

Antenna

QDM047NA Datasheet

Antenna Services

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Status: Preliminary



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About the Document

Revision History

Version	Date	Author	Note
V1.0	2022-11-25	Morris MA	Creation of the document

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1 Product Description

The antenna is designed for superior performance, and can be widely used for wireless applications.

We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

2 Product Features

- WWAN 4*4 、WIFI 2.4G*2、WiFi5G *4
- High efficiency
- Excellent performance

3 Product Specifications

Passive Electrical Specifications(MAIN_ANT)

Frequency Range	600–960 MHz,1710–4200 MHz
Input Impedence	50 Ω
VSWR	≤ 3.5
Gain	≤ 3.53 dBi
Polarization Type	Linear

Passive Electrical Specifications(AUX_ANT)

Frequency Range	600–960 MHz,1710–4200 MHz
Input Impedence	50 Ω
VSWR	≤ 3
Gain	≤ 3.24 dBi
Polarization Type	Linear

Passive Electrical Specifications(MIMO1_ANT)

Frequency Range	600–960 MHz,1710–4200 MHz
Input Impedence	50 Ω
VSWR	≤ 4
Gain	≤ 3.13 dBi
Polarization Type	Linear

Passive Electrical Specifications(MIMO2_ANT)

Frequency Range	600–960 MHz,1710–4200 MHz
Input Impedence	50 Ω

VSWR	≤ 3.5
Gain	≤ 2.95 dBi
Polarization Type	Linear

Passive Electrical Specifications(WIFI 2.4G_ANT1)

Frequency Range	2400–2500 MHz
Input Impedence	50 Ω
VSWR	≤ 2.0
Gain	≤ 2.61 dBi
Polarization Type	Linear

Passive Electrical Specifications(WIFI 2.4G_ANT2)

Frequency Range	2400–2500 MHz
Input Impedence	50 Ω
VSWR	≤ 2.0
Gain	≤ 1.57 dBi
Polarization Type	Linear

Passive Electrical Specifications(WIFI 5G_ANT1)

Frequency Range	5150-5850 MHz
Input Impedence	50 Ω
VSWR	≤ 2.0
Gain	≤ 2.33 dBi
Polarization Type	Linear

Passive Electrical Specifications(WIFI 5G_ANT2)

Frequency Range	5150-5850 MHz
Input Impedence	50 Ω
VSWR	≤ 2.0
Gain	≤ 2.49 dBi
Polarization Type	Linear

Passive Electrical Specifications(WIFI 5G_ANT3)

Frequency Range	5150-5850 MHz
Input Impedence	50 Ω
VSWR	≤ 2.0
Gain	≤ 2.14 dBi
Polarization Type	Linear

Passive Electrical Specifications(WIFI 5G_ANT4)

Frequency Range	5150-5850 MHz
Input Impedence	50 Ω
VSWR	≤ 2.0
Gain	≤ 2.17 dBi
Polarization Type	Linear

4 Overall Performance

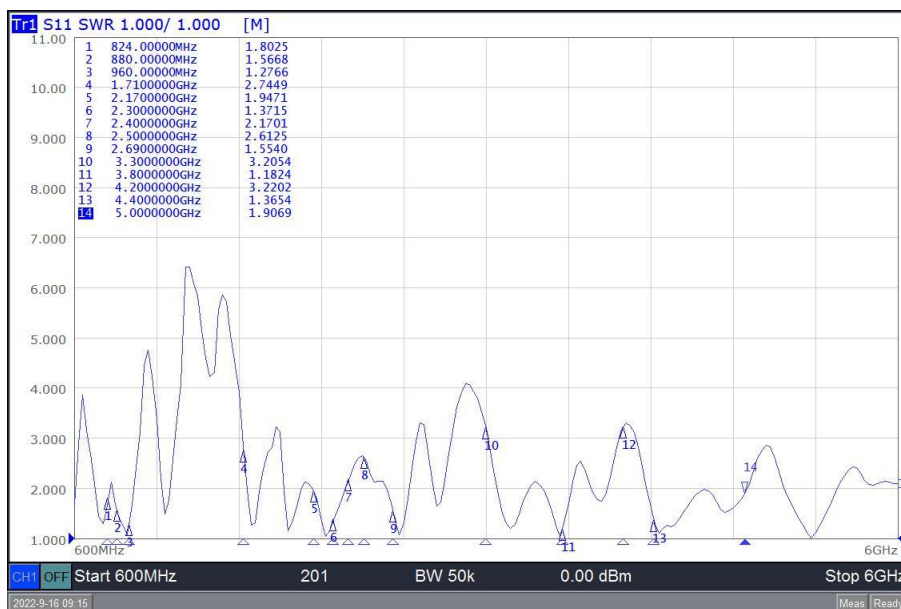
4.1. Test Environment

- KEYSIGHT ENA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 600 MHz – 8.5 GHz



4.2. VSWR

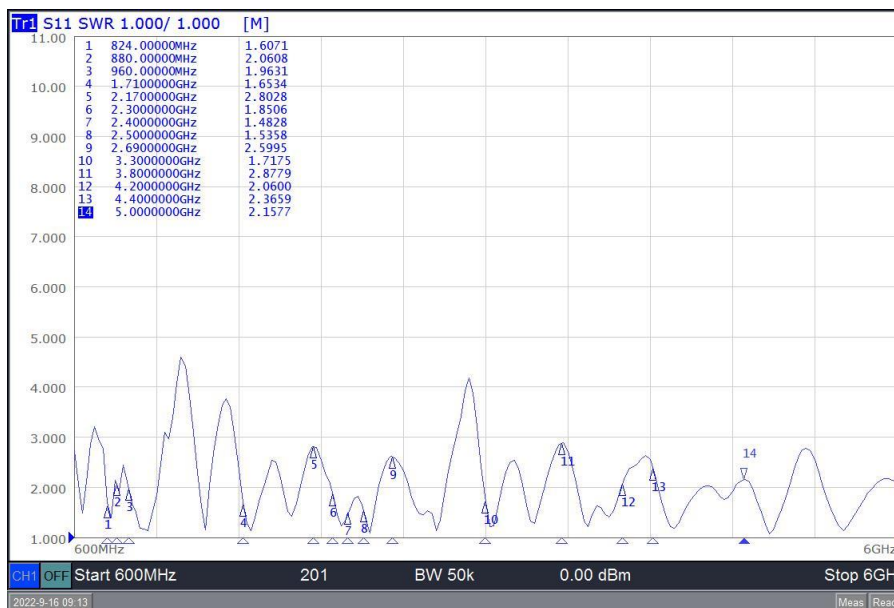
NR0(ant1):



Frequency (MHz)	824	880	960	1710	2170	2300	2400	2500	2690
VSWR	1.80	1.56	1.27	2.74	1.94	1.37	2.17	2.61	1.55

Frequency (MHz)	3300	3800	4200	4400	5000
VSWR	3.20	1.18	3.22	1.36	1.90

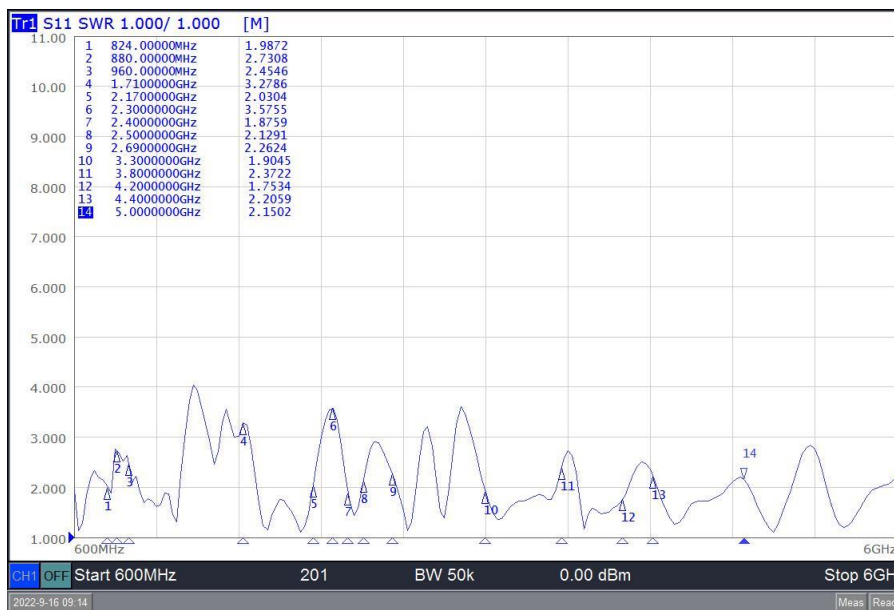
NR1(ant2):



Frequency (MHz)	824	880	960	1710	2170	2300	2400	2500	2690
VSWR	1.60	2.06	1.96	1.65	1.65	1.85	1.48	1.53	2.59

Frequency (MHz)	3300	3800	4200	4400	5000
VSWR	1.17	2.87	2.06	2.36	2.15

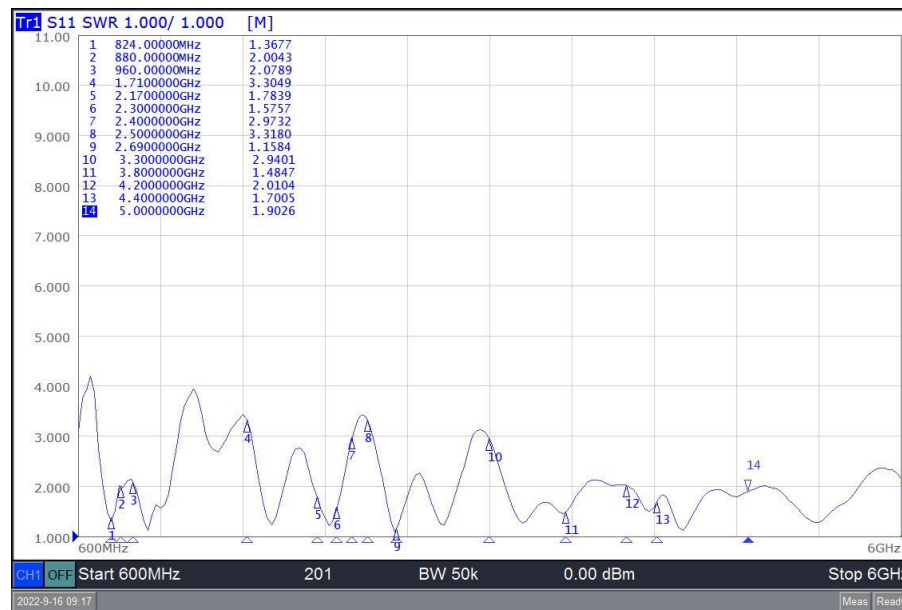
NR2(ant3):



Frequency (MHz)	824	880	960	1710	2170	2300	2400	2500	2690
VSWR	1.98	2.73	2.45	3.27	2.03	3.57	1.87	2.12	2.26

Frequency (MHz)	3300	3800	4200	4400	5000
VSWR	1.90	2.37	1.75	2.20	2.15

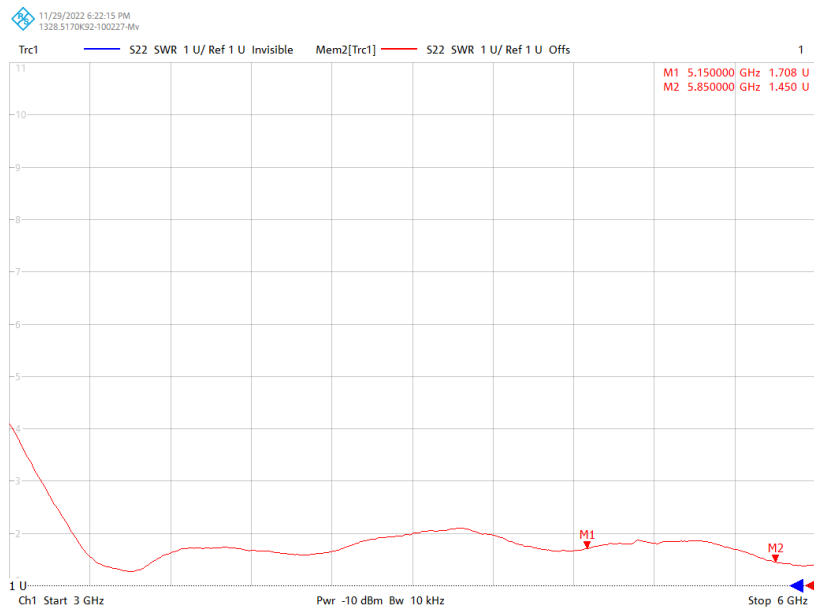
NR3(ant0):



Frequency (MHz)	824	880	960	1710	2170	2300	2400	2500	2690
VSWR	1.36	2.00	2.07	3.30	1.78	1.57	2.97	3.31	1.15

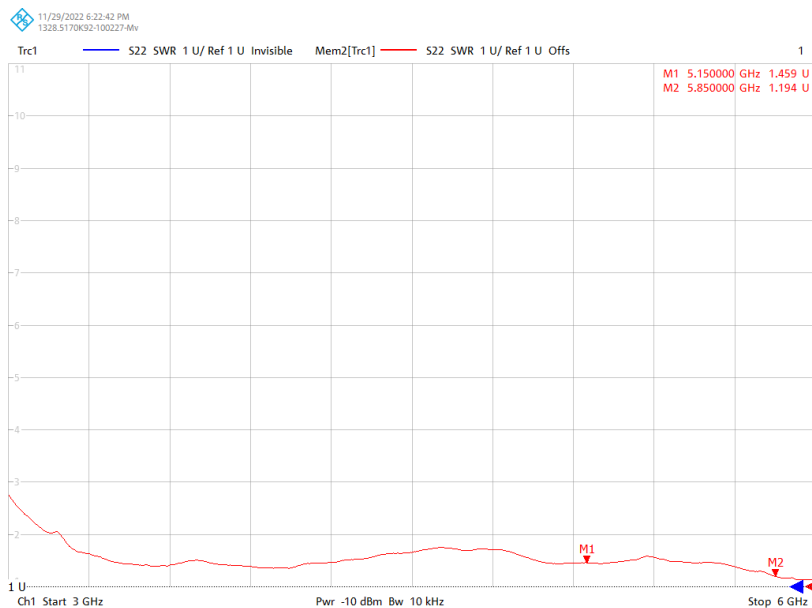
Frequency (MHz)	3300	3800	4200	4400	5000
VSWR	2.94	1.48	2.01	1.70	1.90

WIFI 1:



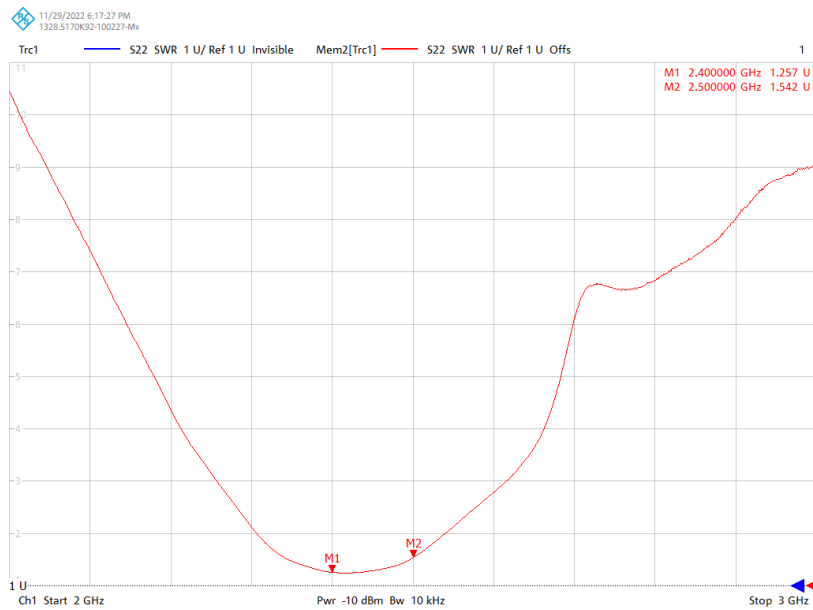
Frequency (MHz)	5150	5850
VSWR	1.78	1.45

WIFI 2:



Frequency (MHz)	5150	5850
VSWR	1.45	1.19

WIFI 1-2.4G



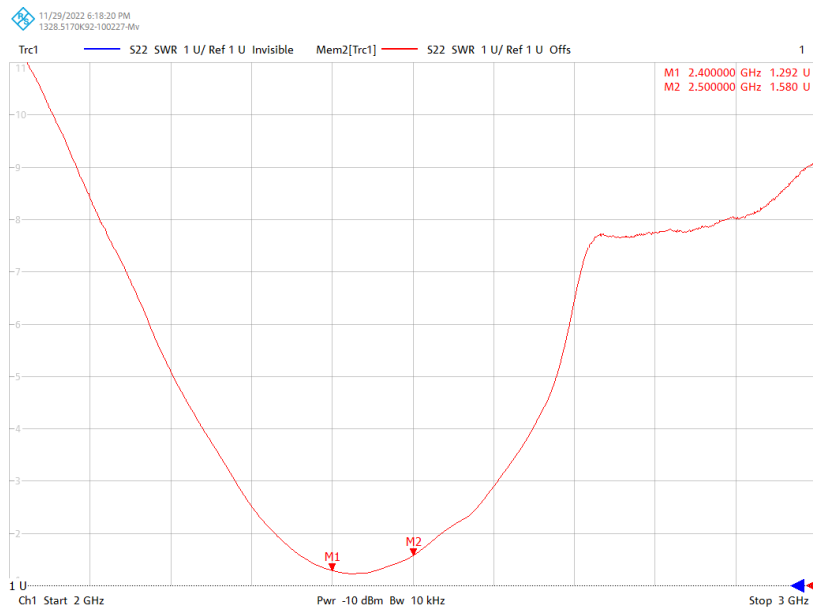
Frequency (MHz)	2400	2500
VSWR	1.25	1.54

WIFI 1-5G:



Frequency (MHz)	5150	5850
VSWR	1.30	2.26

WIFI 2-2.4G



Frequency (MHz)	2400	2500
VSWR	1.29	1.58

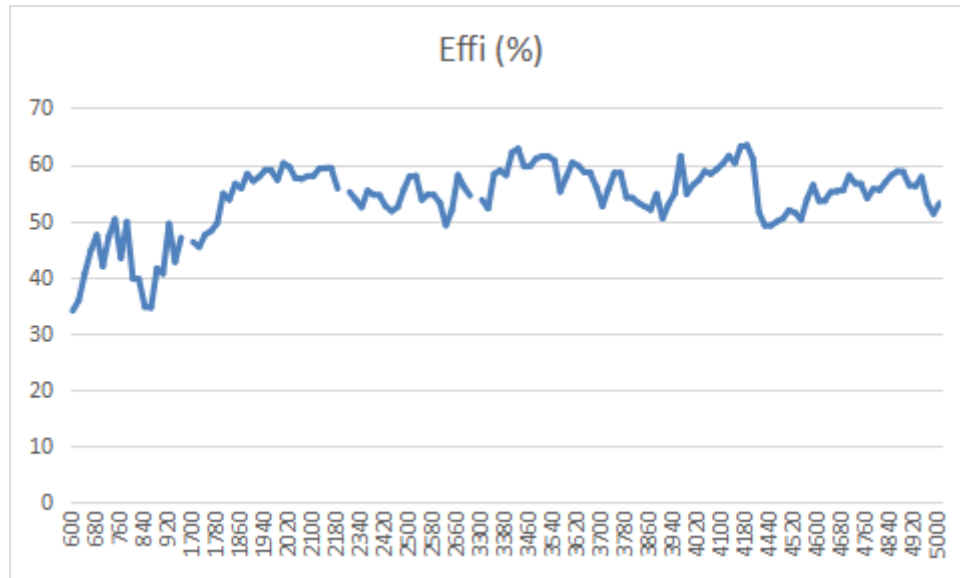
WIFI 2-5G:



Frequency (MHz)	5150	5850
VSWR	1.38	2.28

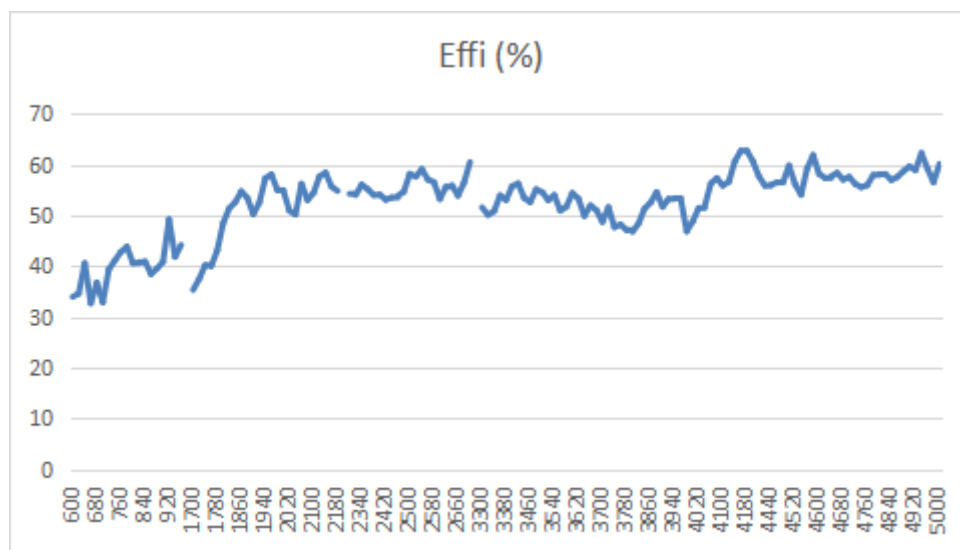
4.3. Efficiency

NR0(ant1):



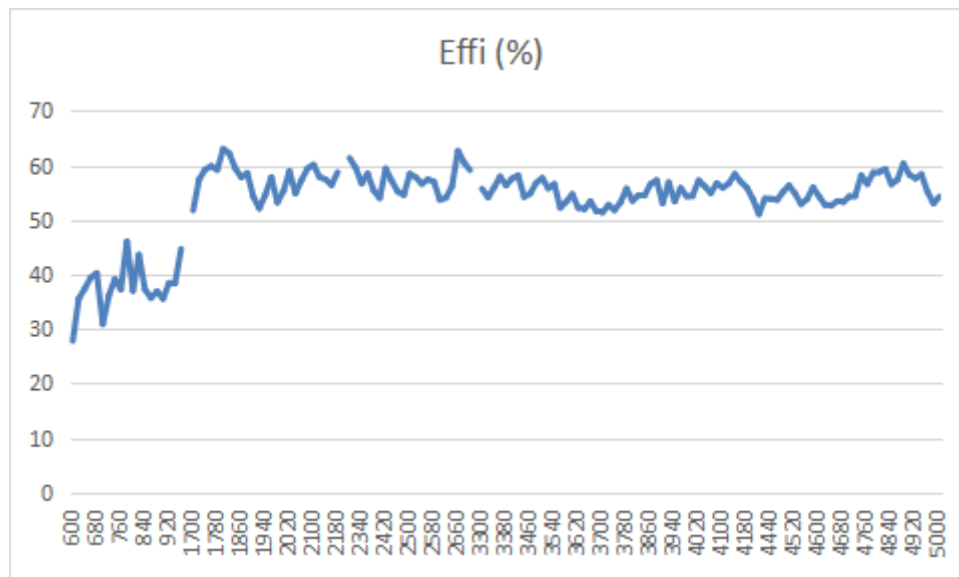
Frequency (MHz)	600	960	1700	2180	2300	2700	3300	3800	4200	5000
Efficiency (%)	33.96	46.95	46.19	55.69	55.06	54.44	53.67	53.97	60.99	53.09

NR1(ant2):



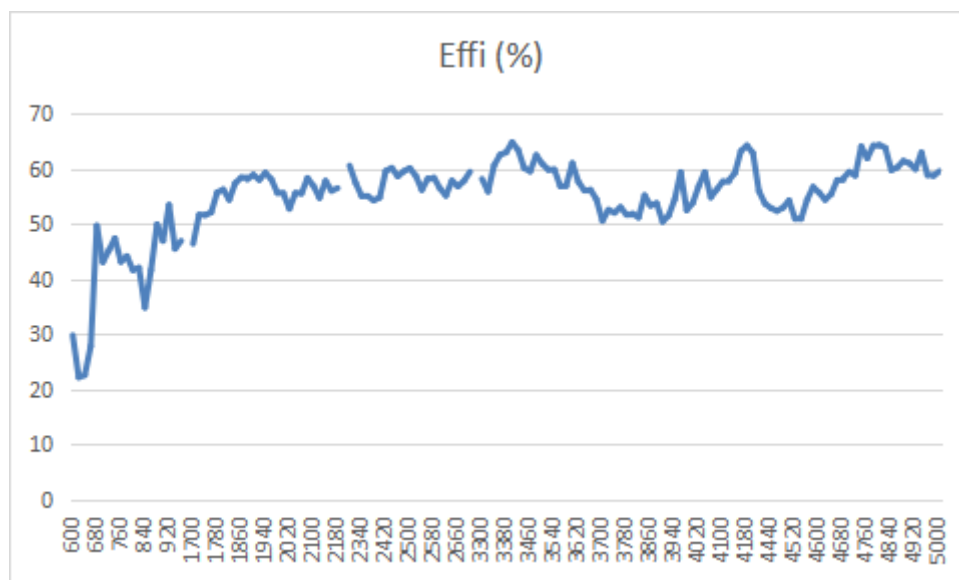
Frequency (MHz)	600	960	1700	2180	2300	2700	3300	3800	4200	5000
Efficiency (%)	33.99	44.21	35.38	54.87	54.3	60.54	51.63	46.79	60.7	60.17

NR2(ant3):



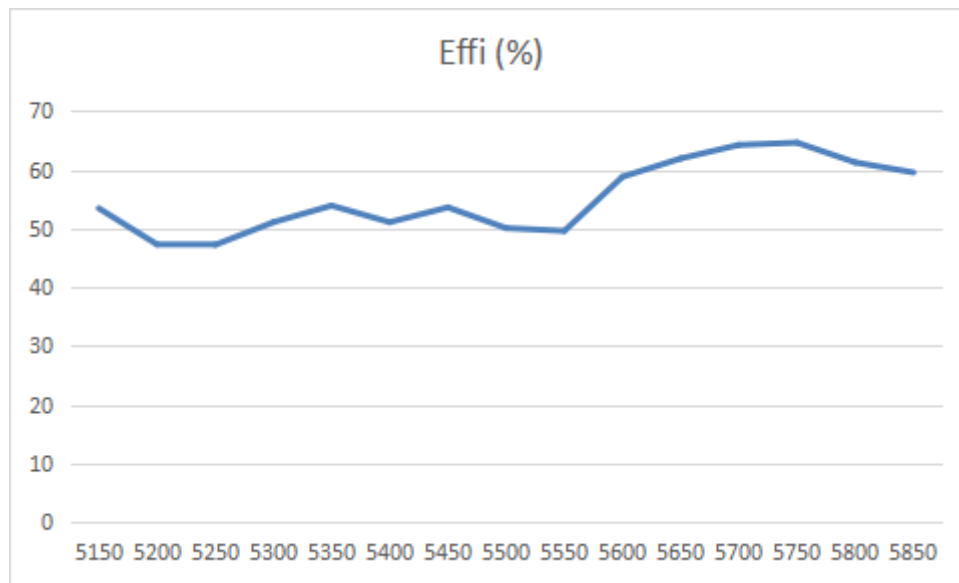
Frequency (MHz)	600	960	1700	2180	2300	2700	3300	3800	4200	5000
Efficiency (%)	27.82	44.69	51.78	58.77	61.39	59.17	55.74	53.54	53.84	54.3

NR3(ant0):



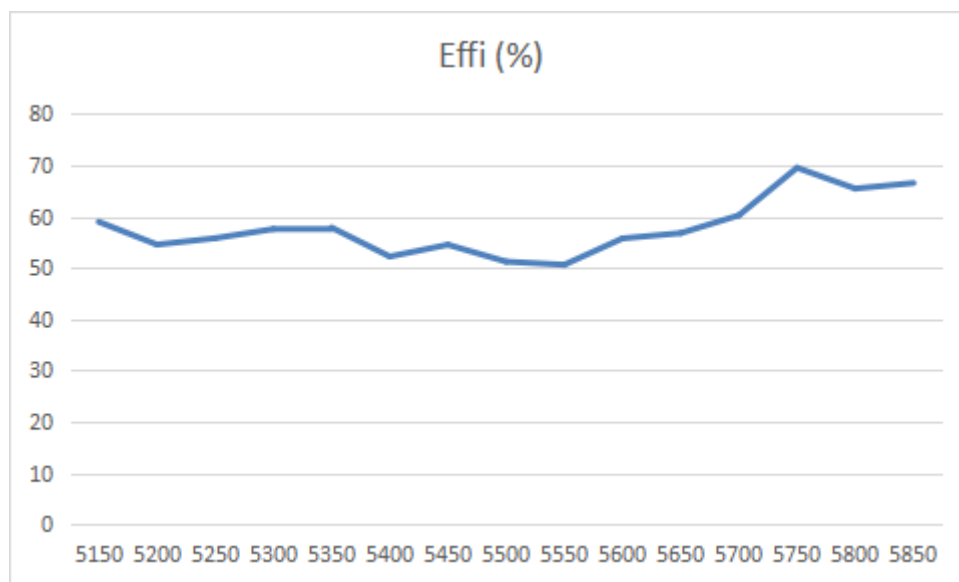
Frequency (MHz)	600	960	1700	2180	2300	2700	3300	3800	4200	5000
Efficiency (%)	29.81	46.97	46.45	56.55	60.64	59.52	58.22	51.95	62.93	59.64

WIFI1:



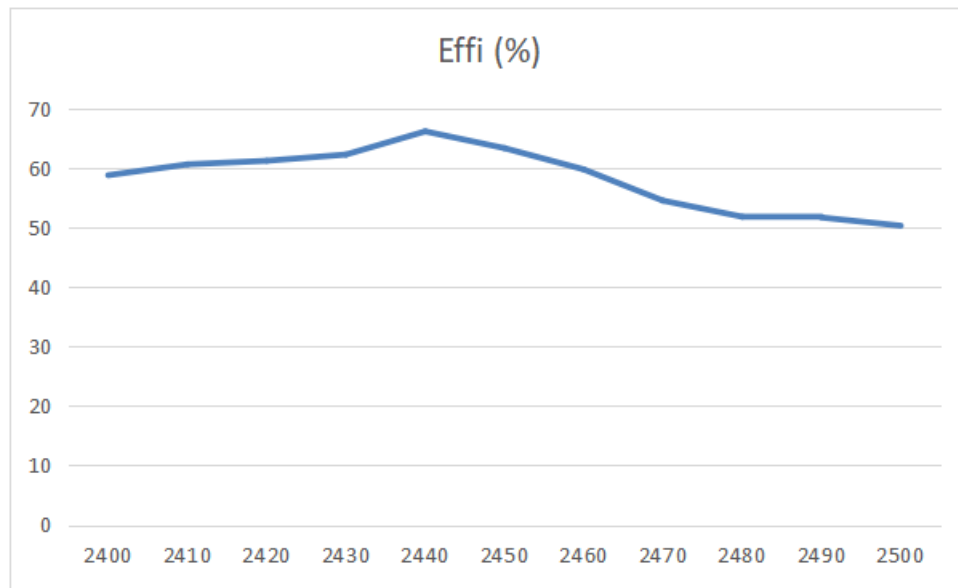
Frequency (MHz)	5150	5500	5850
Efficiency (%)	53.47	50.1	59.58

WIFI2:



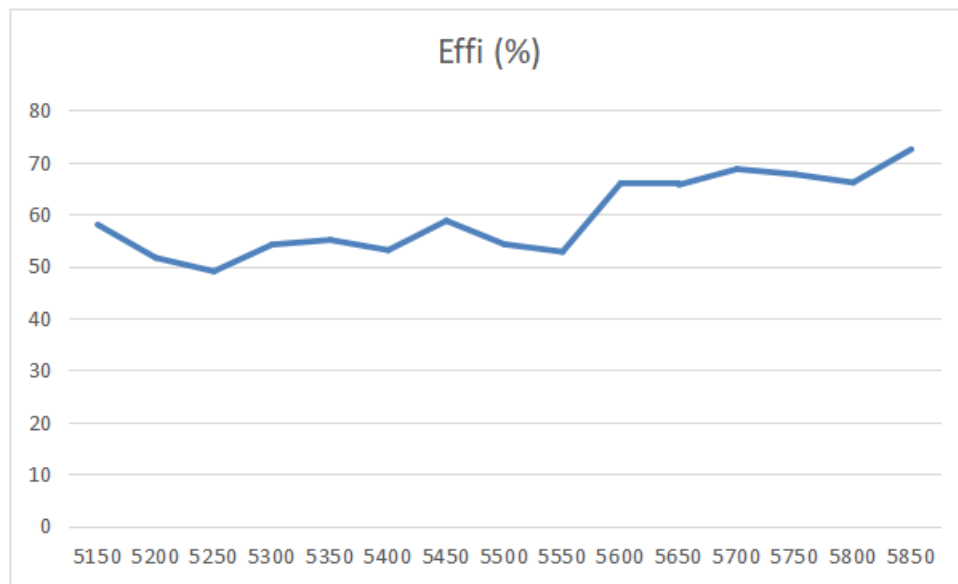
Frequency (MHz)	5150	5500	5850
Efficiency (%)	58.99	51.23	66.56

WiFi1-2.4G:



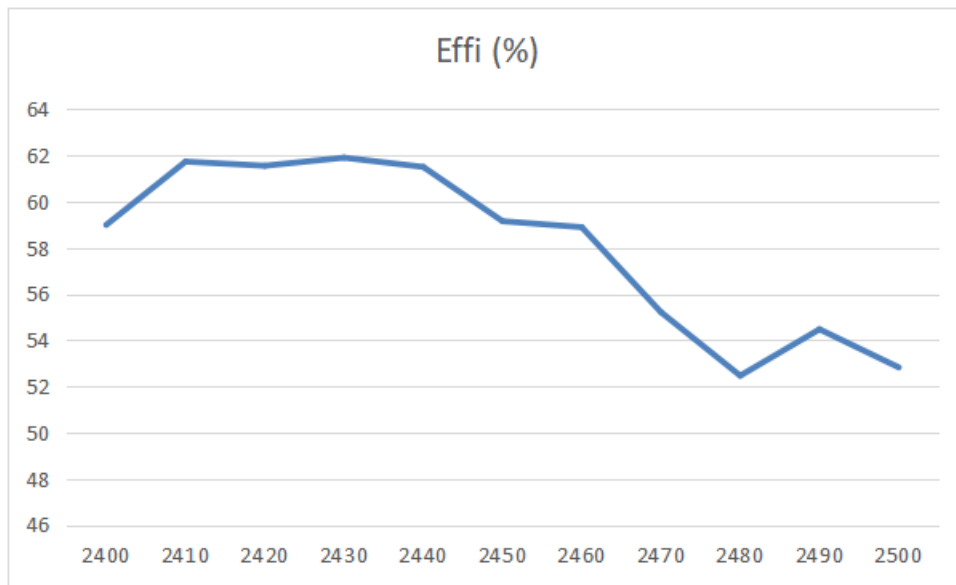
Frequency (MHz)	2400	2500
Efficiency (%)	58.88	50.38

WiFi1-5G:



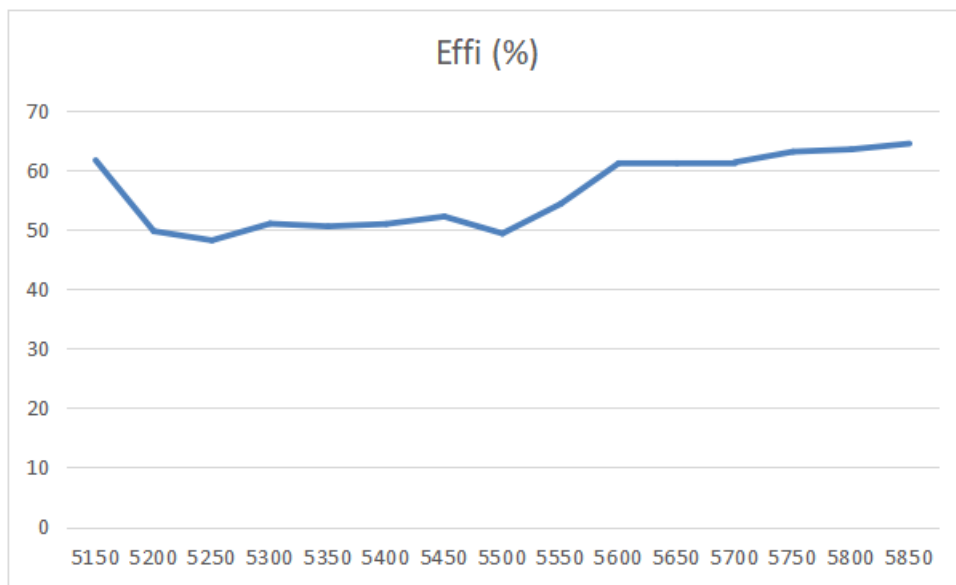
Frequency (MHz)	5150	5500	5850
Efficiency (%)	57.97	54.19	72.47

WiFi2-2.4G:



Frequency (MHz)	2400	2500
Efficiency (%)	58.99	52.82

WiFi2-2.4G:



Frequency (MHz)	5150	5500	5850
Efficiency (%)	61.73	49.41	64.54

4.4. Gain

NR0(ant1):

Freq(MHz)	Gain(dBi)
600~800	1.57
800~960	1.6
1710~2170	2.4
2300~2690	2.36
3300~4200	2.75
4200~5000	2.95

NR1(ant2):

Freq(MHz)	Gain(dBi)
600~800	1.73
800~960	1.69
1710~2170	3.13
2300~2690	2.69
3300~4200	2.96
4200~5000	2.99

NR2(ant3):

Freq(MHz)	Gain(dBi)
600~800	1.32
800~960	1.47
1710~2170	3.09
2300~2690	2.84
3300~4200	2.76
4200~5000	3.24

NR3(ant0):

Freq(MHz)	Gain(dBi)
600~800	1.64
800~960	1.94
1710~2170	3.53
2300~2690	3.24
3300~4200	3.33
4200~5000	3.37

WIFI1:

Freq	Gain
(MHz)	(dBi)
5150	1.49
5200	1.31
5250	1.27
5300	1.11
5350	1.63
5400	1.59
5450	1.62
5500	0.97
5550	0.24
5600	1.18
5650	1.09
5700	1.64
5750	2.07
5800	2.33
5850	2.22

WIFI2:

Freq	Gain
(MHz)	(dBi)
5150	1.44
5200	0.93
5250	1.04
5300	0.47
5350	0.26
5400	1.02
5450	0.6
5500	0.73
5550	1
5600	2.01
5650	1.59
5700	2.12
5750	2.49
5800	1.95
5850	1.66

WiFi1-2.4G:

Freq	Gain
(MHz)	(dBi)
2400	1.63
2410	1.95
2420	2.13
2430	2.31
2440	2.61
2450	2.43
2460	2.3
2470	1.85
2480	1.77
2490	1.37
2500	0.98

WiFi1-5G:

Freq	Gain
(MHz)	(dBi)
5150	1.79
5200	0.51
5250	0.28
5300	0.73
5350	0.82
5400	1.34
5450	1.5
5500	1.01
5550	0.73
5600	1.39
5650	1.35
5700	2.05
5750	2.1
5800	2.12
5850	2.14

WiFi1-2.4G:

Freq	Gain
(MHz)	(dBi)
2400	1.57
2410	1.53
2420	1.49
2430	1.26
2440	1.39
2450	1.27
2460	1.02
2470	0.58
2480	0.87
2490	1.1
2500	1.47

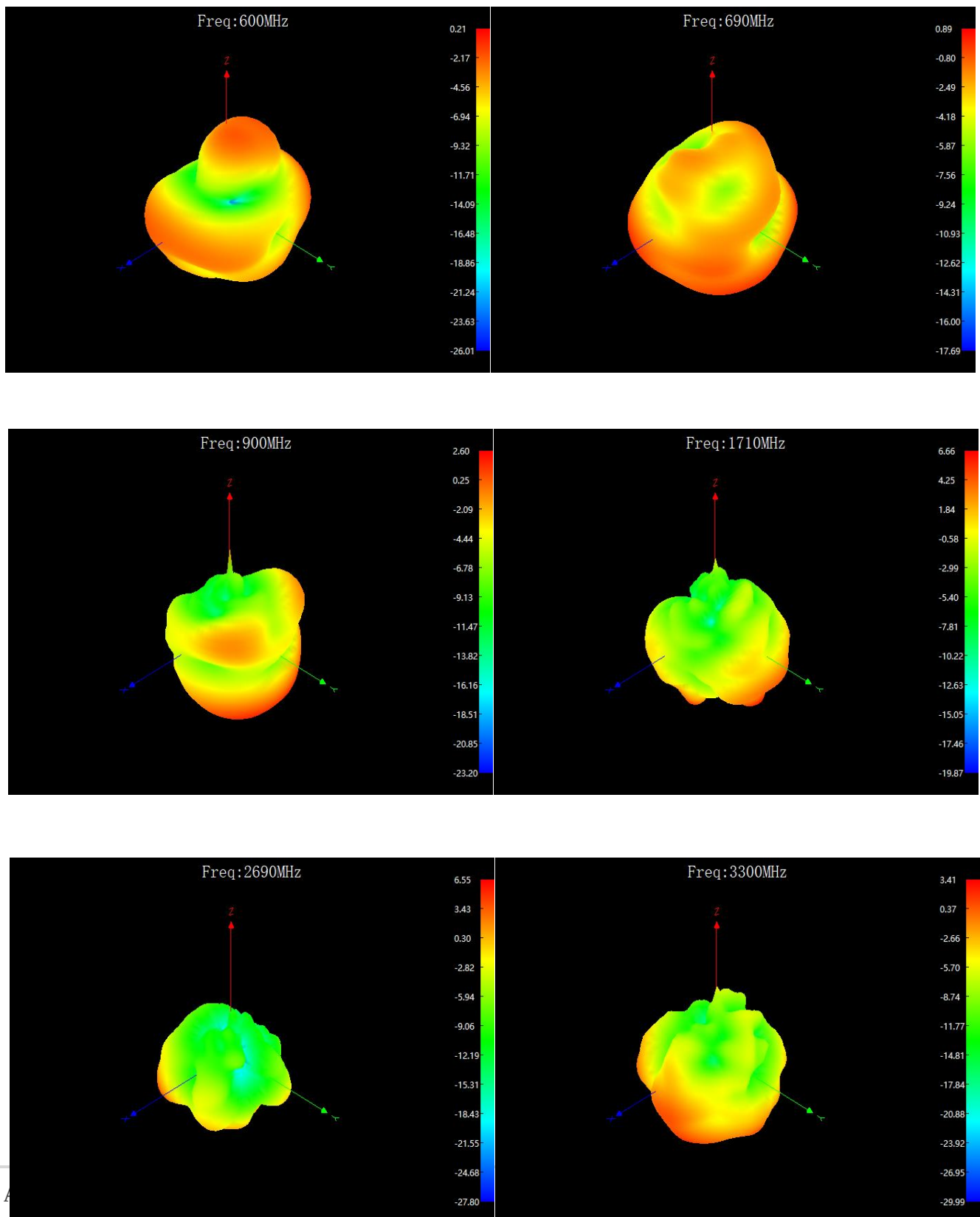
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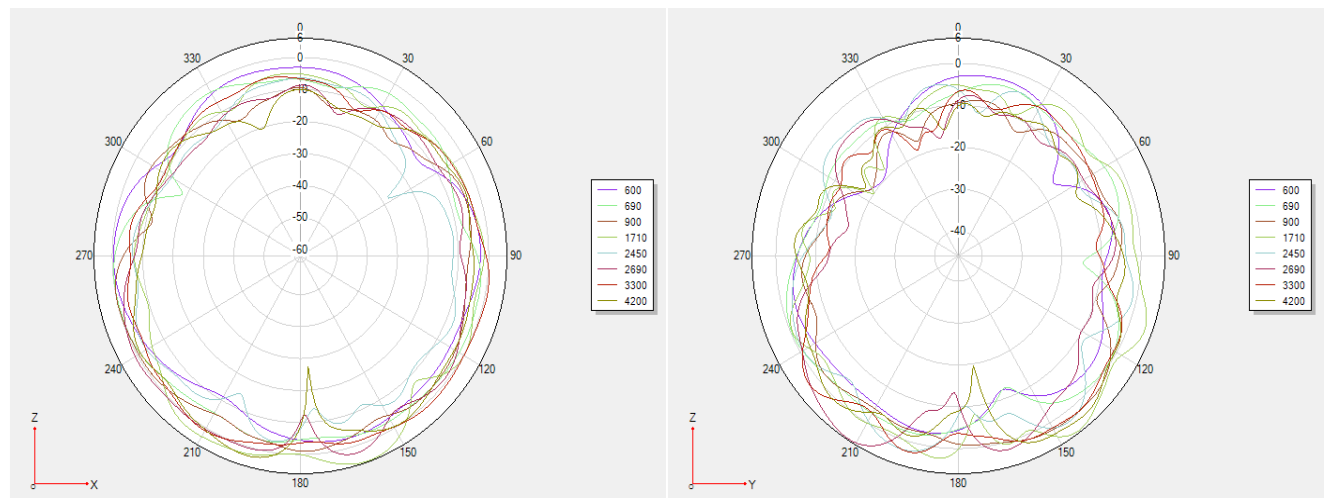
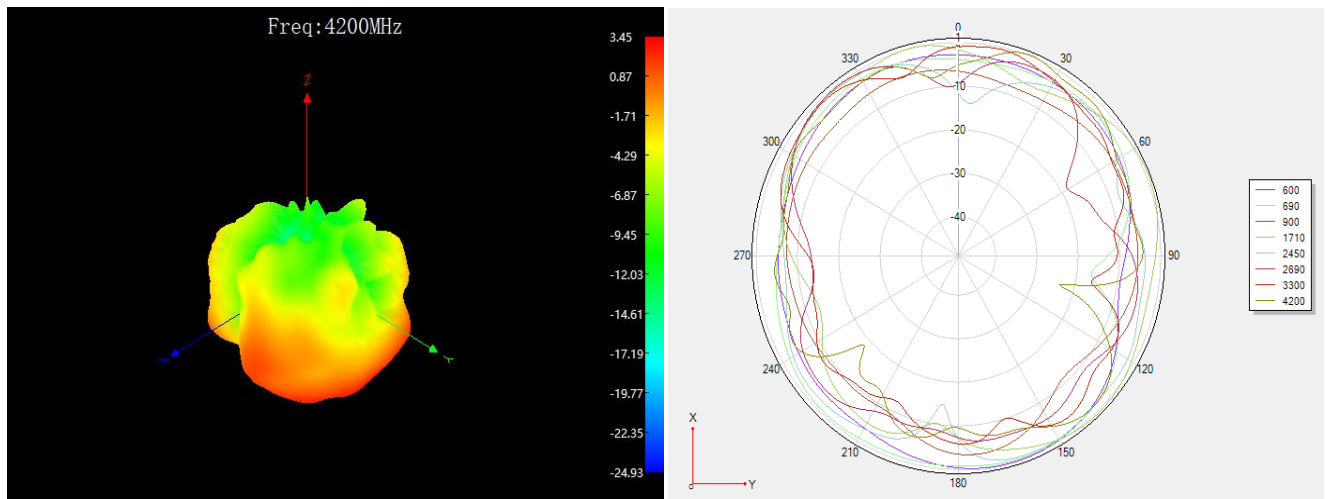
Freq	Gain
(MHz)	(dBi)
5150	1.63
5200	1.28
5250	1.25
5300	1.14
5350	0.98
5400	0.97
5450	1.17
5500	0.56
5550	0.77
5600	1.34
5650	1.89
5700	1.25
5750	2.3
5800	2.17
5850	2.11

4.5. Radiation Pattern

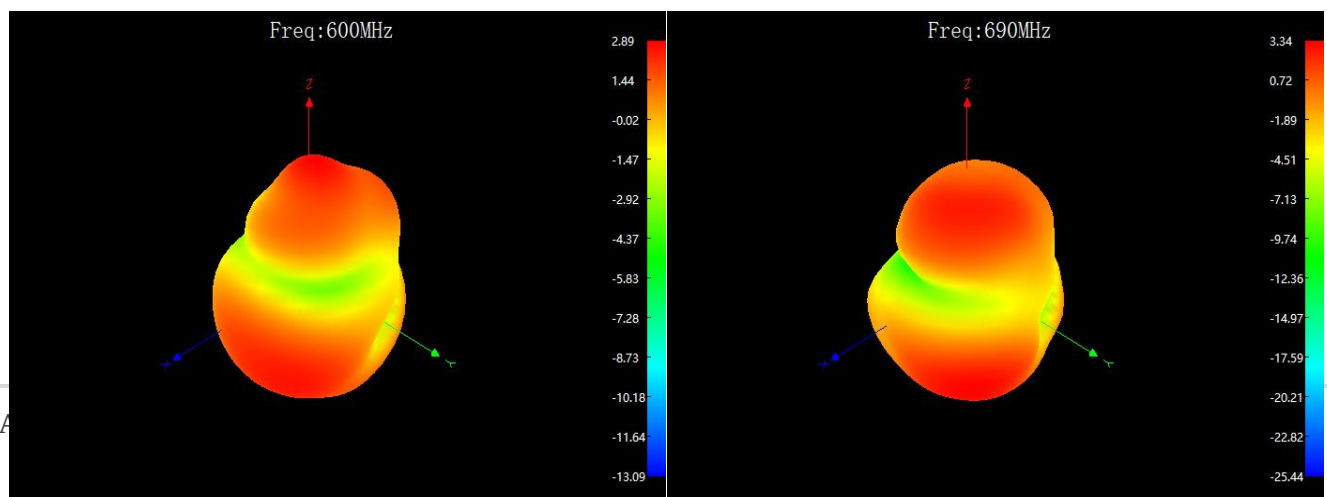
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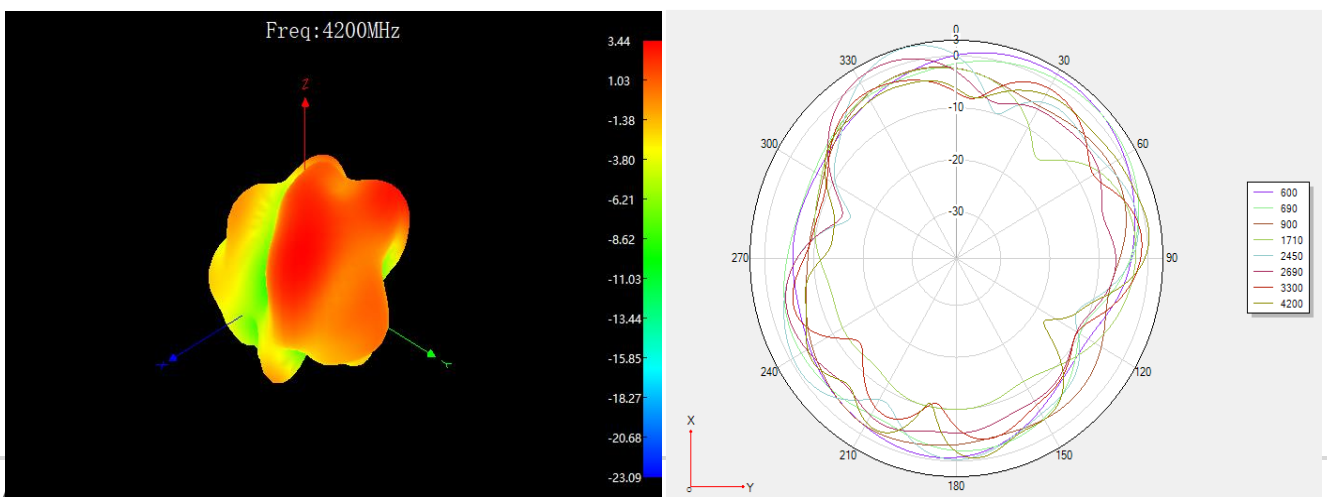
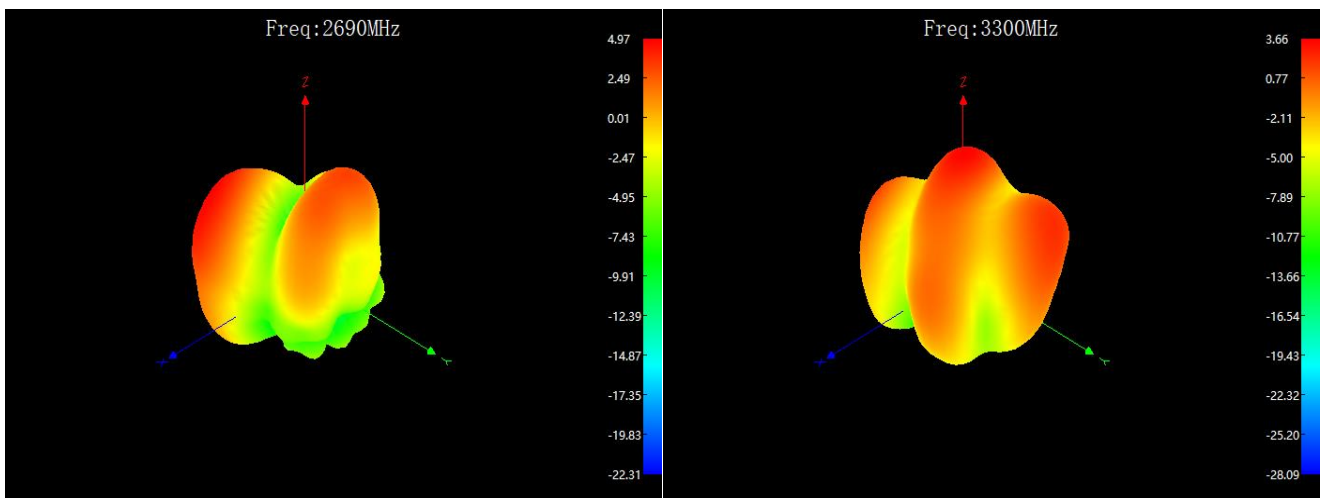
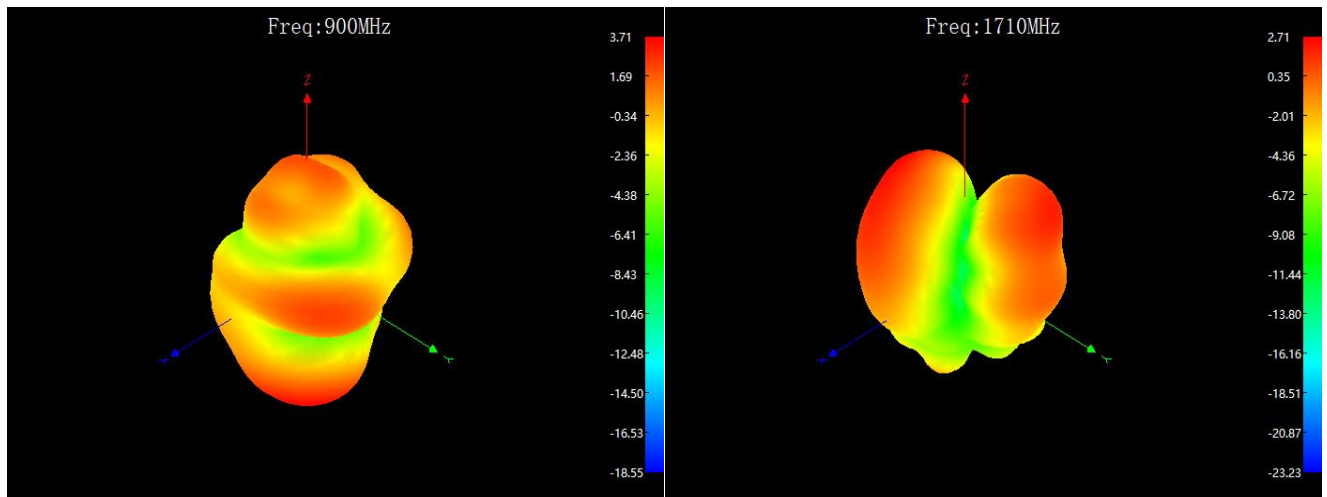
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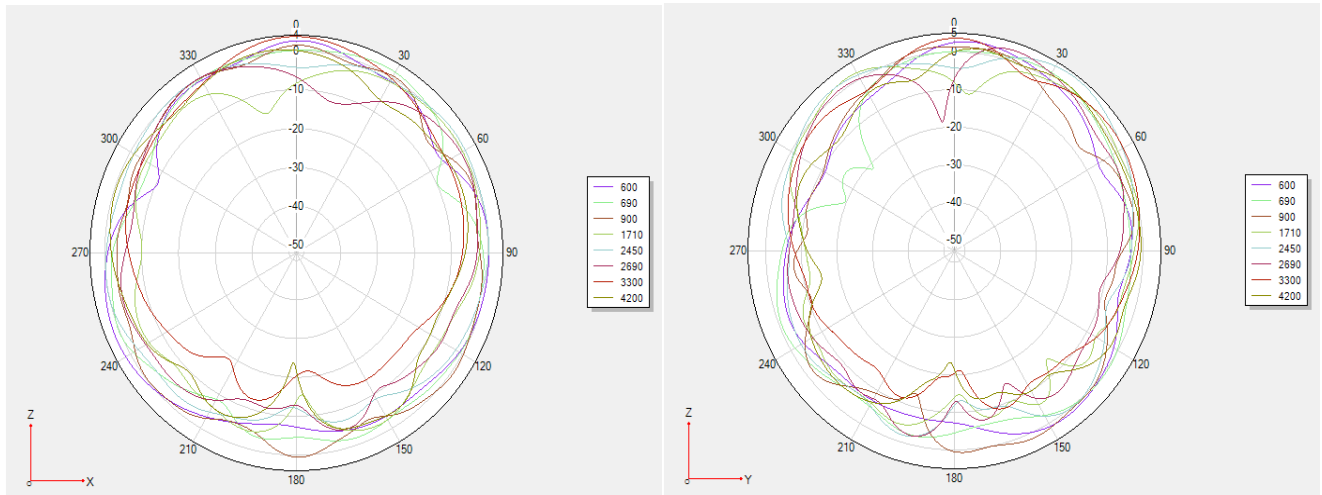




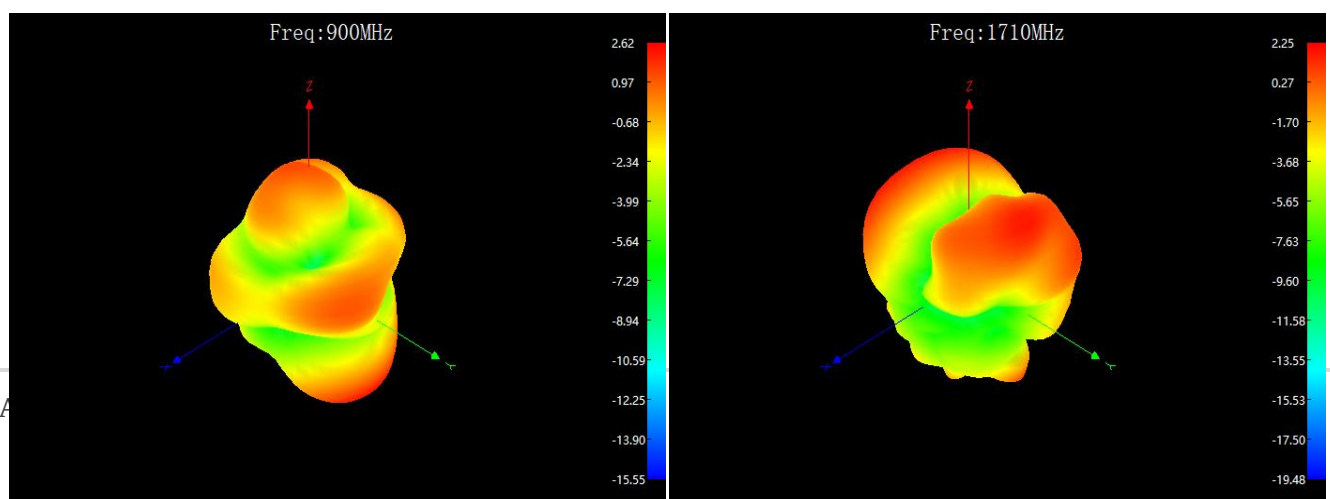
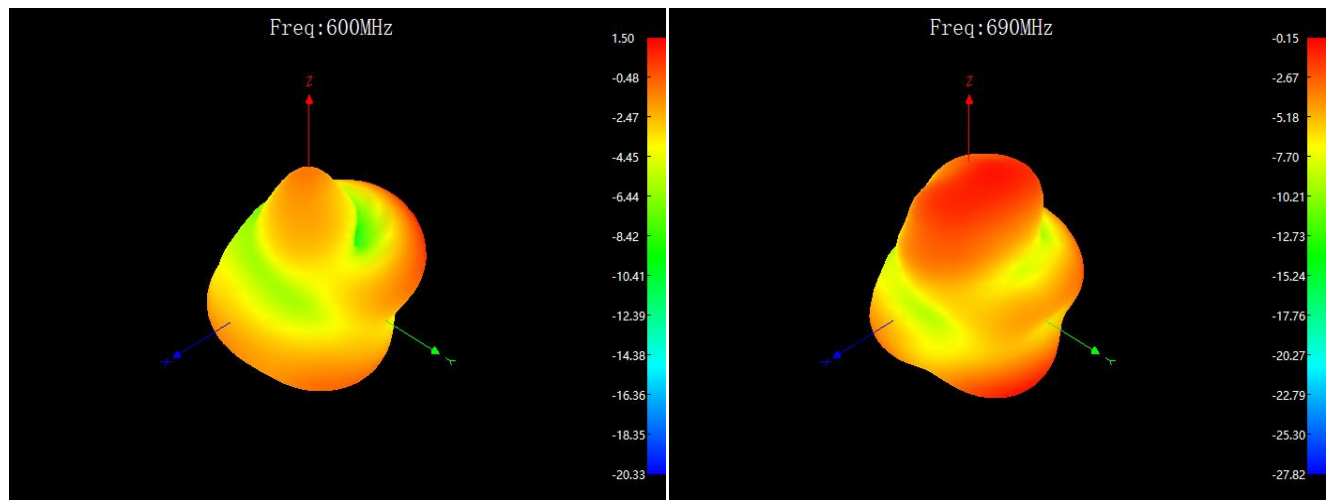
NR1(ant2):

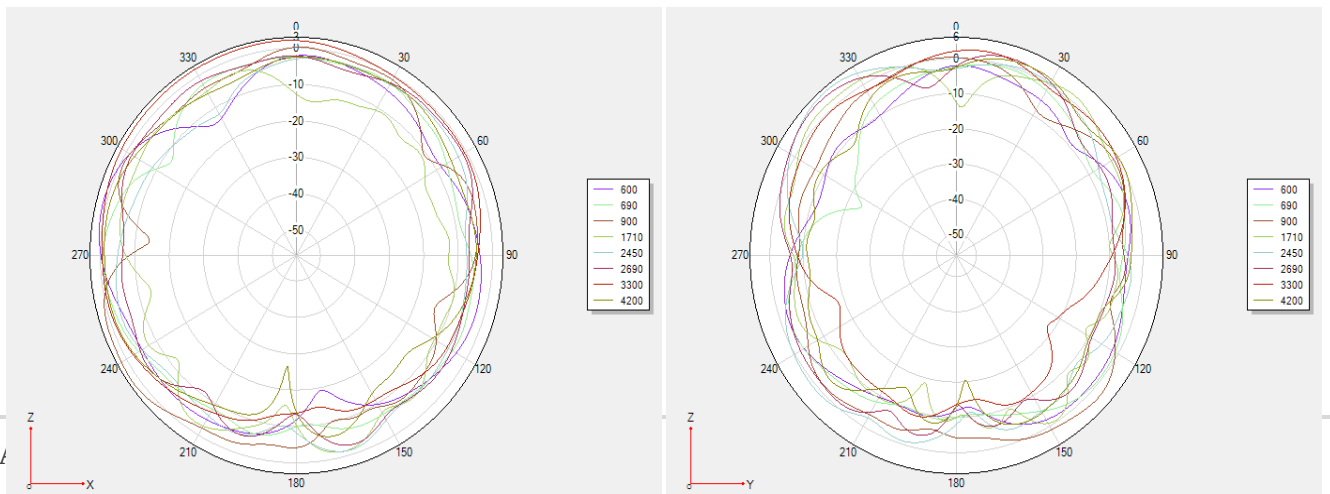
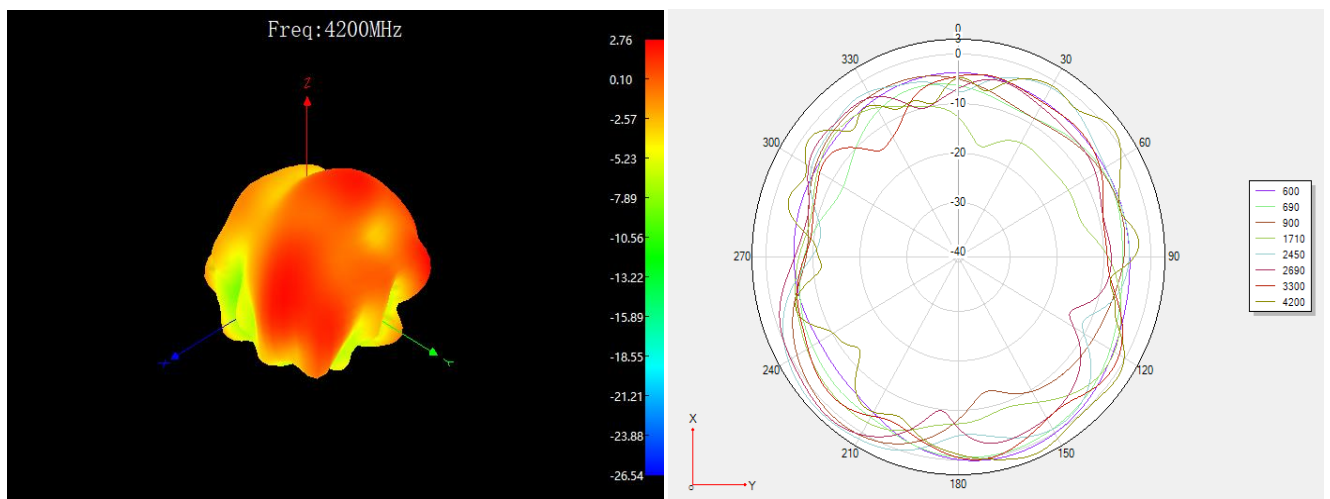
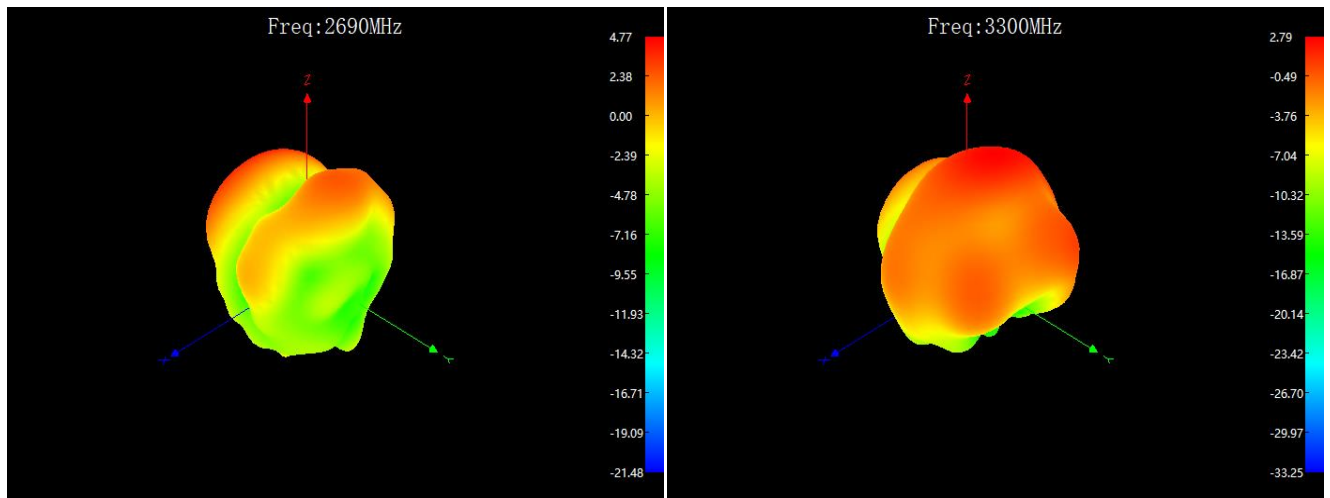




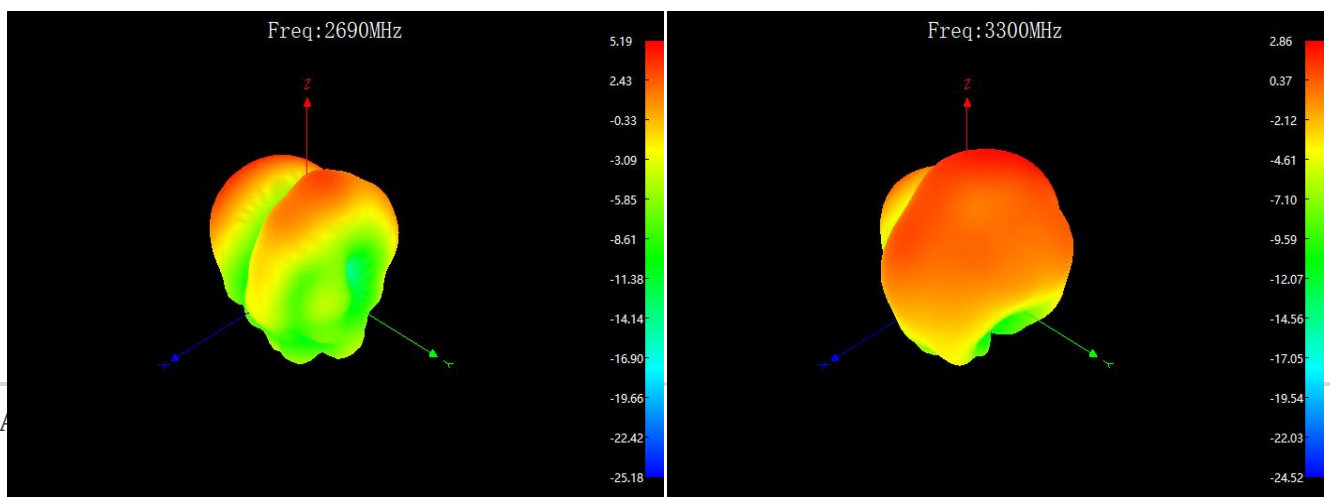
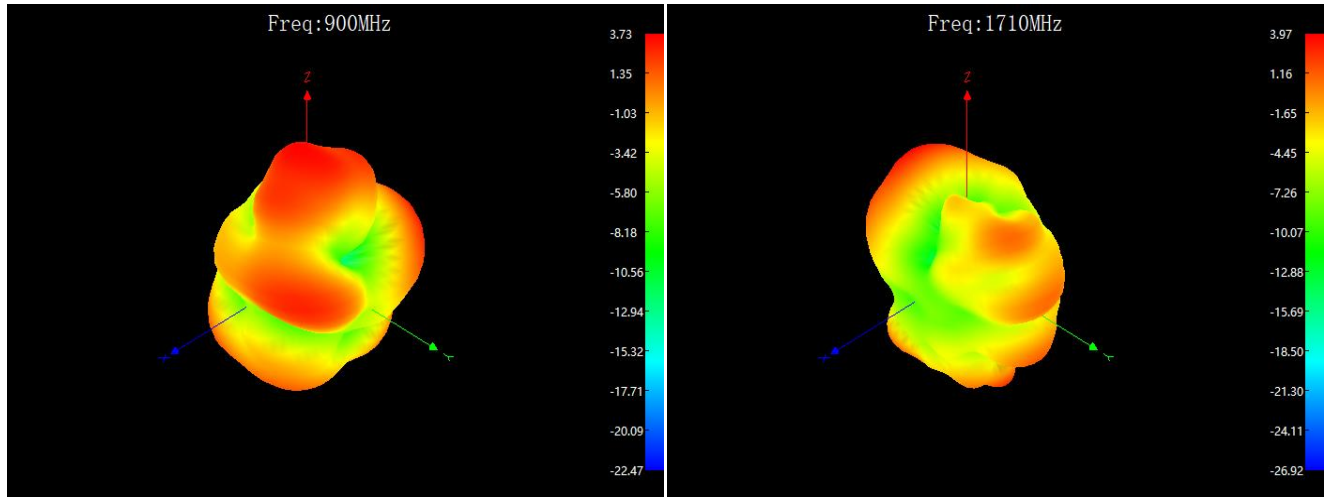
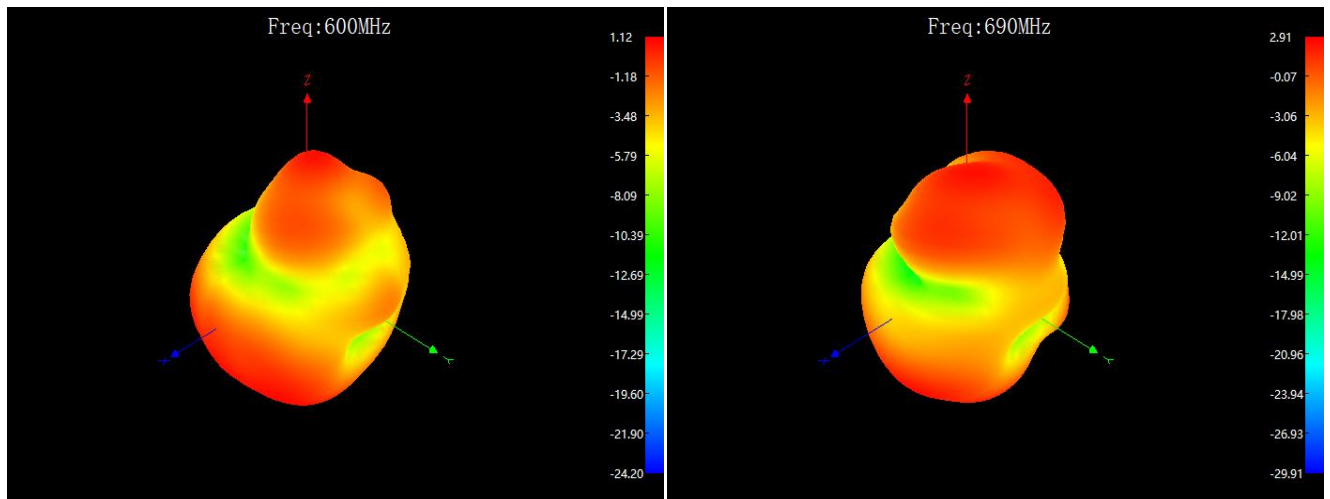


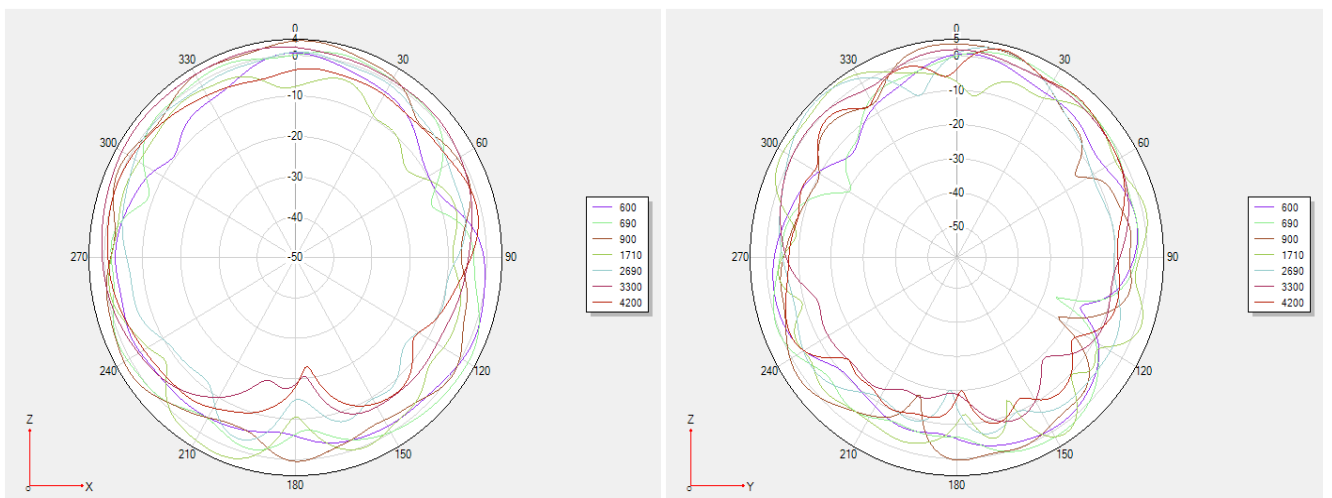
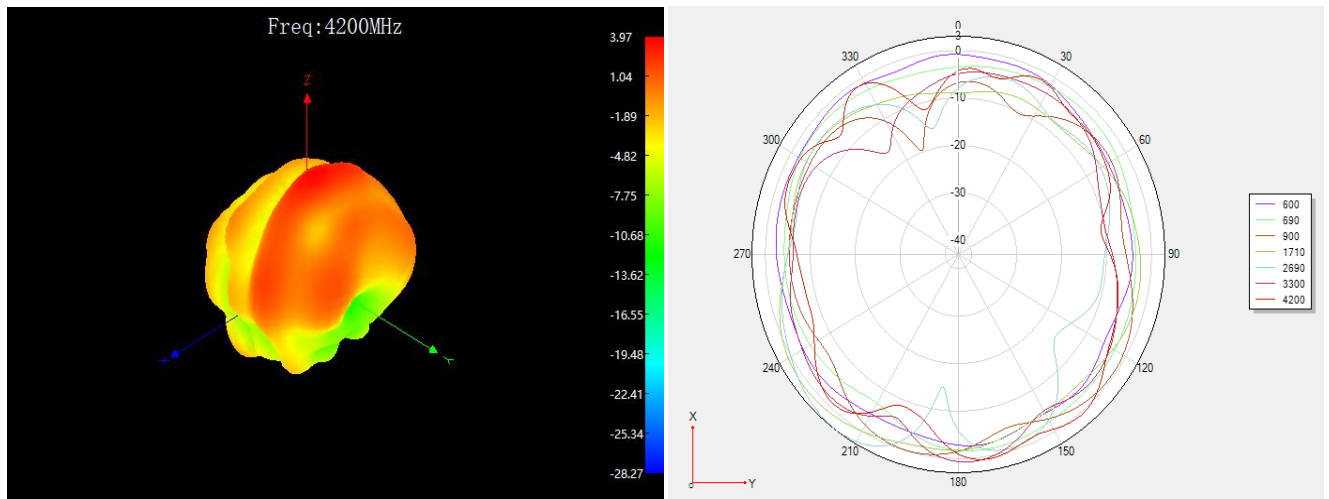
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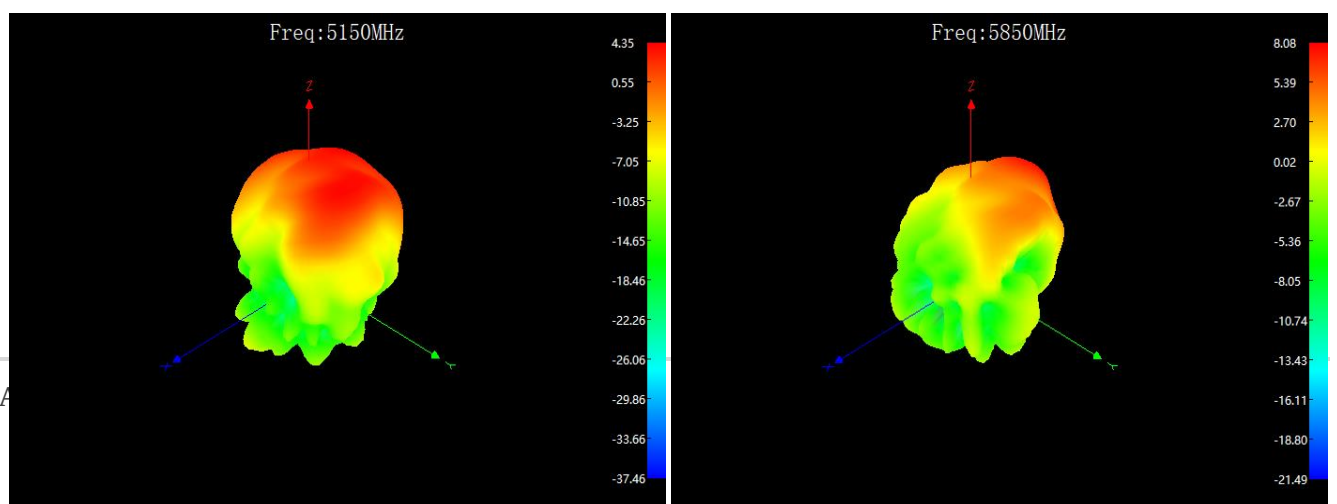


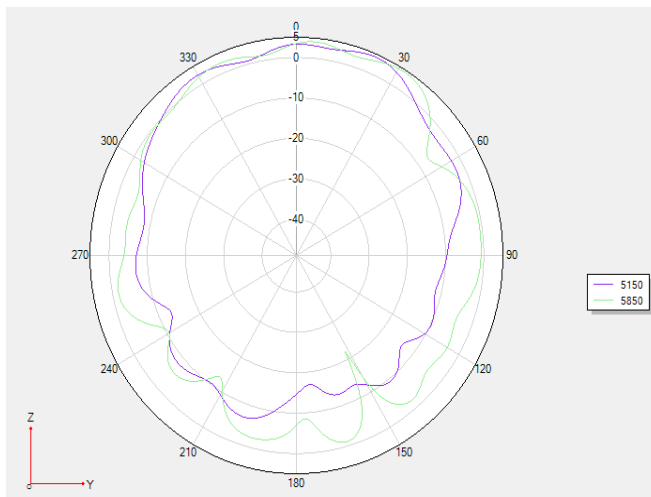
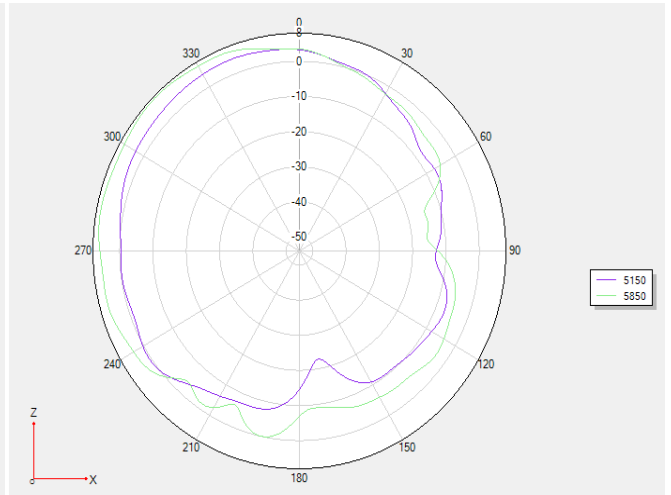
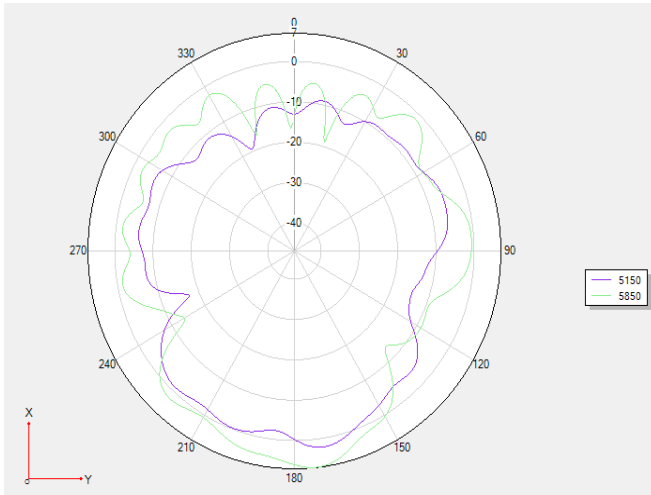
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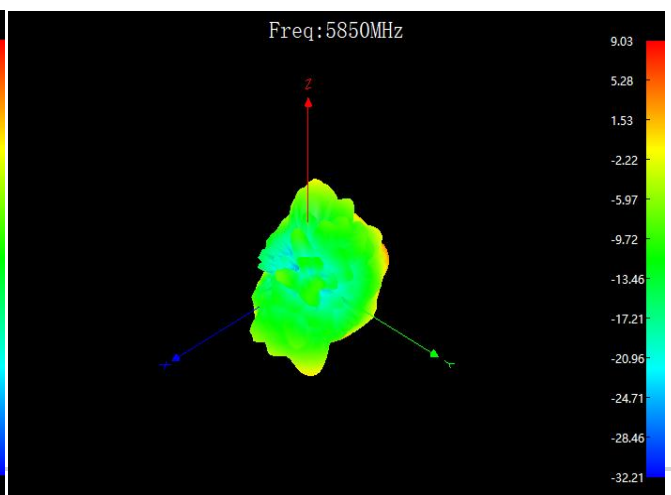
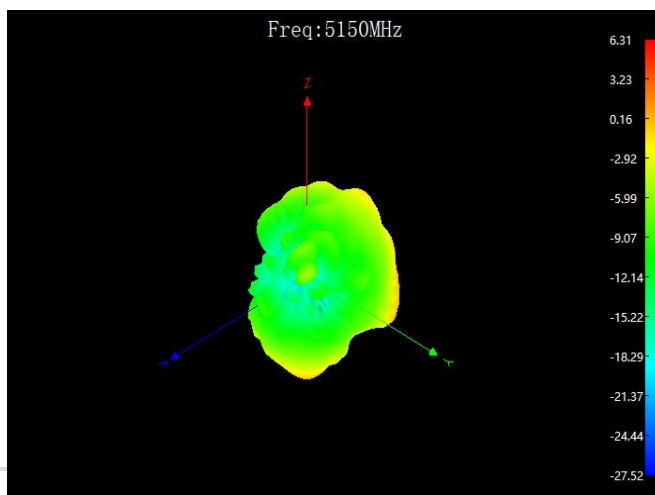


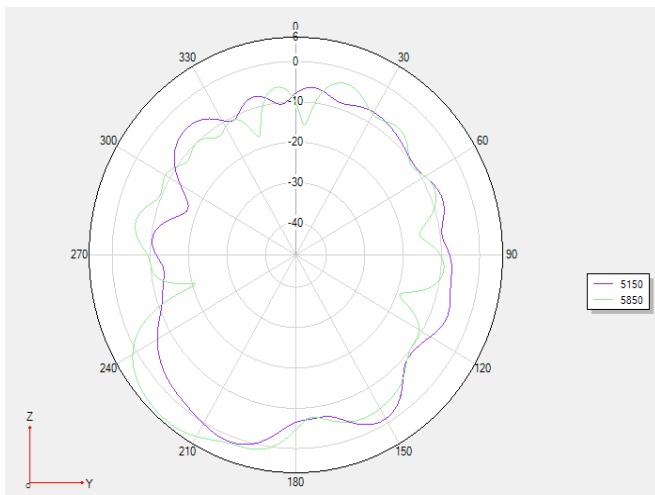
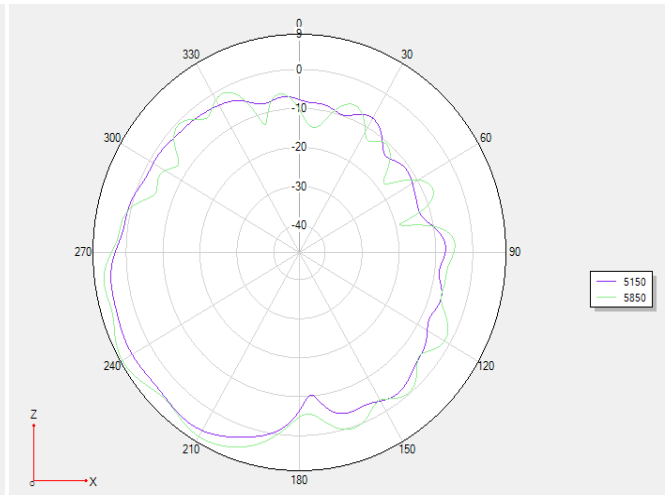
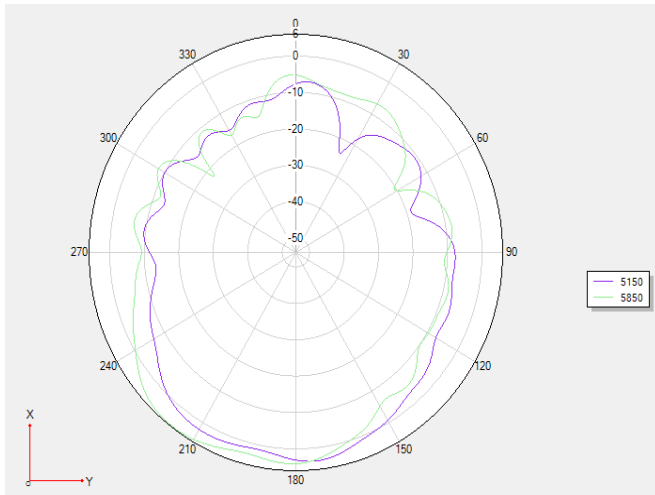
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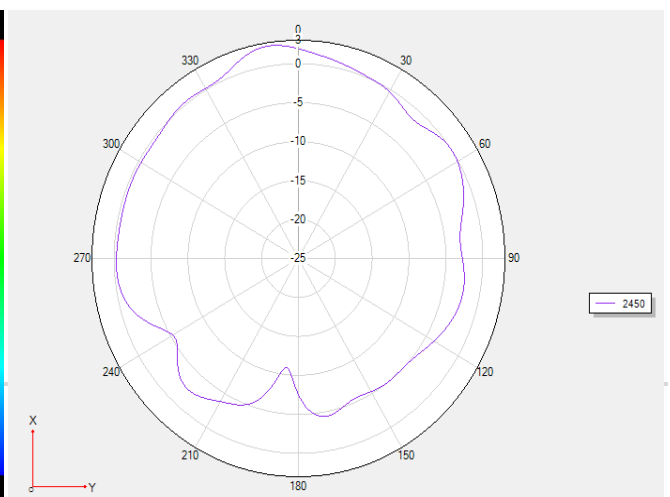
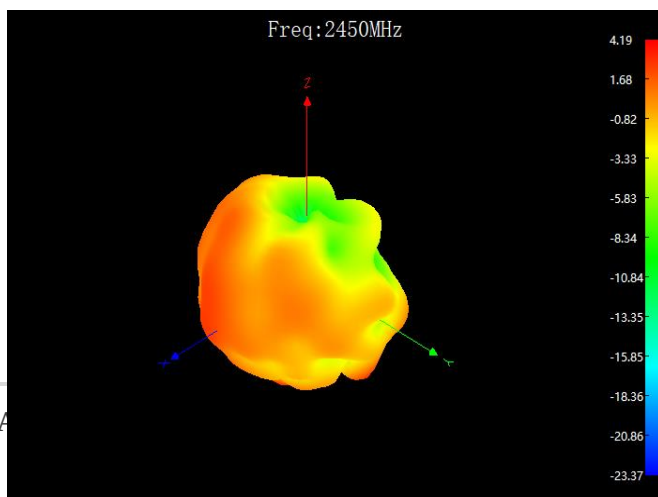


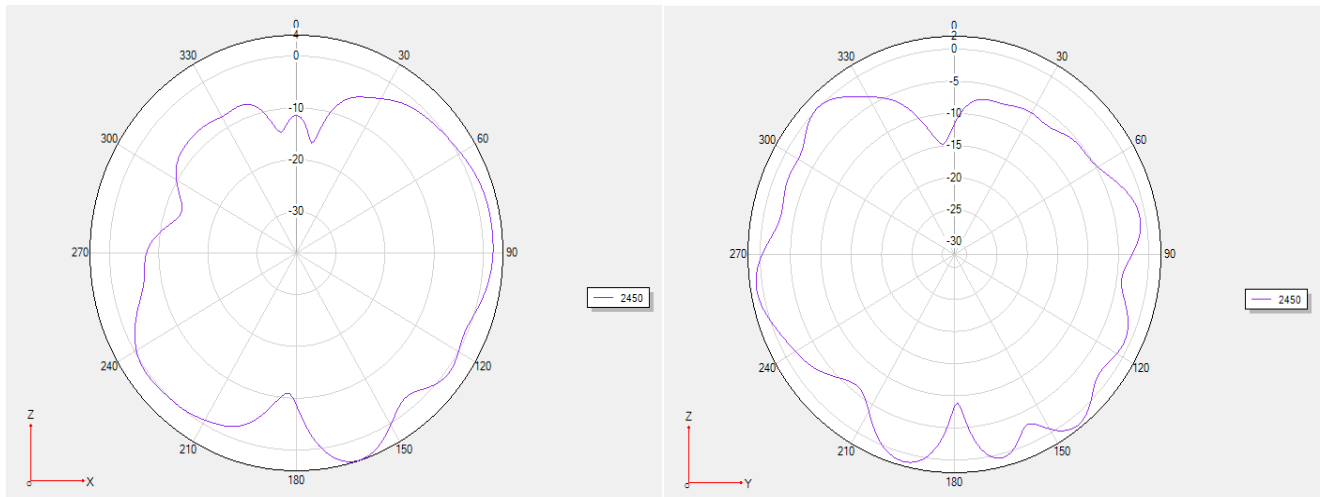
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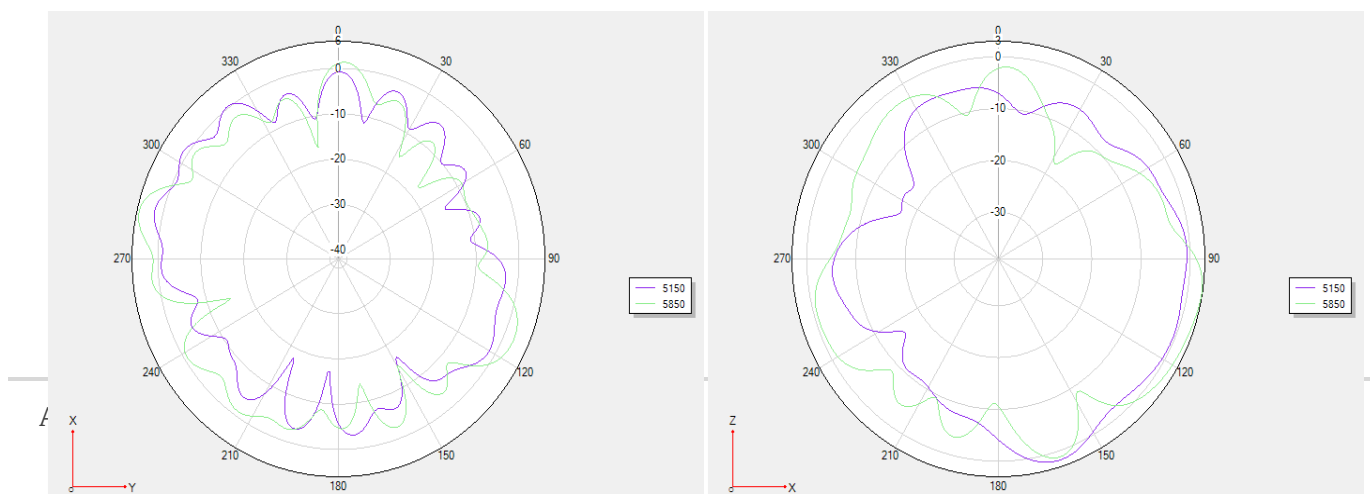
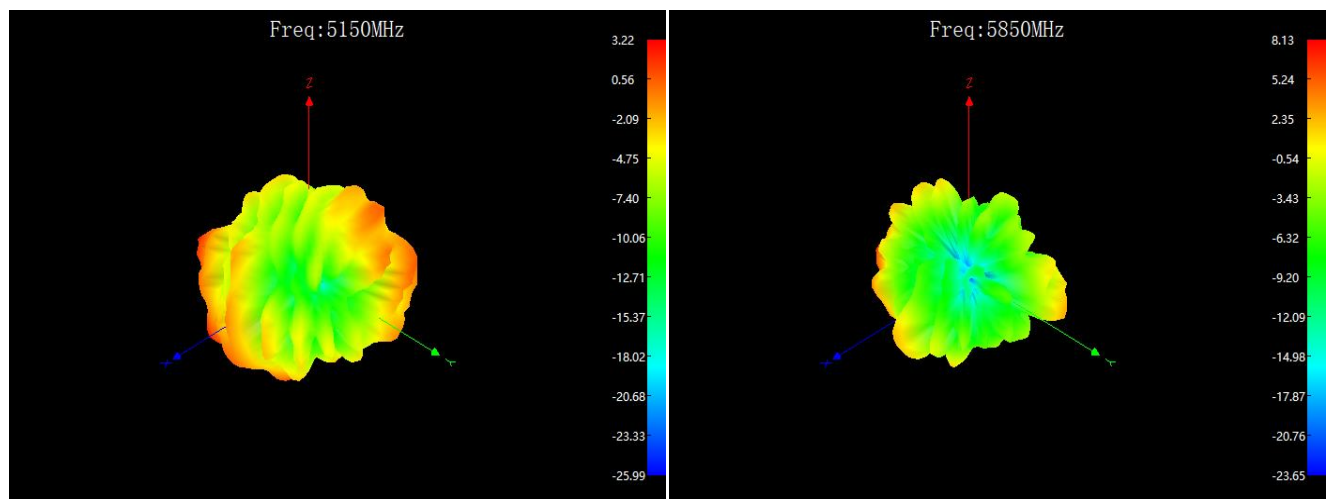


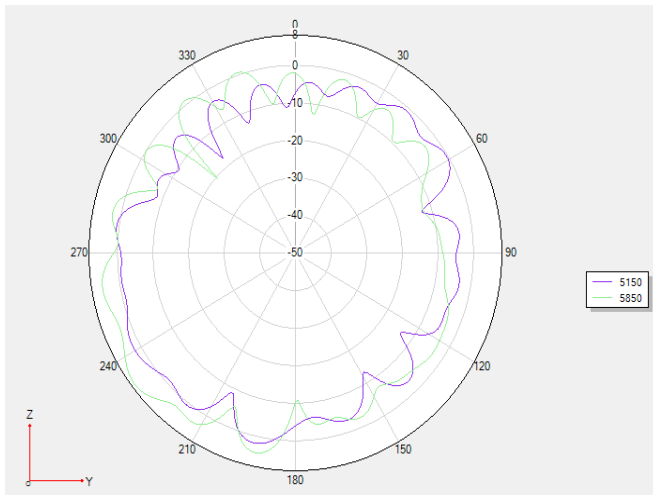
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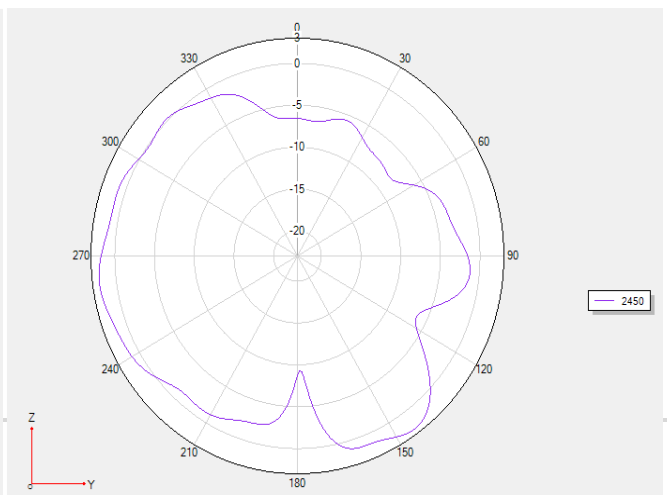
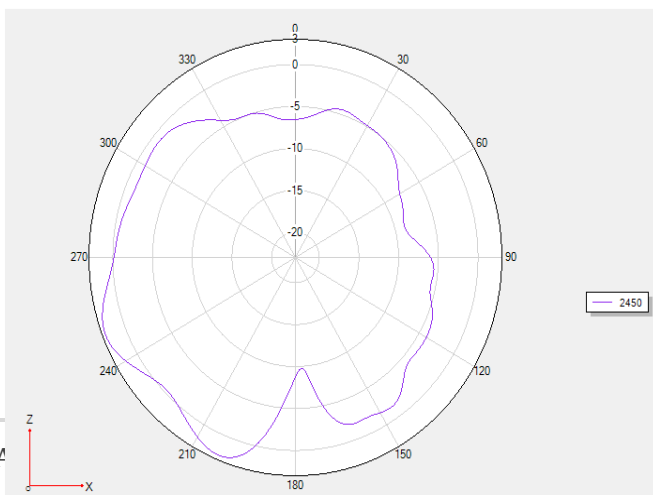
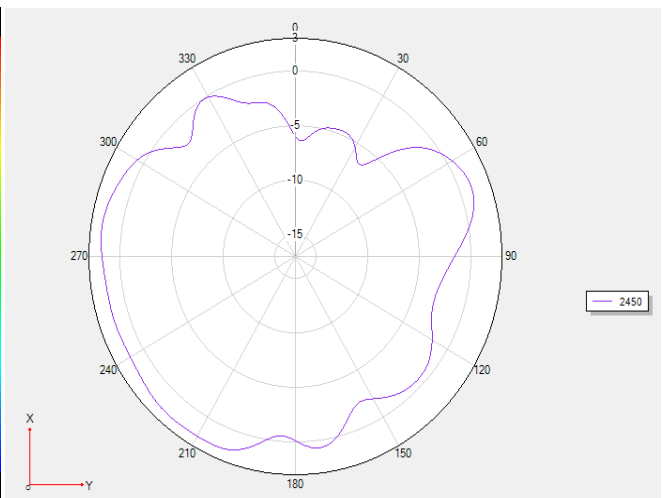
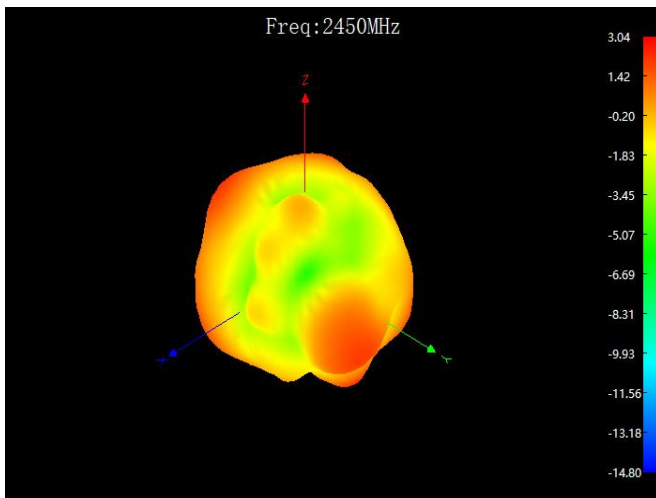


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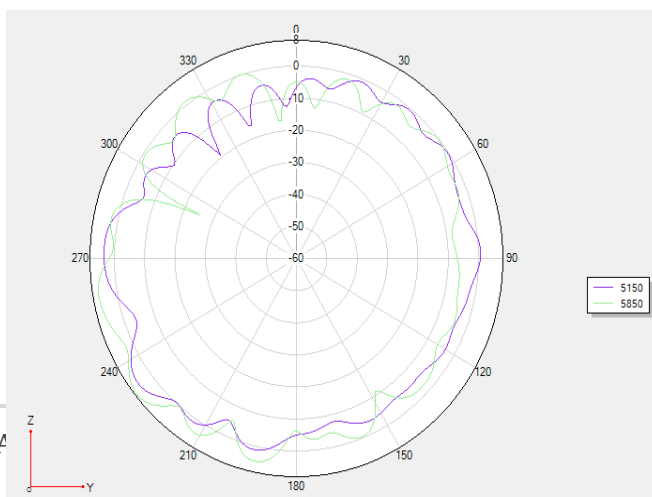
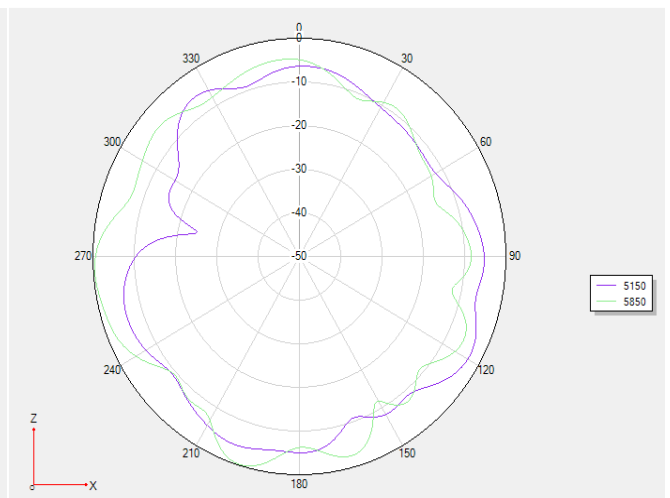
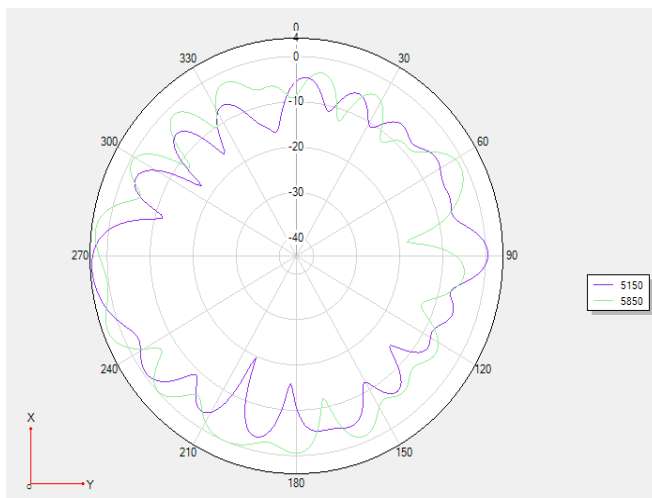
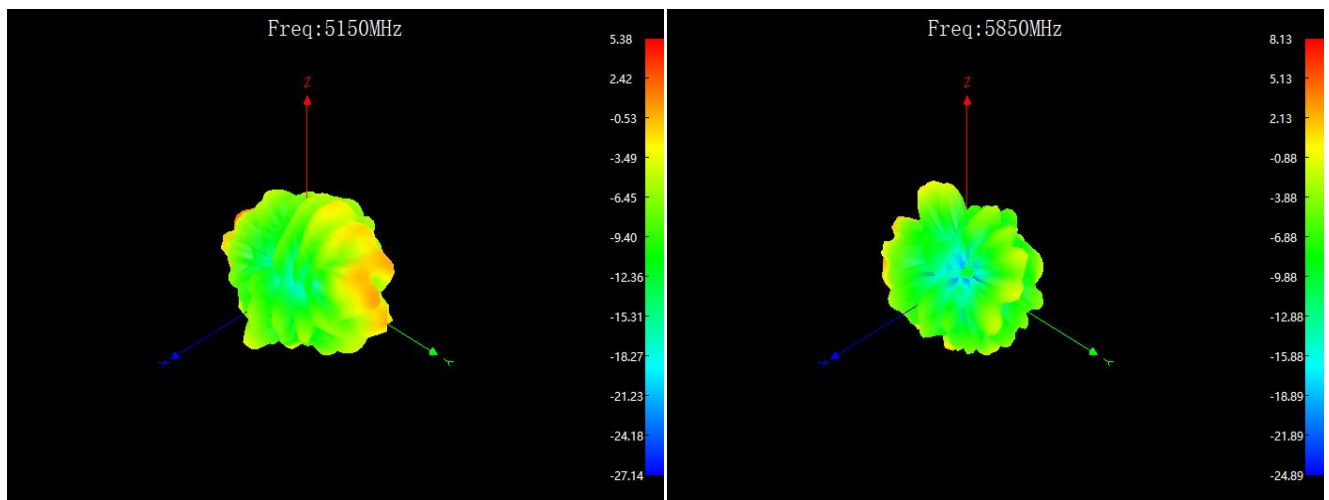




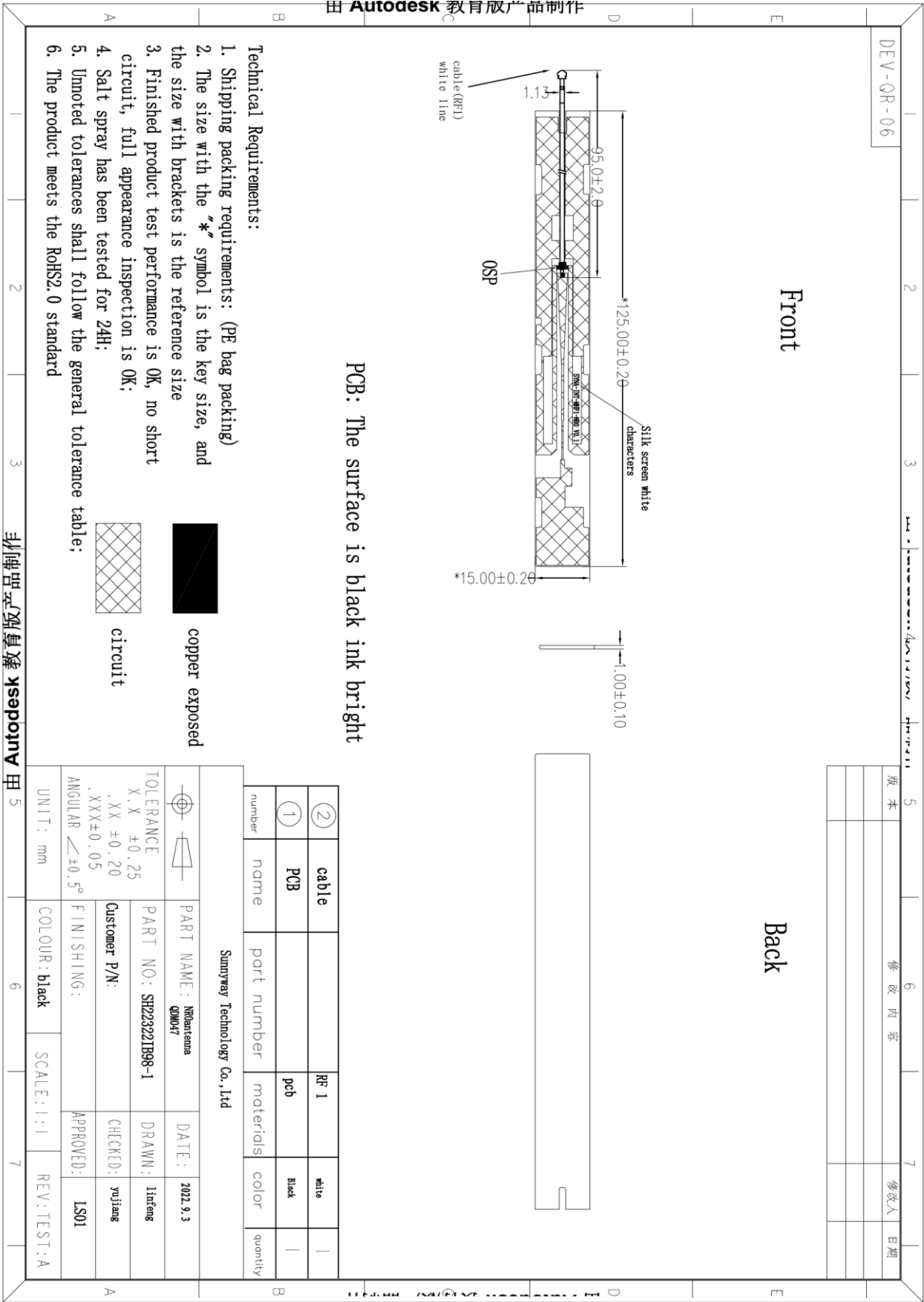
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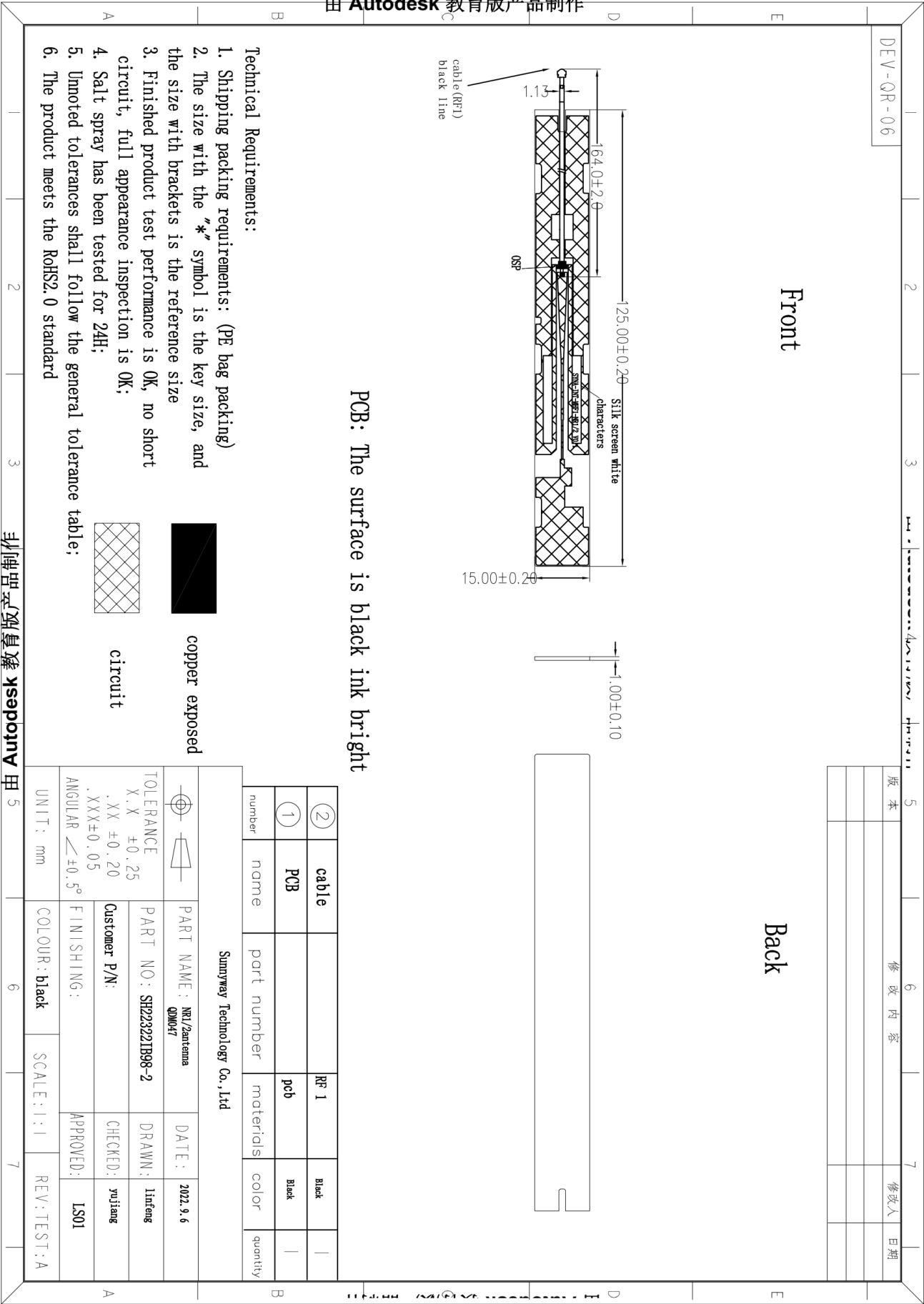


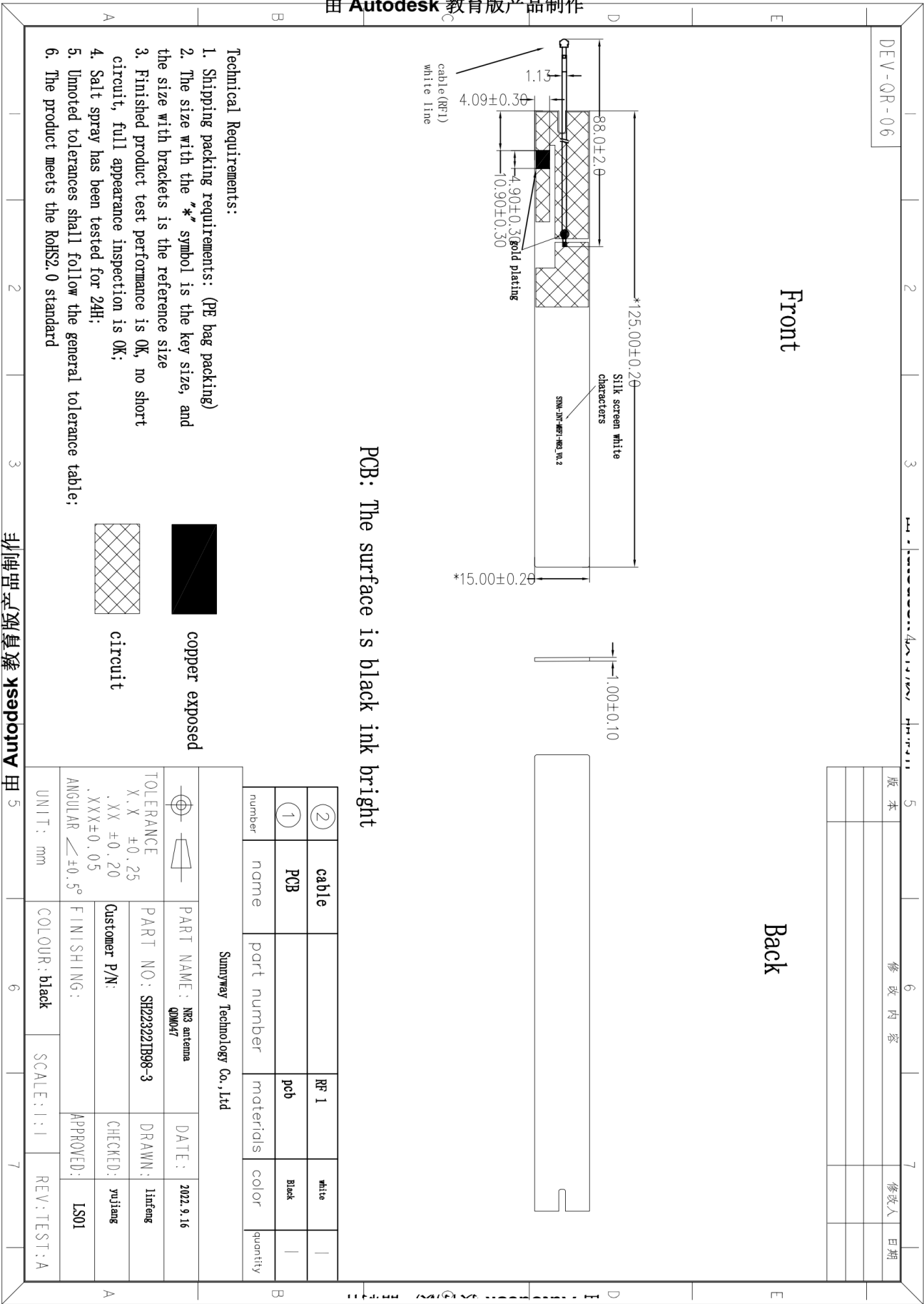
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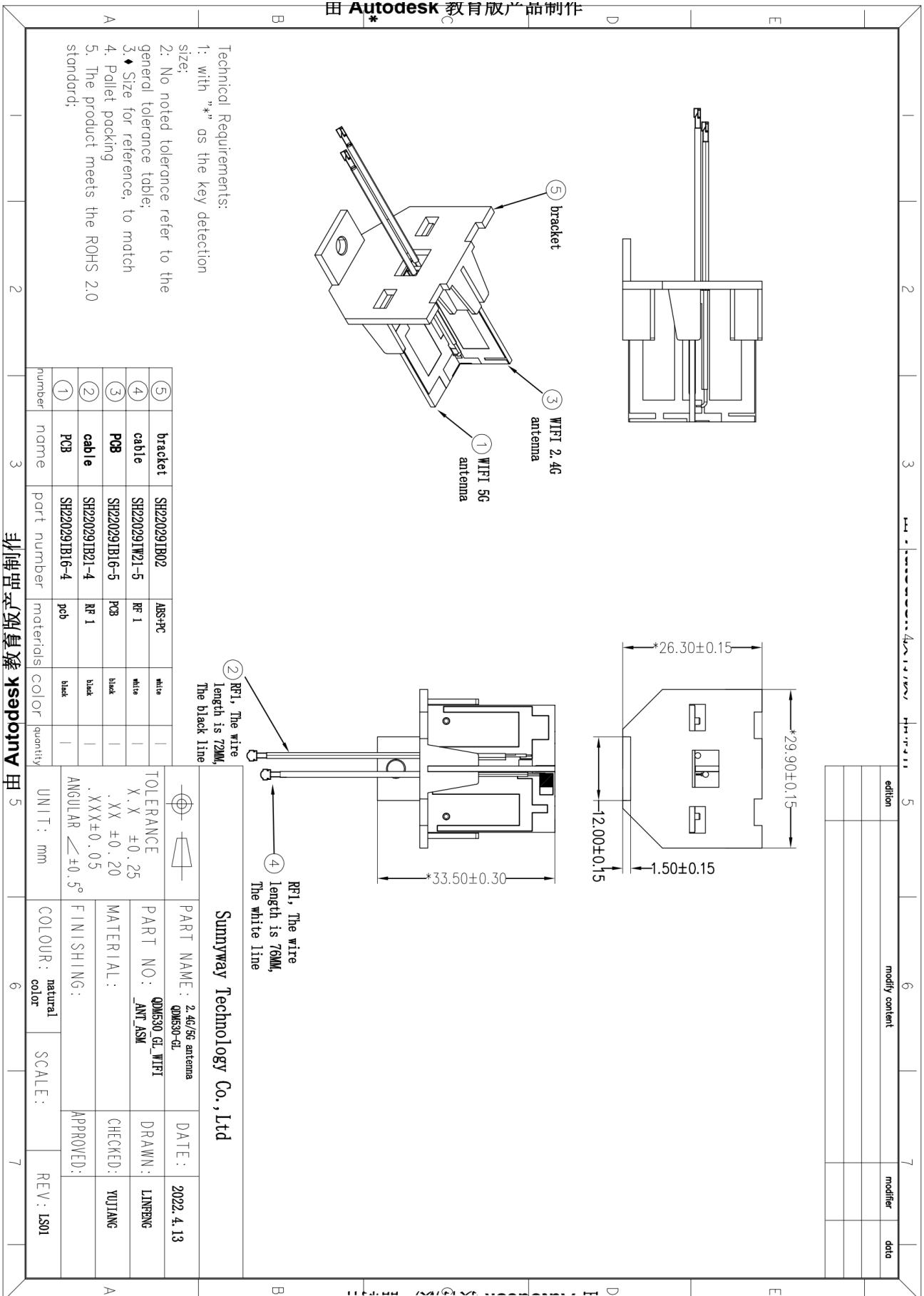


5 Product Size



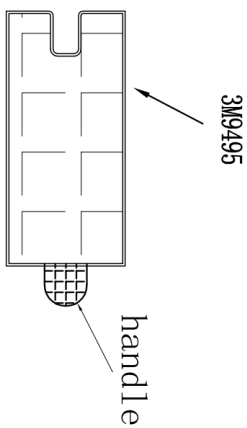






5	6	7
版本	修改内容	修改人 日期

Back

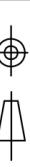


PCB: The surface is black ink bright

1. Material: yellow core material;

-

③	adhesive	SH220291A05	3M9495		
②	cable	SH220291B21-3	RF 1	black	
①	PCB	SH220291B16-3	pcb	black	
number	name	part number	materials	color	quantity

Sunnyway Technology Co., Ltd			
	PART NAME: WIF1/Zantenna QM530-GL		DATE: 2022.3.12
TOLERANCE X.X ±0.25 .XX ±0.20 .XXX±0.05 ANGULAR ∠±0.5°	PART NO.: QM530-GL_WIF1_5G_ANT_ASM		DRAWN.: linfeng
	MATERIAL:		CHECKED: yujiang
	FINISHING:		APPROVED: L501
UNIT: mm	COLOUR:	SCALE: 1:1	REV: TEST: A