	R&S CMW500
Vector Network Analyzer	KEYSIGHT E5071C
Temperature	25±2℃
Humidity	50±20%Rh





R&S CMW500

Wireless Communication Tester

●GSM/3G/4G

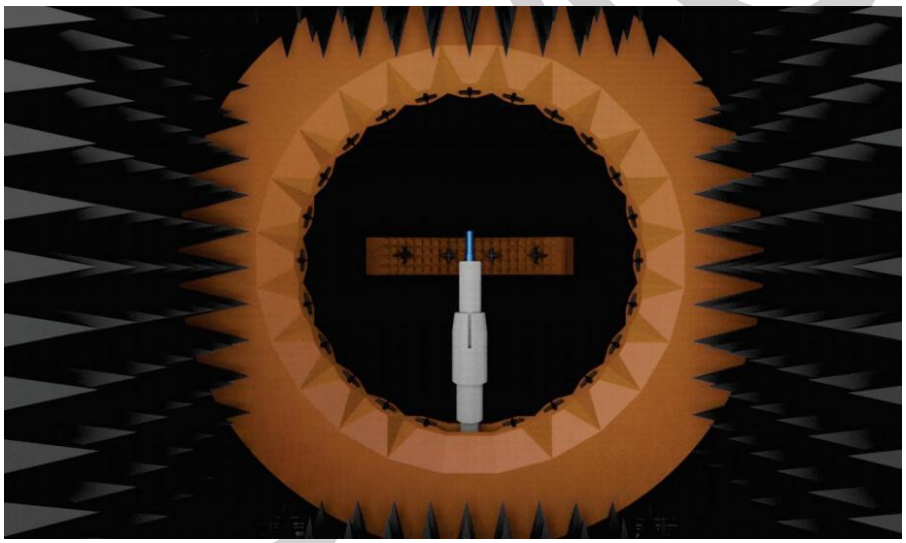
●Wi-Fi/ BT

●NB-IoT

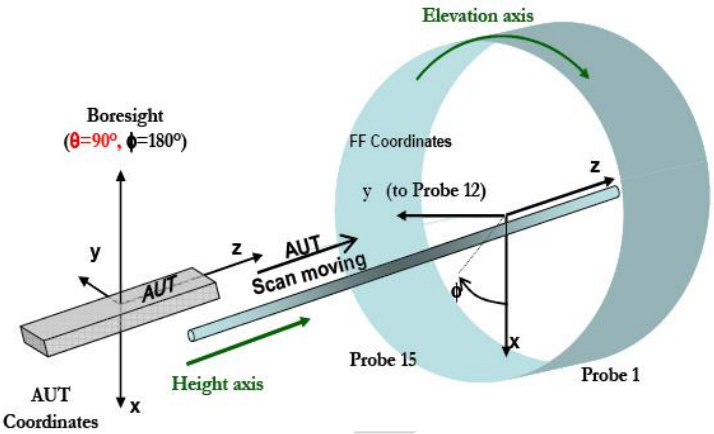
KEYSIGHT E5071C

Vector Network Analyzer

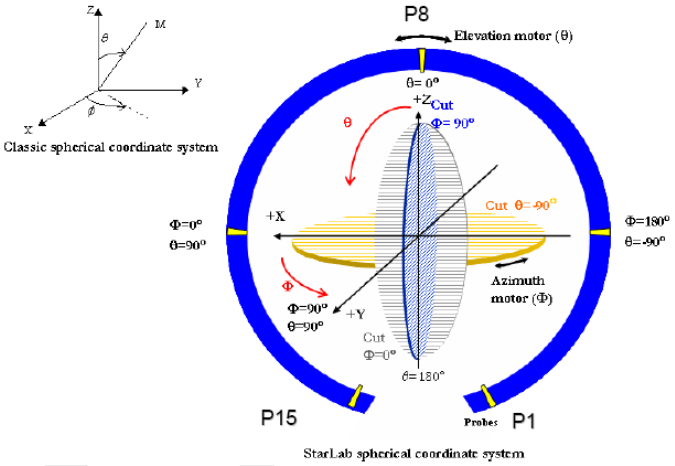
●Frequency:100 kHz~8.5GHz



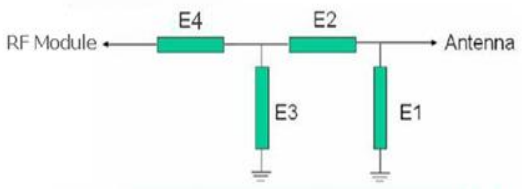
Coordinate system – Cylindrical geometry



Coordinate system – Spherical geometry



4 Matching Circuit Description



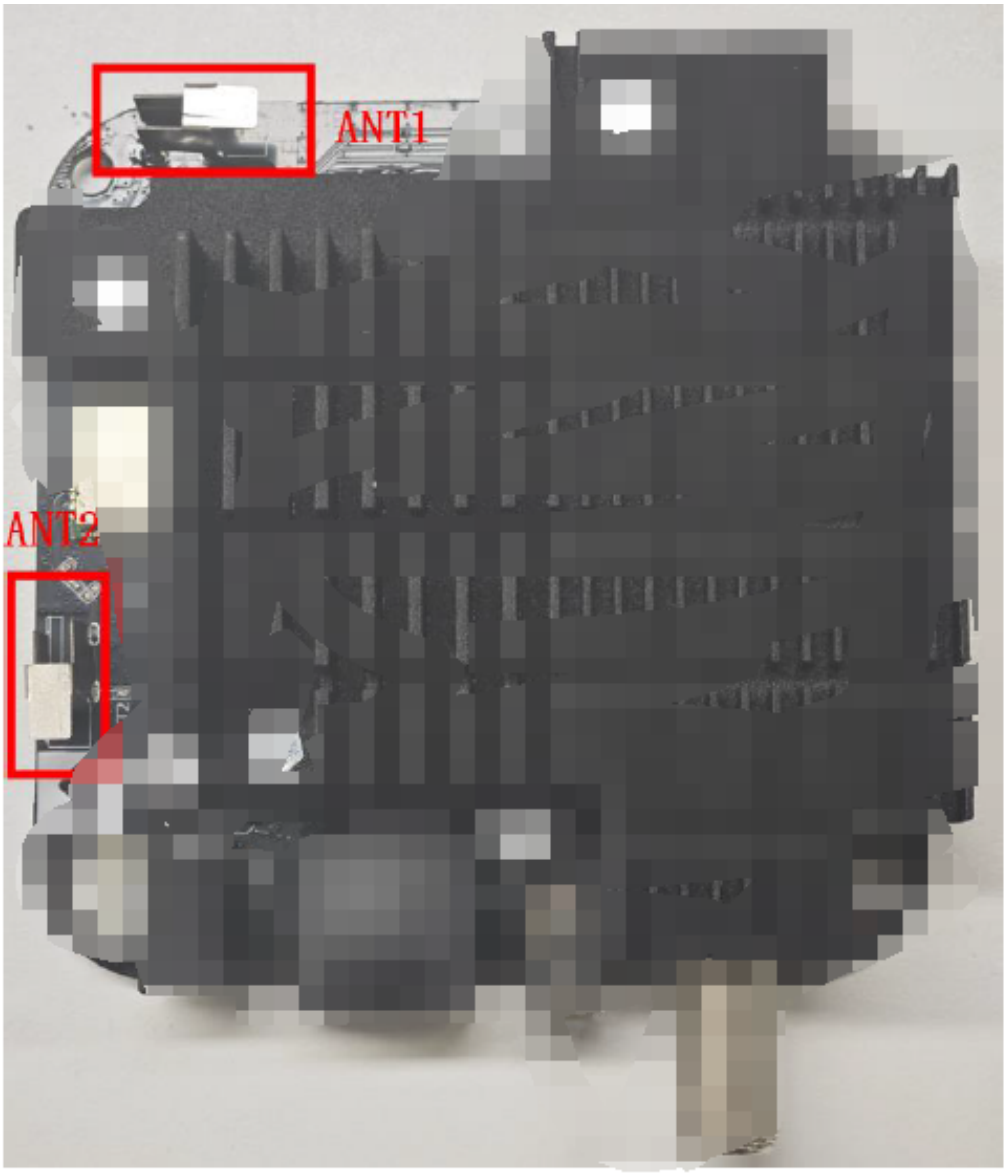
Element	Value
E1	N/A
E2	N/A
E3	N/A
E4	N/A

5 Antenna Technical Parameter

Electrical Technical Parameter				
Electrical Spec				
Frequency Range	2400 ~2500/5150~5850MHz			
VSWR	≤2.0			
	Remark: VSWR of ceramic & on-board layout Antenna≤3.0			
Input Impedance	50 Ω			
Direction	Omnidirectional			
Efficiency	≥50%			
	Remark: Efficiency of ceramic & on-board layout Antenna≥30%			
Gain	Wi-Fi≥0dBi			
	BT≥-1dBi			
Isolation	≤-15			
	Remark: Isolation of Dongle & Sticker similar products≤-10			
Mechanical Specifications				
Material Type	Metal ☑	FPC ☐	PCB ☐	Layout ☐
Working Temperature	-20℃~+70℃			
Working Humidity	20%~80%			

6 Assembly Description

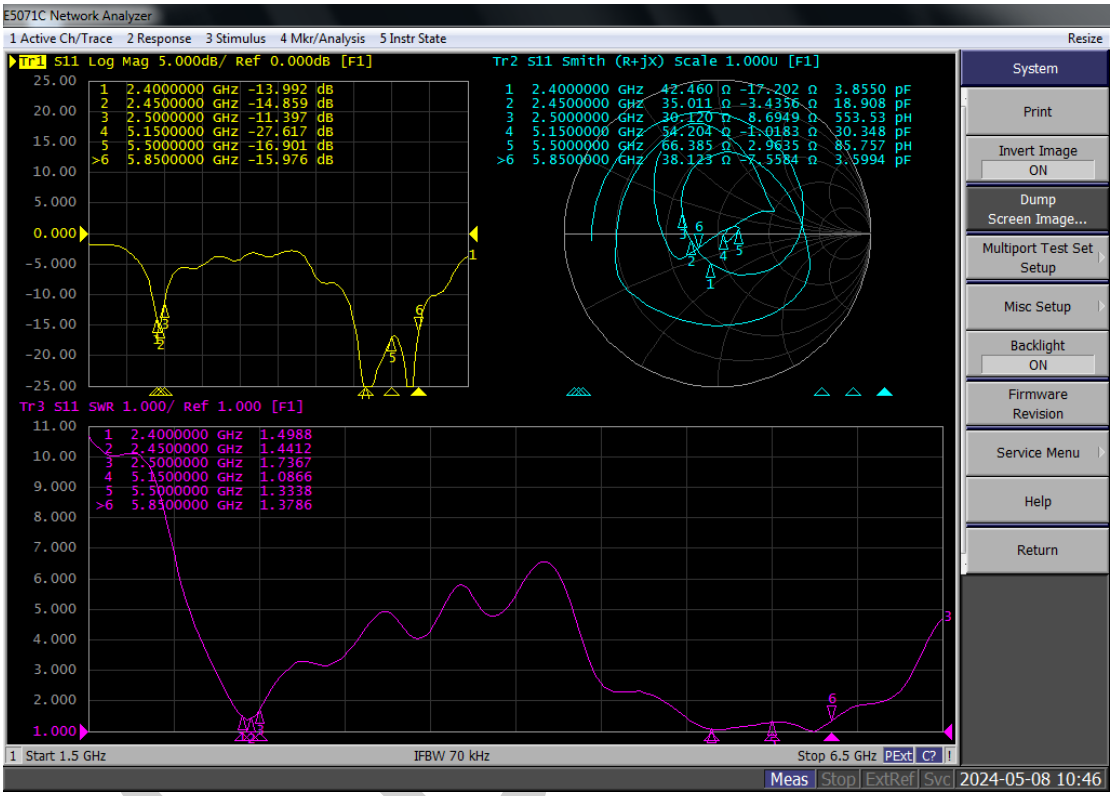
Antenna Attachment Position



7 Passive Parameter Test

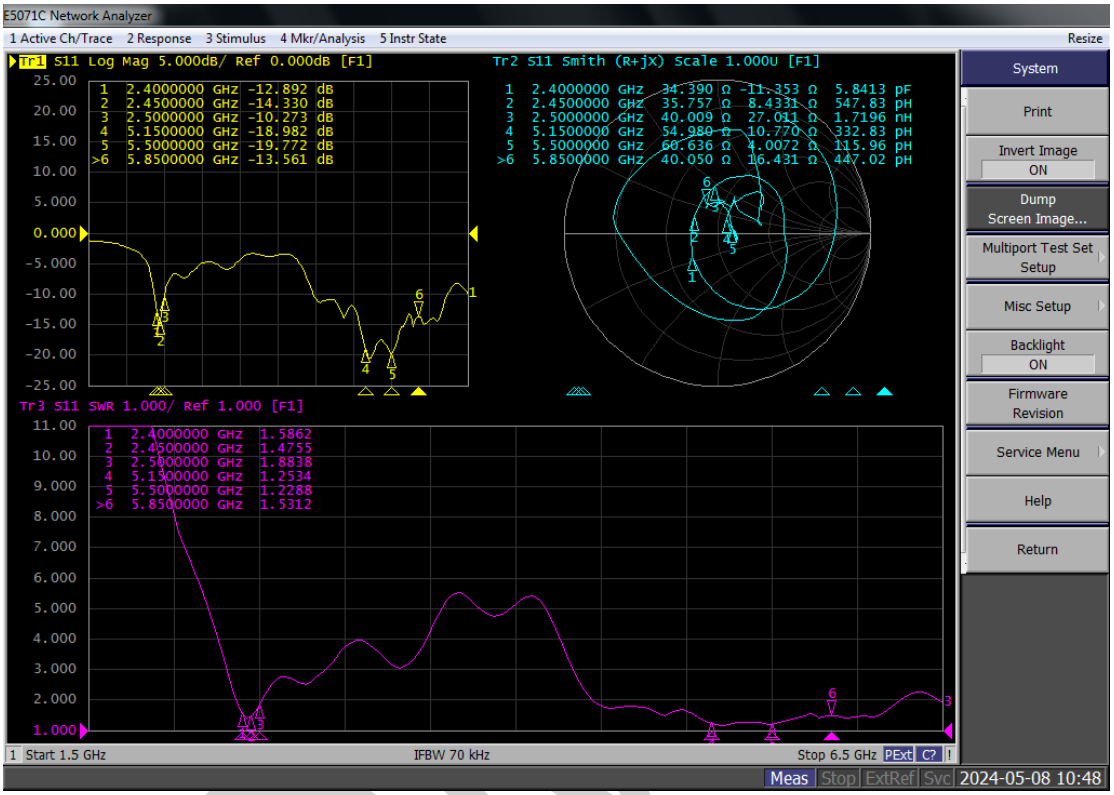
7.1 VSWR

7.1.1 Wi-Fi Ant-1



Freq/GHz	2.4	2.45	2.5	5.15	5.5	5.85
VSWR	1.5	1.4	1.7	1.1	1.3	1.4

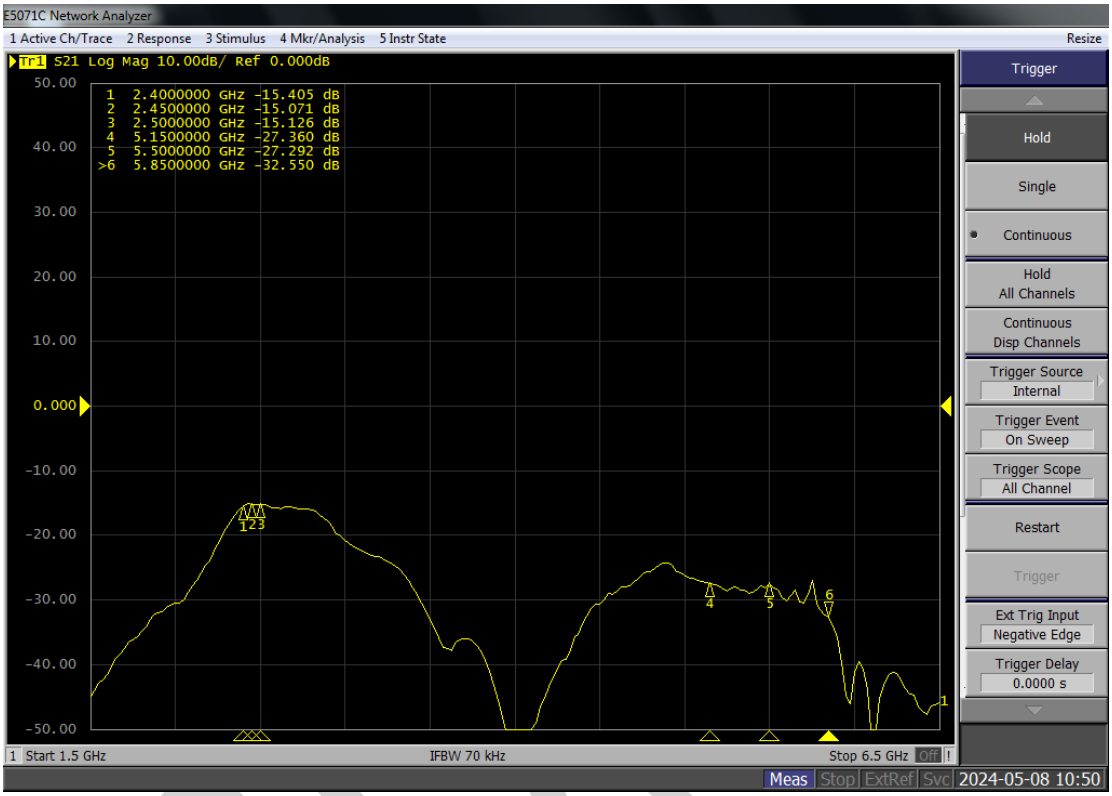
7.1.2 Wi-Fi Ant-2



Freq/GHz	2.4	2.45	2.5	5.15	5.5	5.85
VSWR	1.6	1.5	1.9	1.3	1.2	1.5

7.2 Isolation

Wi-Fi Ant-1 & Wi-Fi Ant-2 Isolation



Freq/GHz	2.4	2.45	2.5	5.15	5.5	5.85
S21/ dB	-15	-15	-15	-27	-27	-32

7.3 Efficiency & Gain

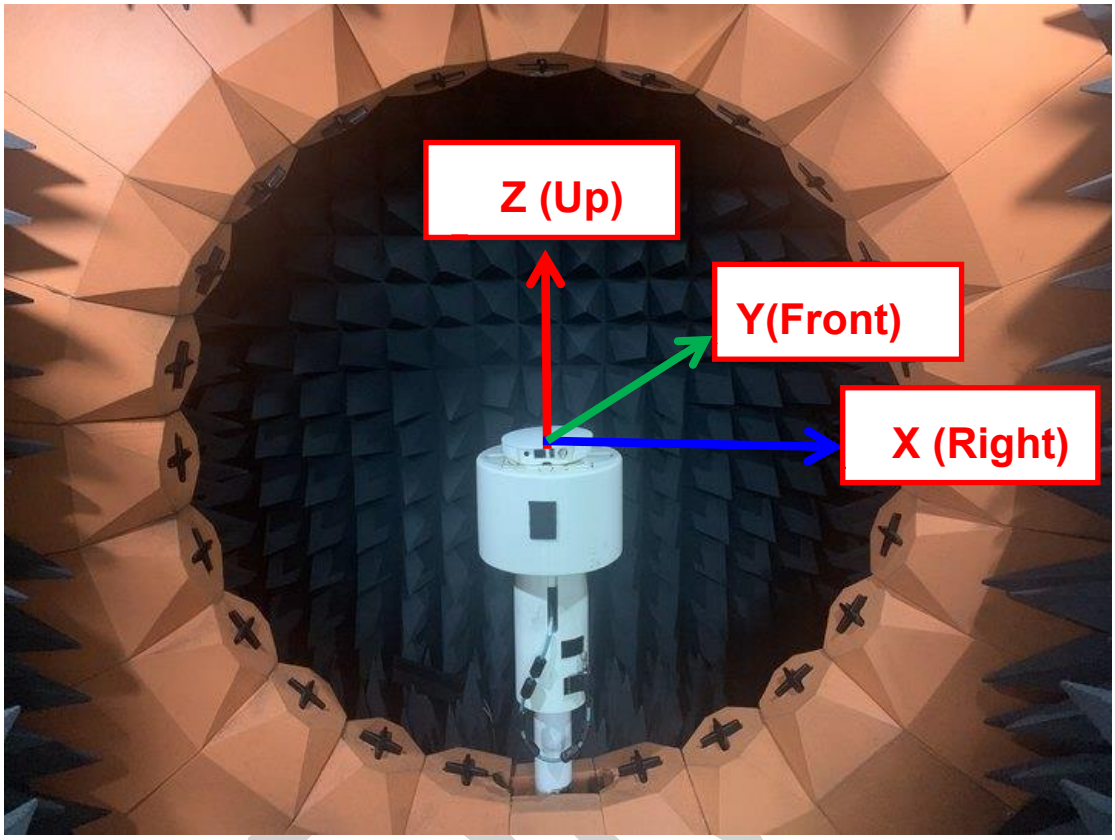
7.3.1 Efficiency & Gain of Wi-Fi Ant-1

Gain&Efficiency of Wi-Fi Ant-1					
2.4G			5G		
Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)
2400	1.13	65.77	5150	2.08	52.72
2410	1.29	66.83	5200	1.92	53.33
2420	1.3	67.14	5250	2.41	51.64
2430	1.77	70.47	5300	2.2	52.6
2440	1.75	69.5	5350	2.3	53.09
2450	1.84	73.79	5400	1.93	51.52
2460	1.87	74.47	5450	1.18	55.98
2470	2.23	76.74	5500	1.61	54.58
2480	2.24	75.16	5550	1.54	55.21
2490	1.72	70.63	5600	0.5	54.08
2500	1.74	69.98	5650	0.71	54.2
			5700	-0.02	53.58
			5750	-0.0.2	51.29
			5800	-0.22	48.24
			5850	-0.6	47.46

7.3.2 Efficiency & Gain of Wi-Fi Ant-2

Efficiency & Gain of Wi-Fi Ant-2					
2.4G			5G		
Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)
2400	0	52.72	5150	2.93	49.77
2410	0.09	54.58	5200	2.16	48.19
2420	-0.65	50.7	5250	2.34	47.21
2430	-0.38	53.7	5300	2.04	47.42
2440	-0.43	51.64	5350	2.66	47.53
2450	-0.2	55.34	5400	2.65	47.64
2460	-0.26	53.95	5450	1.67	52.12
2470	-0.13	54.7	5500	1.77	50.93
2480	-0.5	53.7	5550	1.4	52.48
2490	-0.41	51.05	5600	1.28	53.46
2500	-0.44	51.76	5650	1.35	53.46
			5700	1.77	55.46
			5750	0.75	52.24
			5800	1.45	49.32
			5850	1.32	50.47

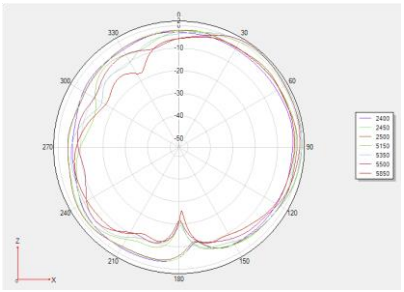
7.4 Reference Coordinate System



	XY	XZ	YZ
0°	Right	Up	Up
90°	Front	Right	Front
180°	Left	Down	Down
270°	Back	Left	Back

7.5 2D & 3D Radiation Pattern

7.5.1 Wi-Fi Ant-1



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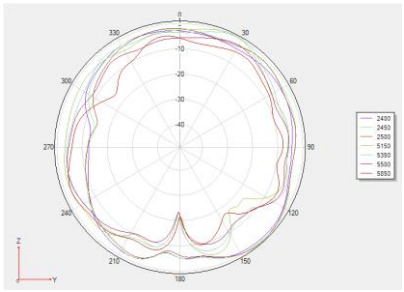

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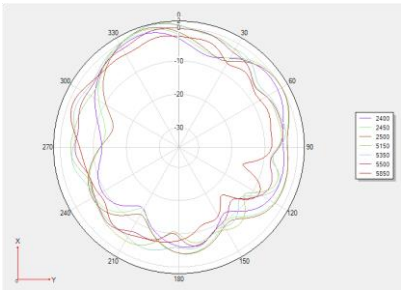

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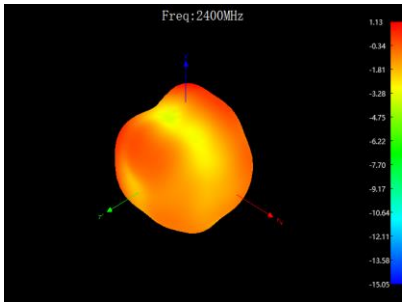
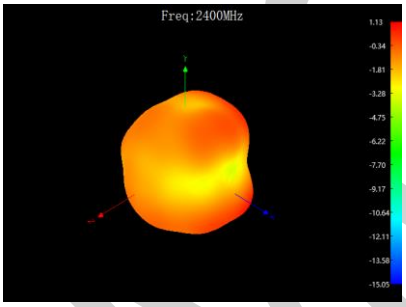
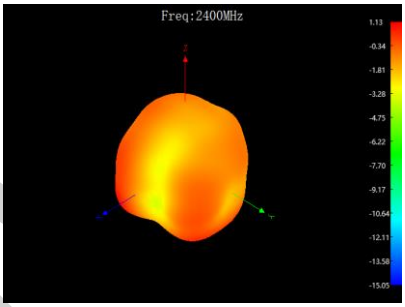


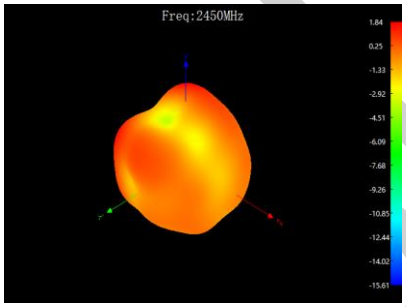
ZXY face @2400MHz



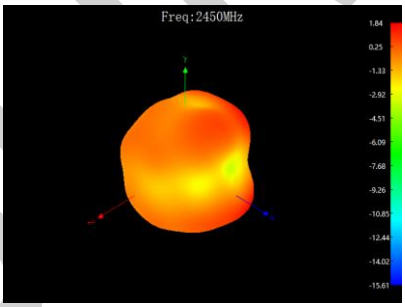
XYZ face @2400MHz



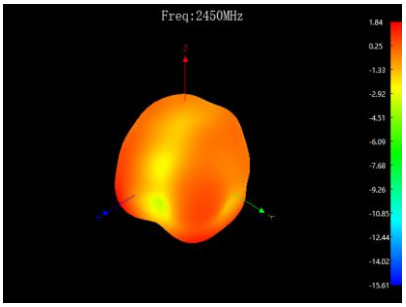
YZX face @2400MHz



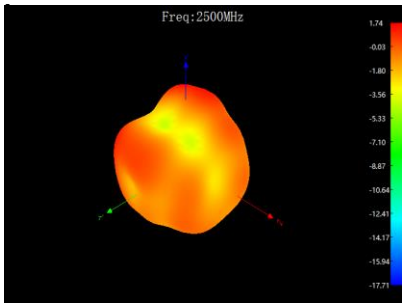
ZXY face @2450MHz



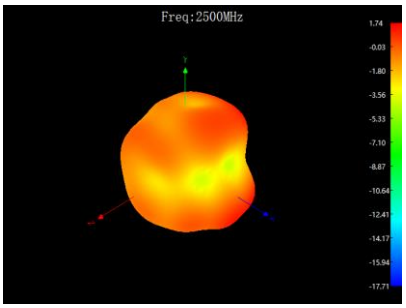
XYZ face @2450MHz



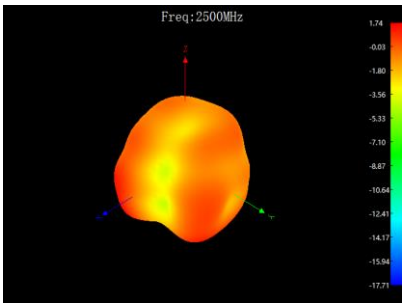
YZX face @2450MHz



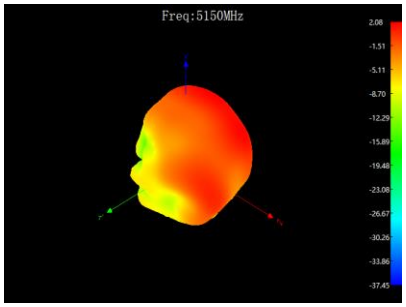
ZXY face @2500MHz



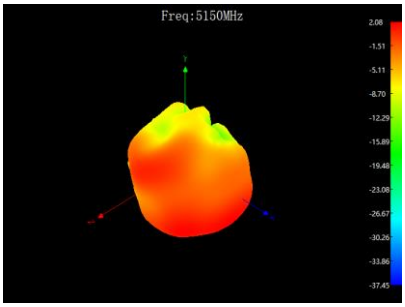
XYZ face @2500MHz



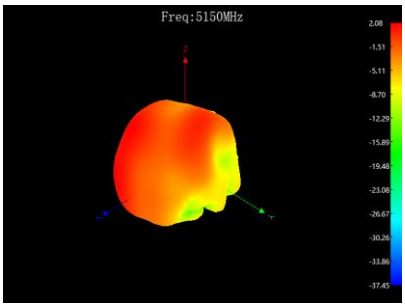
YZX face @2500MHz



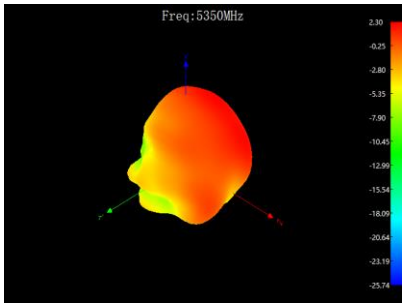
ZXY face @5150MHz



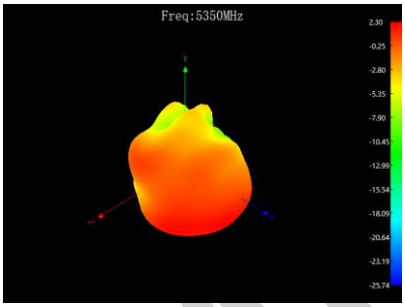
XYZ face @5150MHz



YZX face @5150MHz



ZXY face @5350MHz



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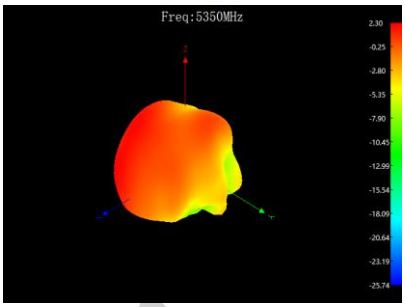
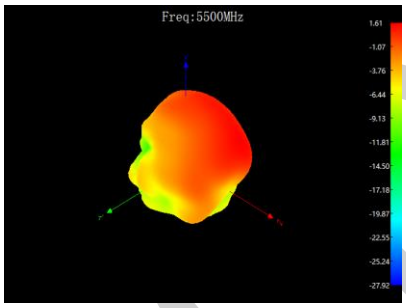
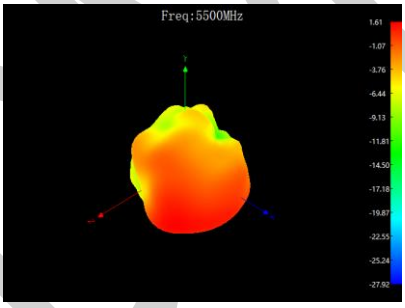


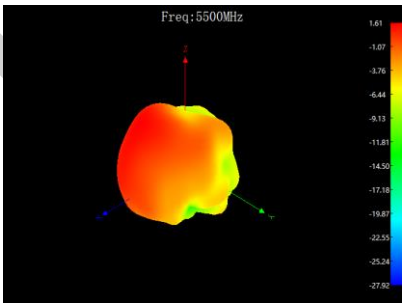
YZX face @5350MHz



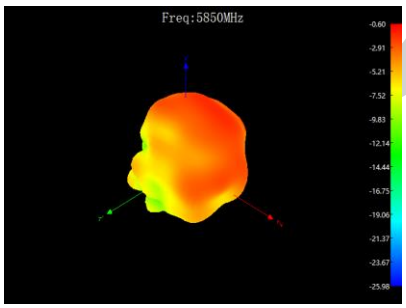
ZXY face @5500MHz



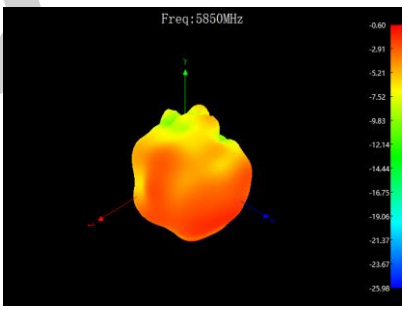
XYZ face @5500MHz



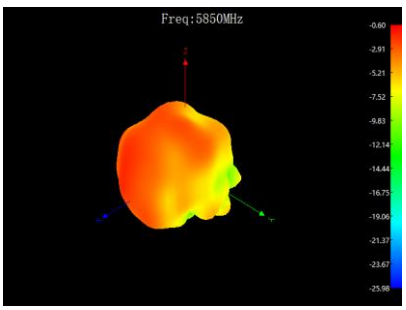
YZX face @5500MHz



ZXY face @5850MHz

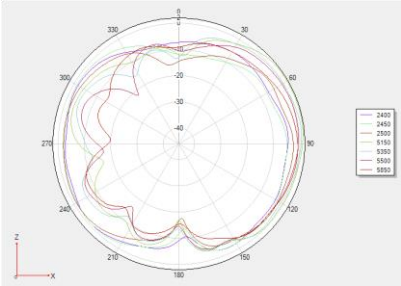


XYZ face @5850MHz



YZX face @5850MHz

7.5.2 Wi-Fi Ant-2



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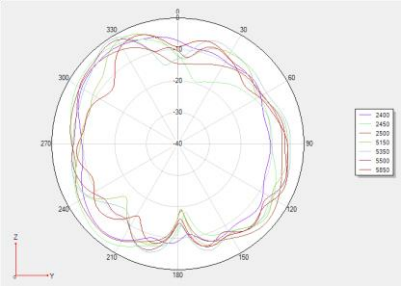

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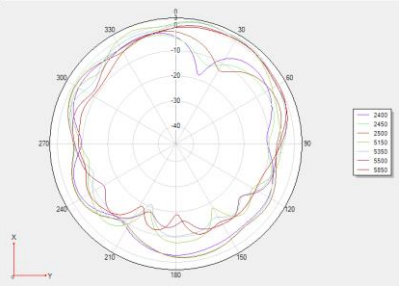

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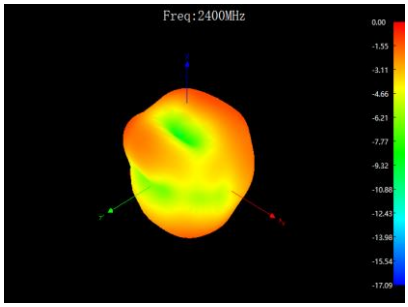
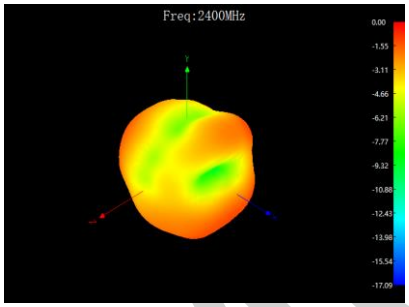
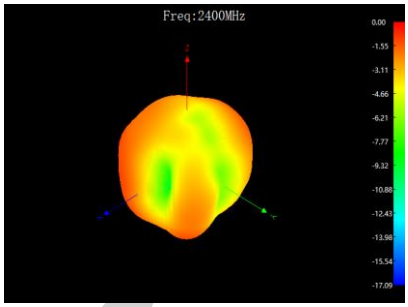


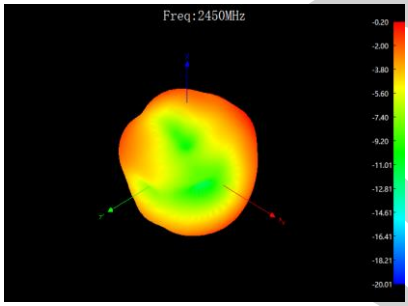
ZXY face @2400MHz



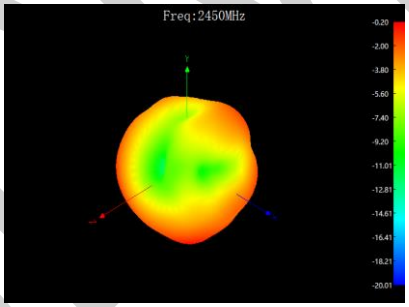
XYZ face @2400MHz



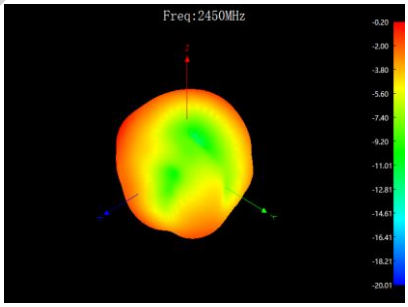
YZX face @2400MHz



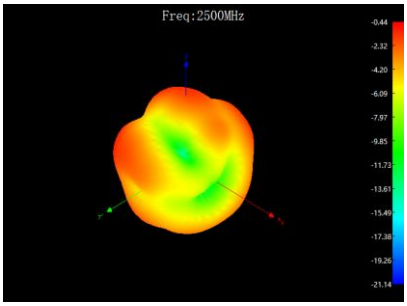
ZXY face @2450MHz



XYZ face @2450MHz



YZX face @2450MHz



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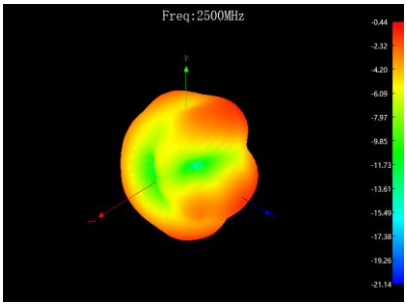
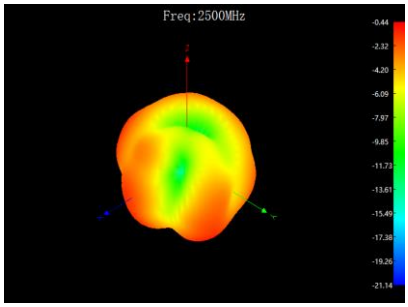
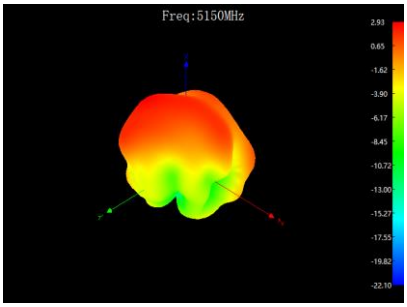


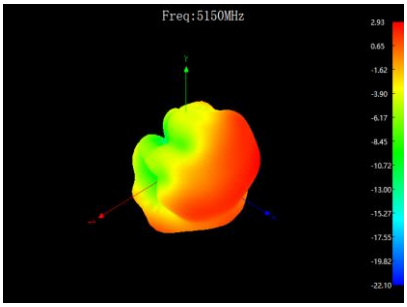
XYZ face @2500MHz



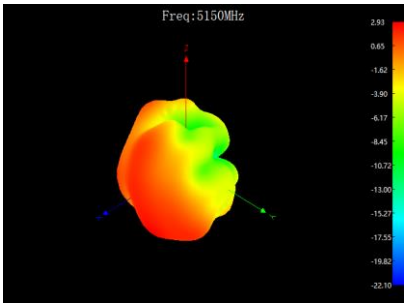
YZX face @2500MHz



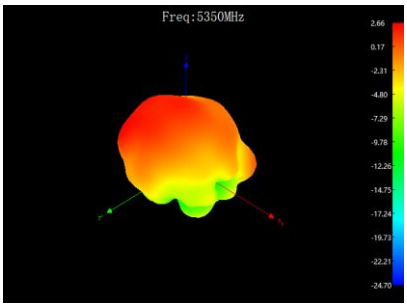
ZXY face @5150MHz



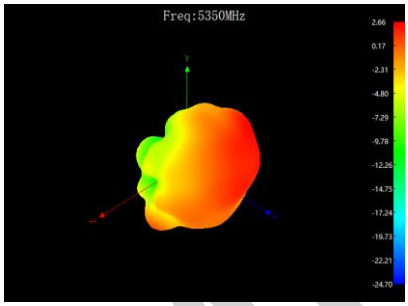
XYZ face @5150MHz



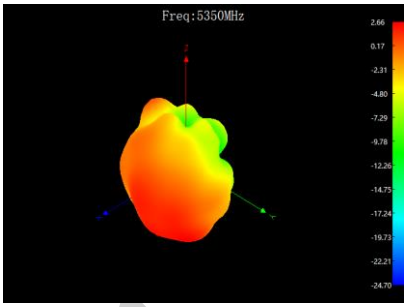
YZX face @5150MHz



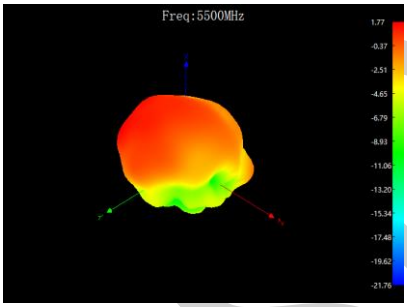
ZXY face @5350MHz



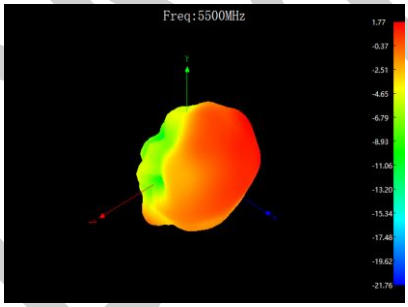
XYZ face @5350MHz



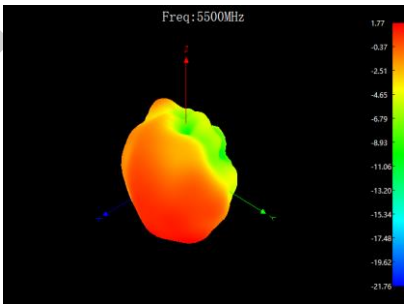
YZX face @5350MHz



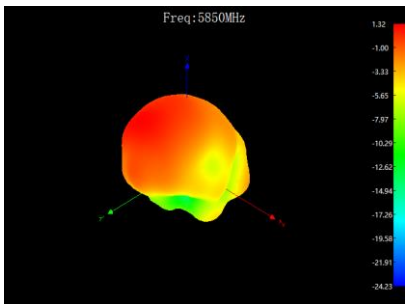
ZXY face @5500MHz



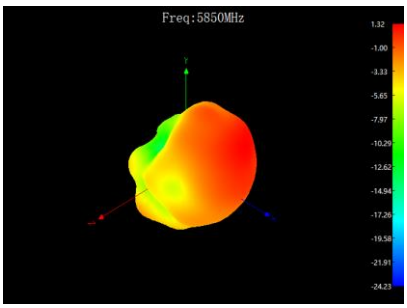
XYZ face @5500MHz



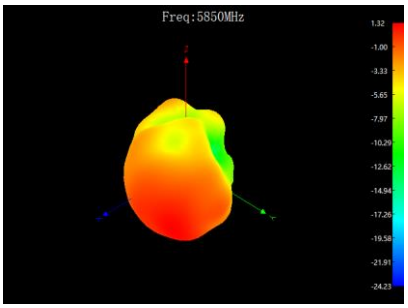
YZX face @5500MHz



ZXY face @5850MHz



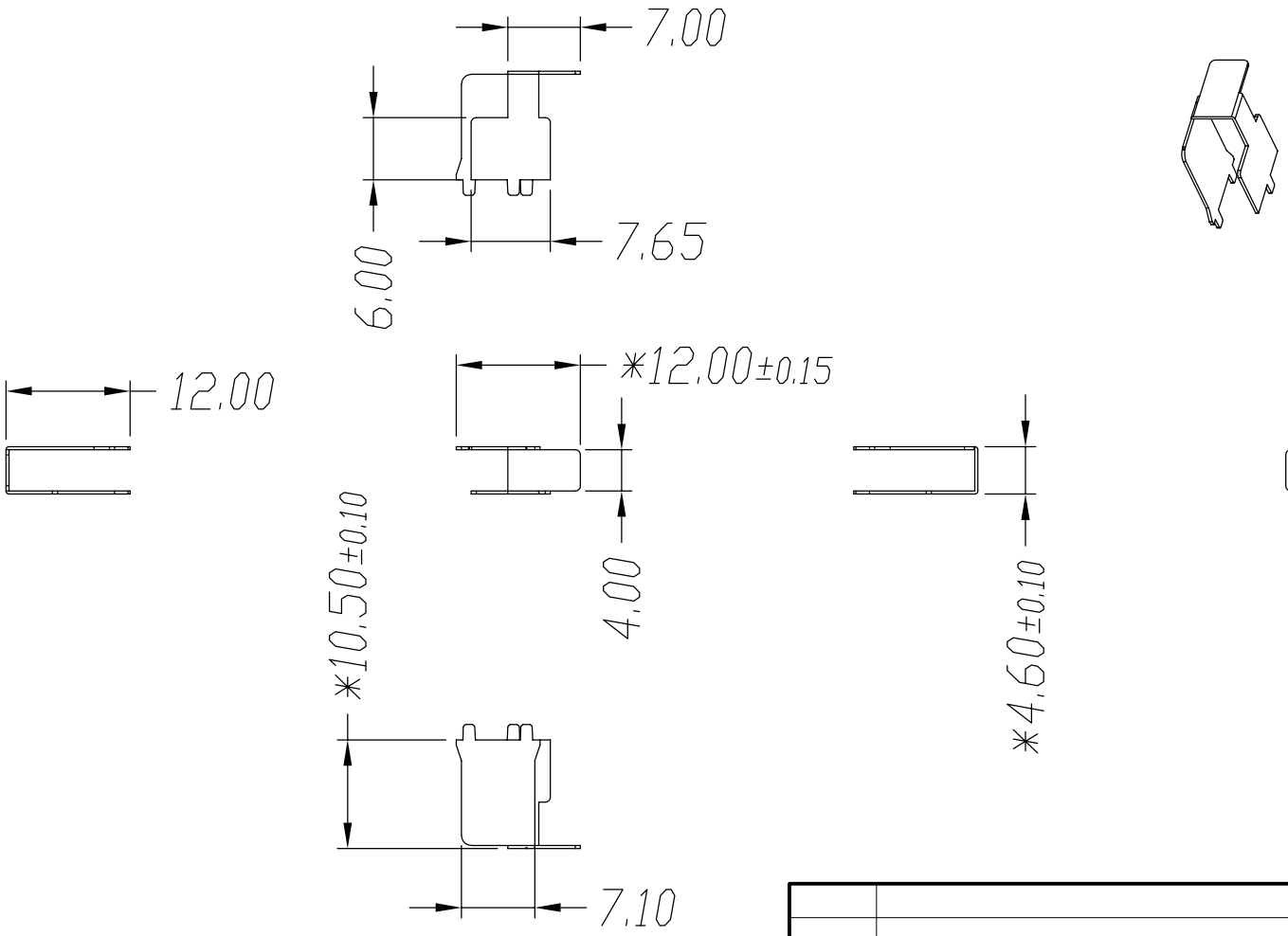
XYZ face @5850MHz



YZX face @5850MHz

版本号:A

Ant2



技术要求：

1.材质为不锈钢，镀镍，厚度为0.3mm；
2.产品平面度控制在0.1mm内；
3.表面无油污，无毛刺，刮花等不良,刃口不要设在外观面；
4.产品符合ROHS认证要求；
5.带*尺寸为重点管控尺寸
6.产品盐雾测试24小时合格

升版	变更内容	签名	年月日

SVN路径://

结构设计	莫威 240507	钢片天线（DV8946）	SDMC.DV8946.antenna.02(CC)
菲林设计			不锈钢镀镍
会签			结构料号 430201***
			菲林料号
批准			

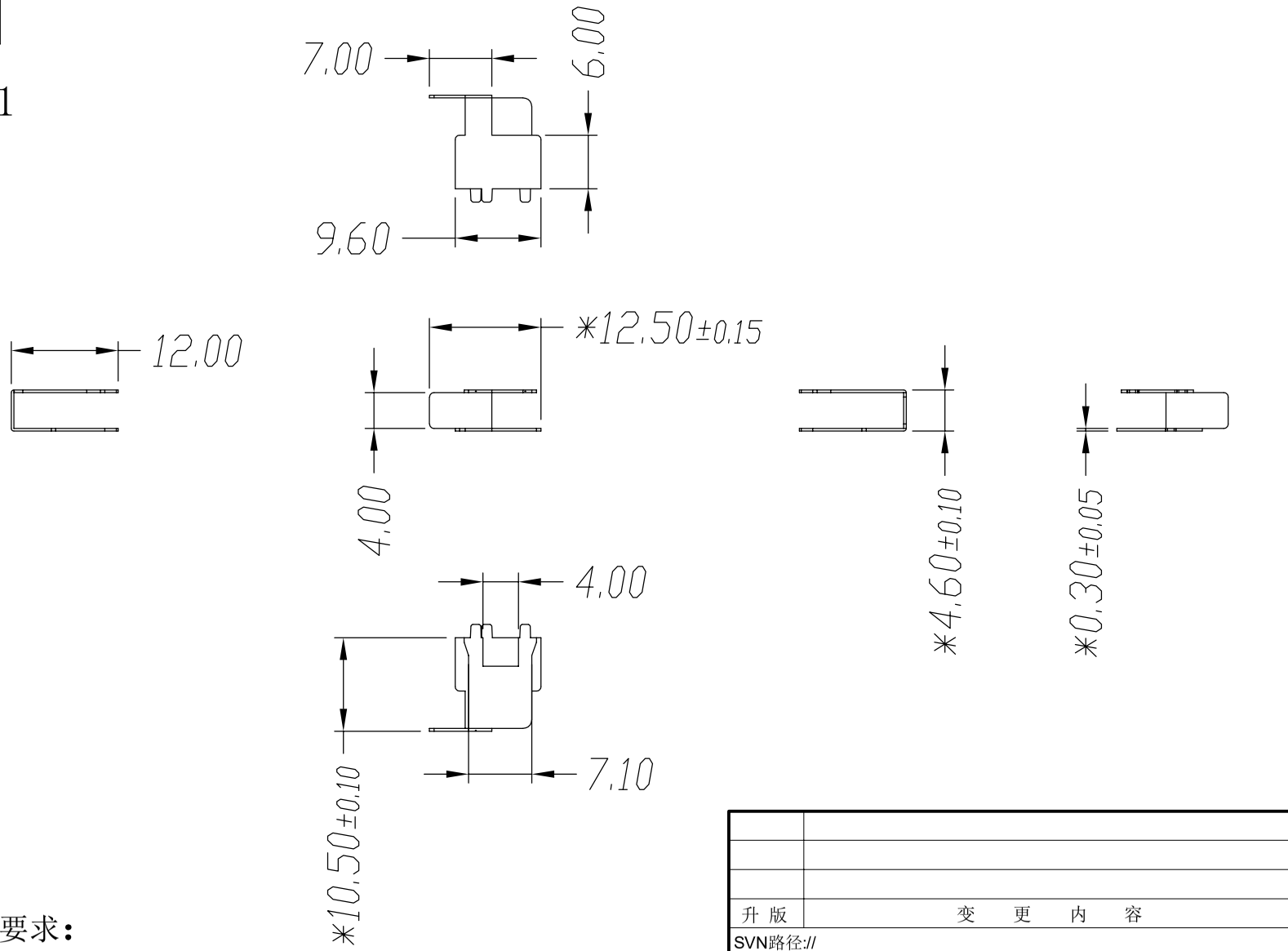
尺寸范围（mm）	未注公差（mm）
0 < L ≤ 10	±0.05
10 < L ≤ 50	±0.10
50 < L ≤100	±0.15
100 < L ≤250	±0.20
250 < L ≤400	±0.25
400 < L ≤600	±0.30

单位: mm　　共1张/第1张

SDMC

版本号:A

Ant1



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升版	变更内容	签名	年月日

SVN路径://

结构设计	莫威 240507	钢片天线（DV8946）	SDMC.DV8946.antenna.01(CC)
菲林设计			不锈钢镀镍
会签			结构料号 430201***
批准			菲林料号

尺寸范围（mm）	未注公差（mm）
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单位: mm　　共1张/第1张