

深圳市亿铭远科技有限公司

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承认书

APPROVAL SHEET

客户 Customer	鸟鸟科技 Niao Niao Technology	规格型号 Specs	N73S
亿铭远料号 Part Number	YMY006-N73S-021-A0	频 段 Frequency Band	LTE:B1/3/4/5/7/8/12/20/ 38/39/40/41 G850/900/1800/1900
颜 色 Color	Black 黑色	版 本 Edition	REV:A0
销 售 Salesperson	陆发亮 Lu Faliang	设 计 Design	雷耀波 Lei Yaobo
结 构 Structure	覃云林 Qin Yunlin	确 认 Confirm	
日 期 Date	2024.3.28		

客户确认 Customer confirmation:

携手共进 共创未来

Join hands to create the future

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一、Product Specifications 产品规格

The report mainly provides the parameter test results of the N73S antenna's performance. The N73S antenna is a 4G antenna. (As shown in Figure 1 below) 报告主要提供 N73S 天线性能的参数测试。N73S 天线为 4G 天线。（如下图 1 所示）



Figure 1 N73S Antenna 图 1 N73S 天线

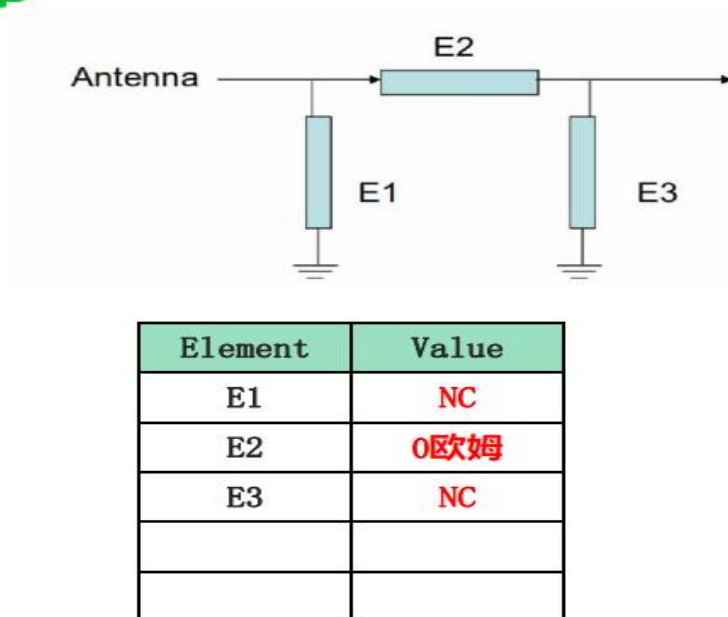
二、Electrical performance 电器性能

1.Specifications and Standards 规格标准

The N73S antenna operates in the 700-2700 MHz frequency range and generates resonance within this band. N73S 天线工作频段在 700-2700MHZ，在此频段产生谐振。

2.Antenna matching circuit 天线的匹配电路

Antenna structure type: FPC 天线的结构方式：FPC



三、Testing of parameters 参数的测试

1. Test Settings 测试的设置

The VSWR test setup is connected in the following sequence: VSWR 测试装置依次的连接为:

E5071B Network Analyzer → 50 Ohm Coaxial Cable → 110mm Long Copper Tube → Test Fixture

E5071B 网络分析仪 → 50 欧姆的同轴 Cable → 110mm 长的铜管 → 测试治具

Handling of the test fixture: 测试治具的处理:

From the 50-ohm test point of the antenna on the mobile phone PCB, a rigid cable is led out to an SMA-J connector, connected to a copper tube with a ferrite choke, and then connected sequentially to other devices. 从手机 PCB 上天线 50 欧姆测试点处用一根硬质电缆引出 SMA-J 接头，与套有扼流圈的铜管连接，再依次连接其他装置。

2. Test results 测试结果

Everything is normal 一切正常

四、Active Test Setup 有源测试的设置

The connections for the active test device are as follows: 有源测试装置依次连接为:

Agilent 8960 → 50-ohm coaxial cable → Satimo SG16 testing system → mobile phone to be tested

Agilent8960 → 50 欧姆的同轴 Cable → Satimo SG16 测试系统 → 待测试的手机

1. Test site 测试的场地

AW Microwave Anechoic Chamber: Test frequency range is 400 MHz—6 GHz, quiet zone diameter is 40 cm, and reflectivity is less than -90 dB. 微波暗室：测试频率范围为 400MHz—6GHz，静区范围为 40cm 圆周，反射率小于 -90 dB。

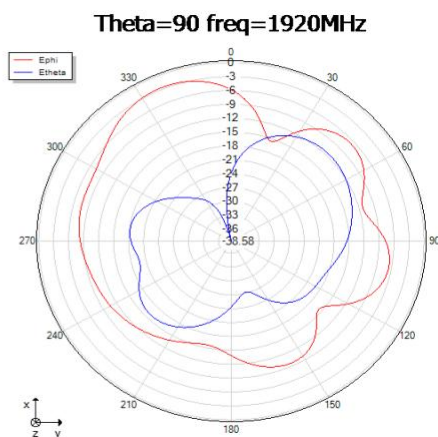
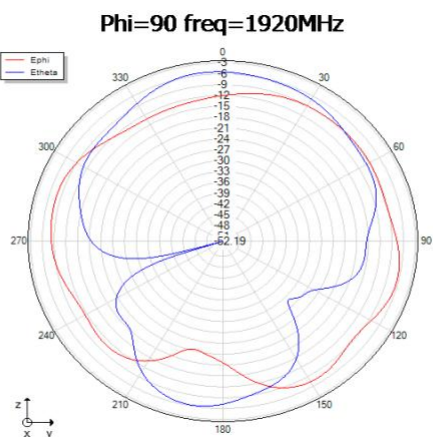
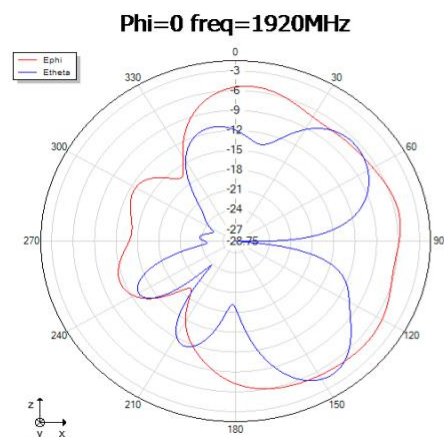
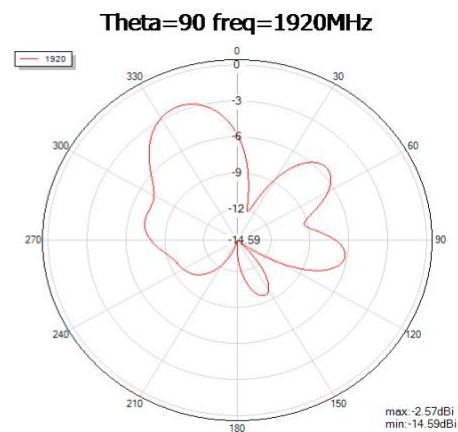
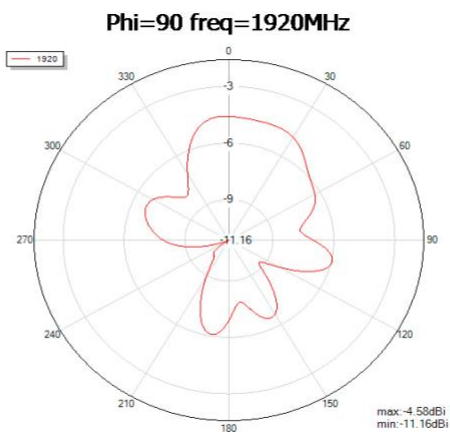
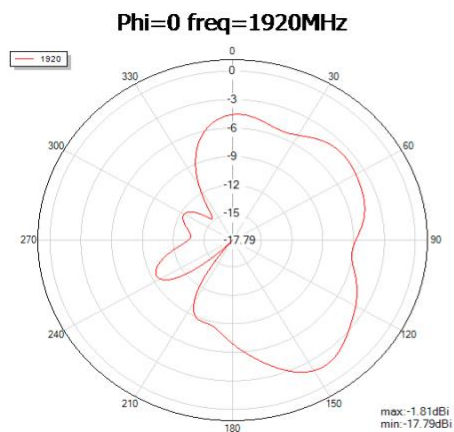
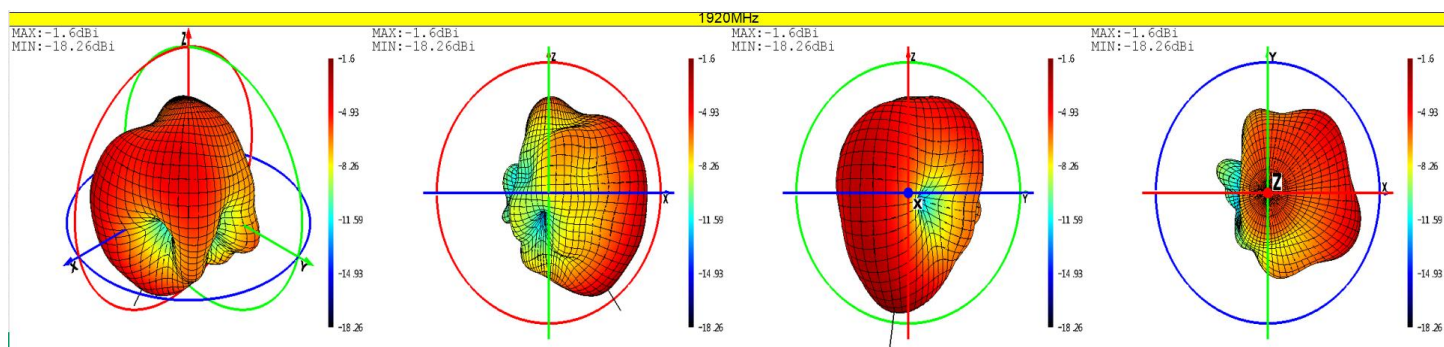
2. Test results 测试结果

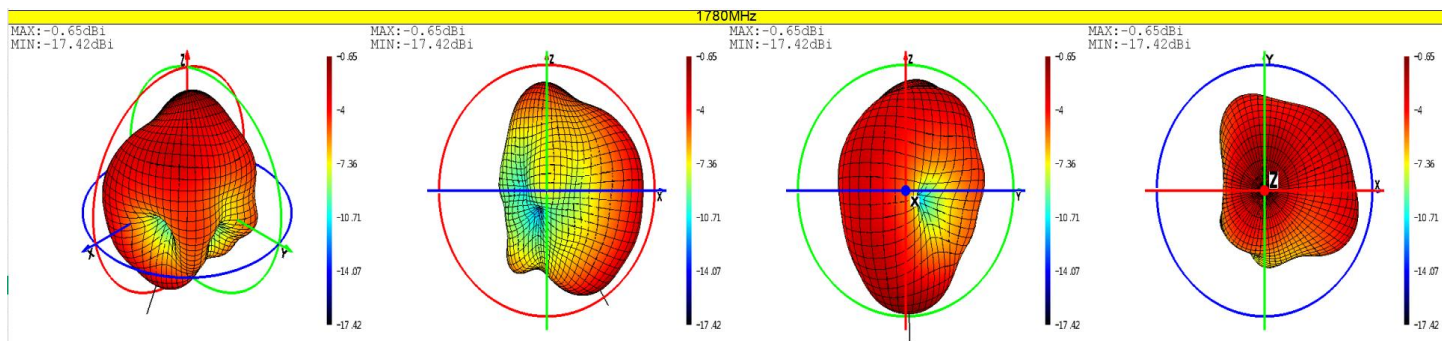
Maximum radiated power and maximum receiving sensitivity reflect the antenna's maximum power radiation value and optimal receiving performance across the entire radiation space. TRP and TIS reflect the antenna's average radiated power and average receiving sensitivity, that is, they represent the overall receiving performance of the antenna. 最大辐射功率和最大接收灵敏度反映了天线在整个辐射空间内最大功率辐射值和最佳接收性能。TRP 和 TIS 反映了天线的平均辐射功率和平均接收灵敏度，即反映了天线的整体接收性能。

	Channel	TRP (dBm)	TIS (dBm)			Channel	TRP (dBm)	TIS (dBm)			Channel	TRP (dBm)	TIS (dBm)
FDD B1	18050	15.52		GSM850	128	18.64		TDD-38	37850	13.62			
	18300	13.47			190	20.13			38000	13.19			
	18550	13.04	-89.01		251	22.32	-102.03		38150	13.75	-82.59		
FDD B3	19250	15.99		GSM900	1	26.79		TDD-39	38350	17.96			
	19900	15.75			62	25.85			38450	16.97			
	19900	16.69	-89.48		124	24.86	-96.4		38550	15.7	-87.39		
FDD B4	20000	15.99		DCS1800	512	21.08		TDD-40	38750	17.67			
	20175	15.82			698	21.92			39150	19.04			
	20350	15.74	-85.4		885	23.13	-104.01		39550	18.51	-88.55		
FDD B5	20450	7.77		DCS1900	512	24.77		TDD41		13.21			
	20525	9.13			661	24.43			40620	12.18	-81.54		
	20600	10.99	-88.04		810	21.85	-99.61			13.20			
FDD B7	20800	15.26		W1	9612								
	21100	14.8			9750								
	21400	14.3	-88.71		9888								
FDD B8	21500	18.23		W2	9262								
	21625	17.23			9400								
	21750	15.44	-81.32		9538								
FDD B12	23060	0.06		W5	4132								
	23095	0.83			4183								
	23130				4233								
FDD B20	24200	10.4		W8	2937								
	24300	13.01			3013								
	24400	14.66	-83.85		3088								

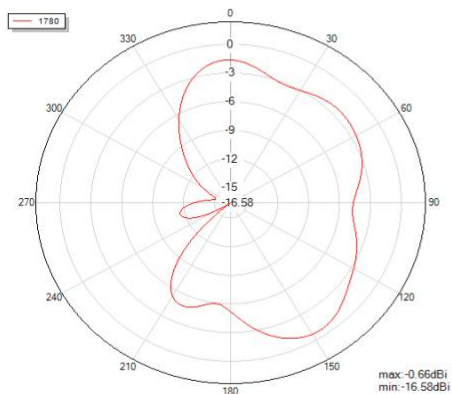
Passive Test For 4G

Frequency (MHz)	Efficiency (%)	Gain (dBi)	Frequency (MHz)	Efficiency (%)	Gain (dBi)
B1/1920	20.46	-1.6	B38/2580	9.45	-3.58
B3/1780	27.39	-0.65	B39/1880	26.05	-0.31
B4/1740	20.26	-2.65	B40/2320	15.28	-4.23
B5/880	12.21	-5.36	B41/2580	9.45	-3.58
B7/2580	9.45	-3.58	GSM850/880	12.21	-5.36
B8/900	23.47	-2.67	GSM900/900	23.47	-2.67
B12/720	0.89	-17.33	DCS1800/1780	27.39	-0.65
B20/840	2.82	-12.13	DCS1900/1880	26.05	-0.31

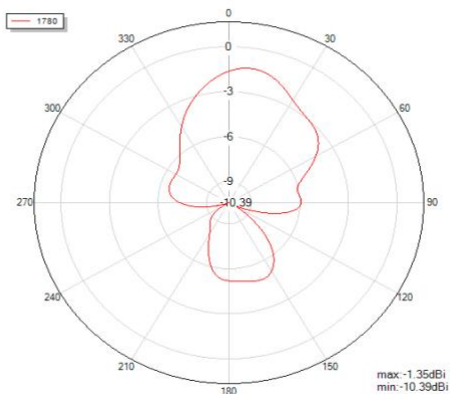




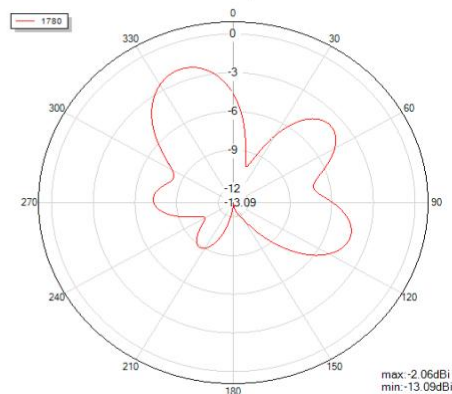
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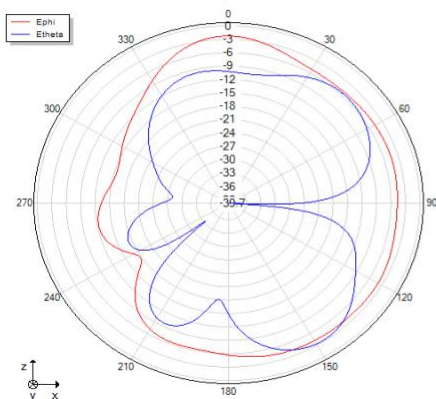
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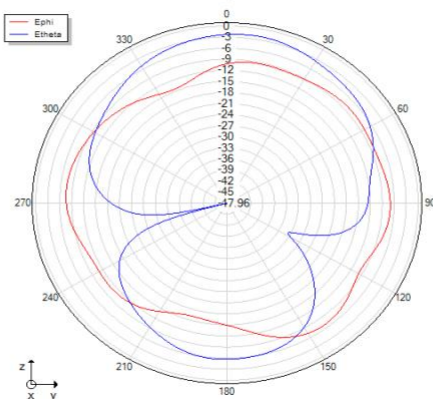
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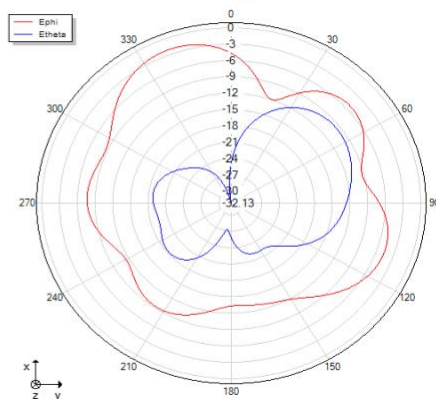
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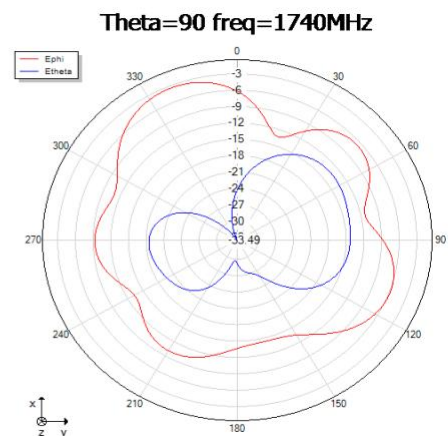
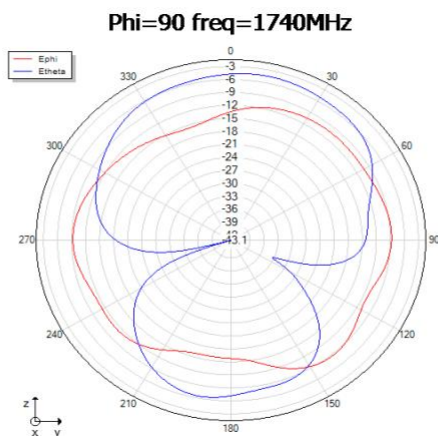
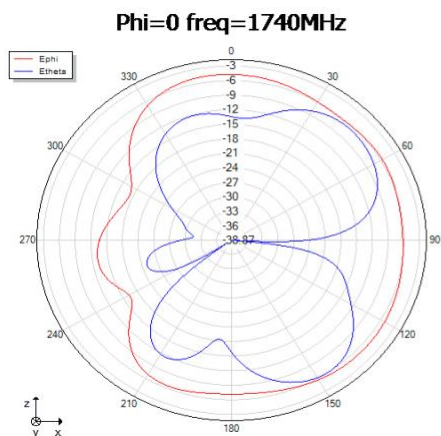
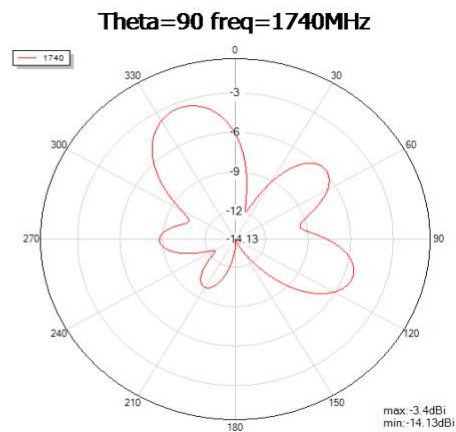
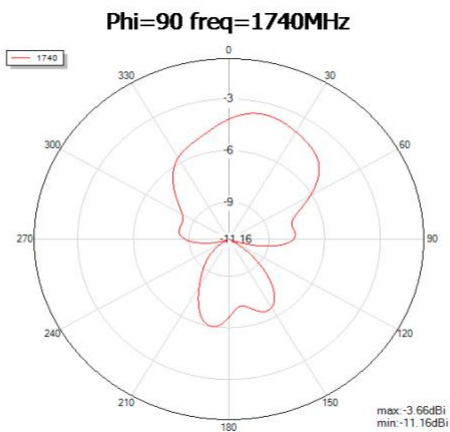
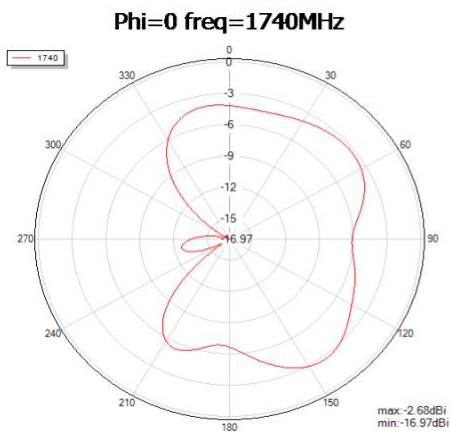
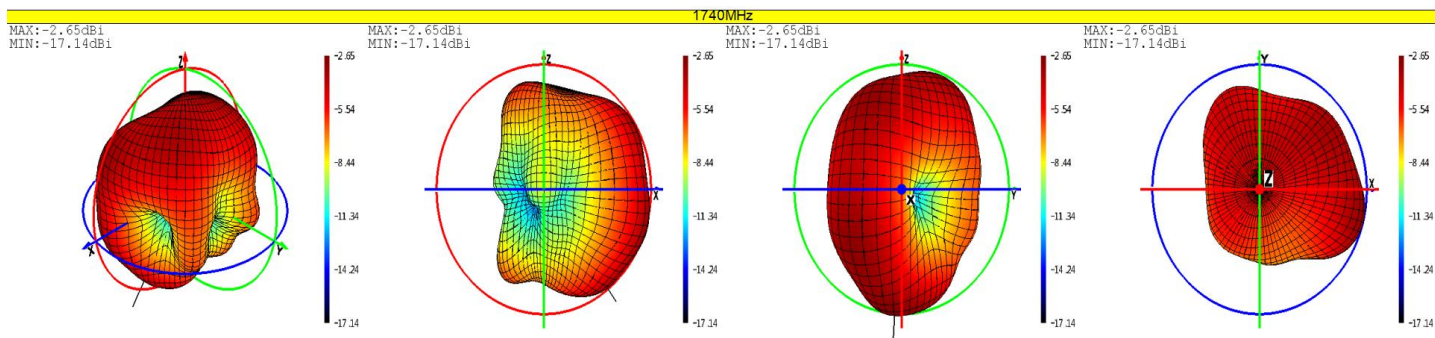


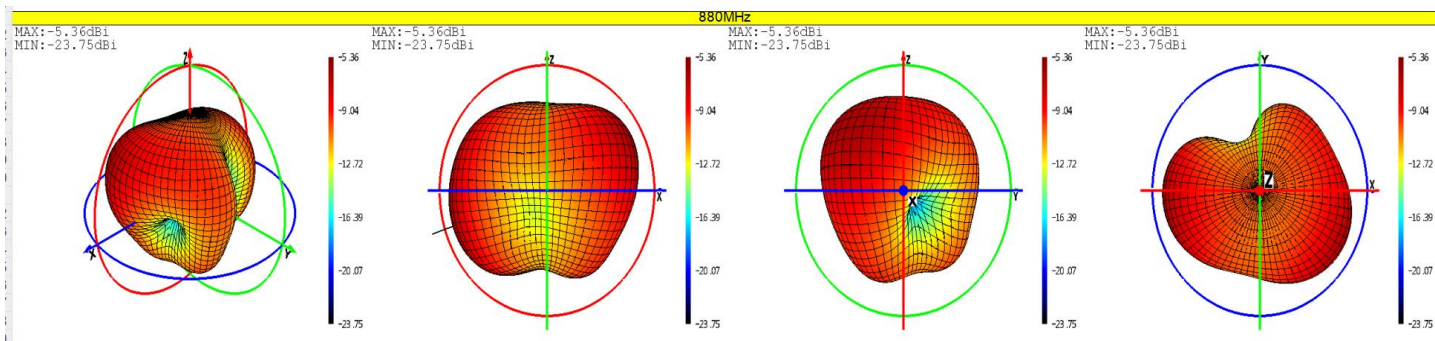
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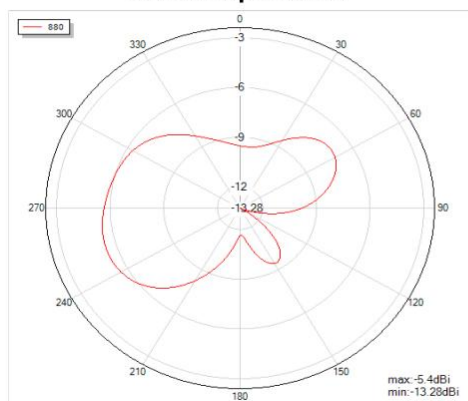
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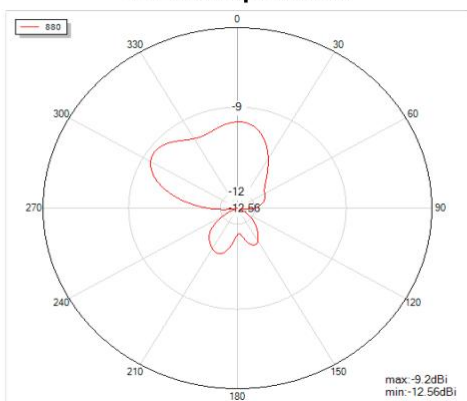




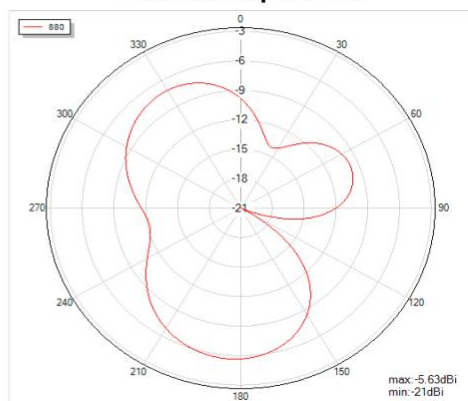
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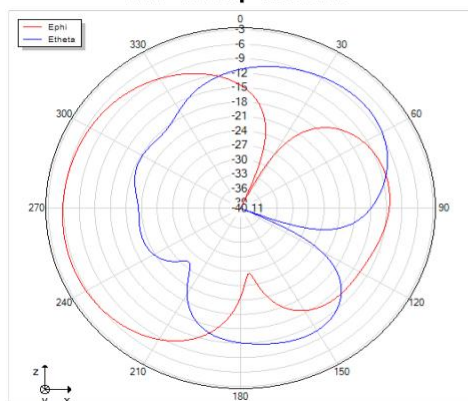
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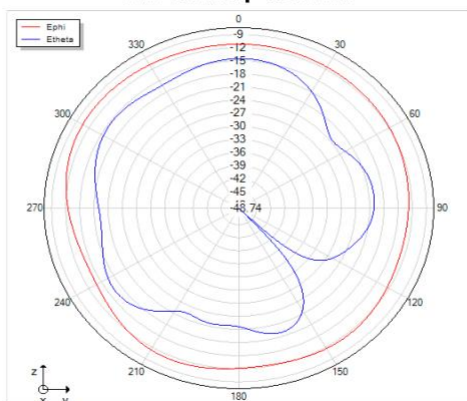
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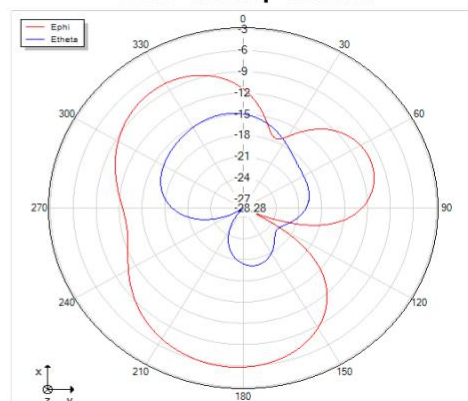
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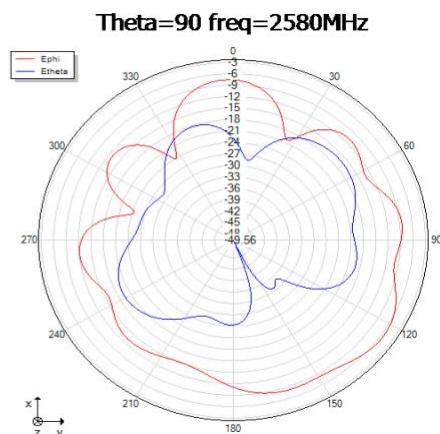
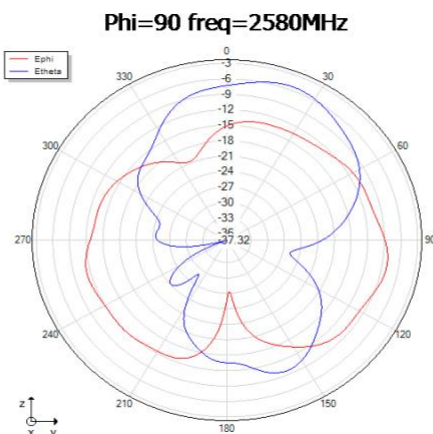
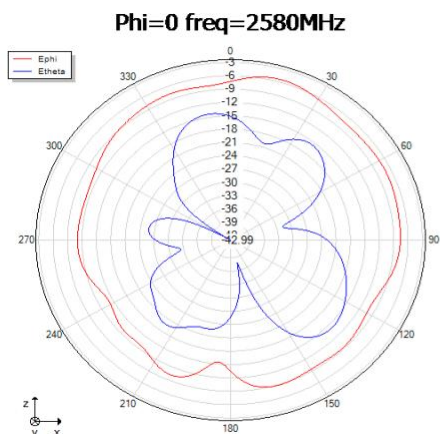
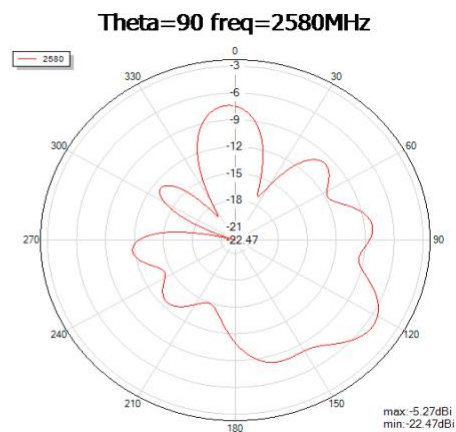
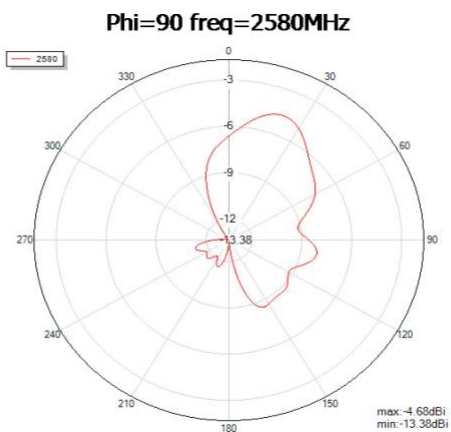
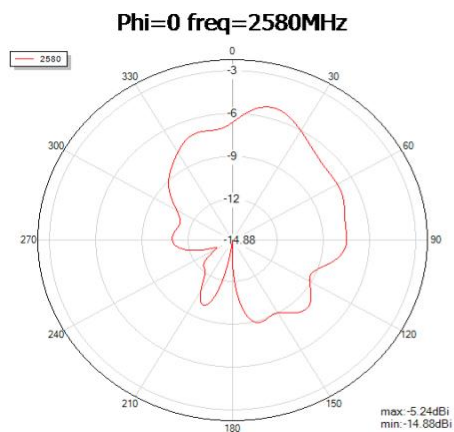
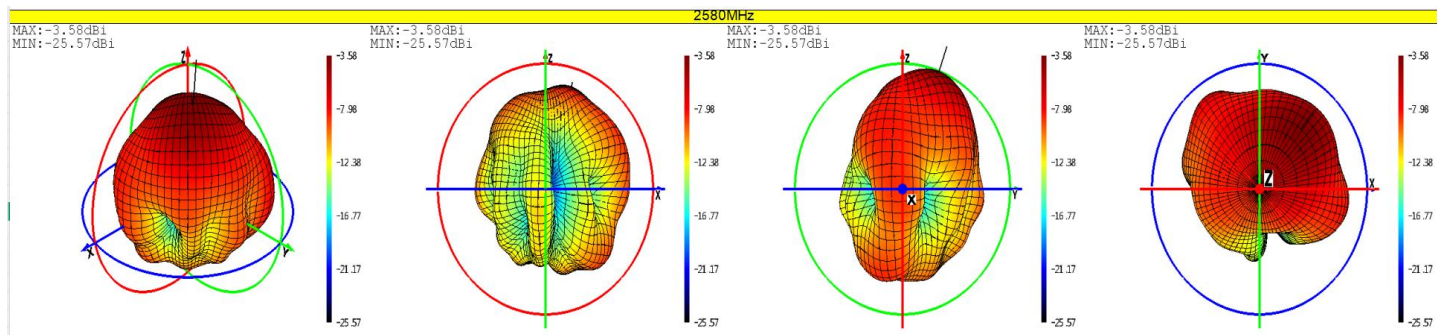


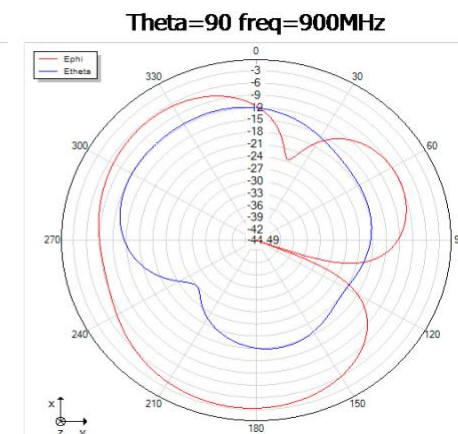
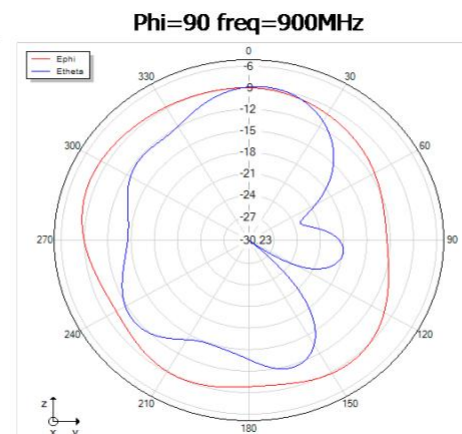
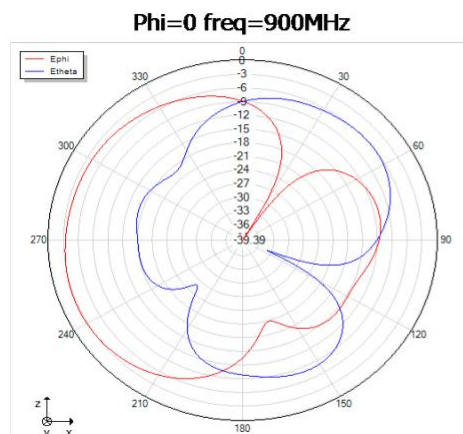
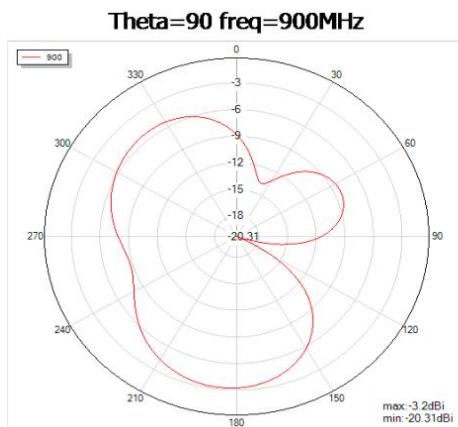
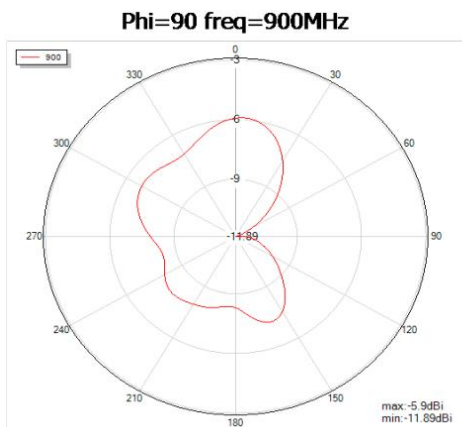
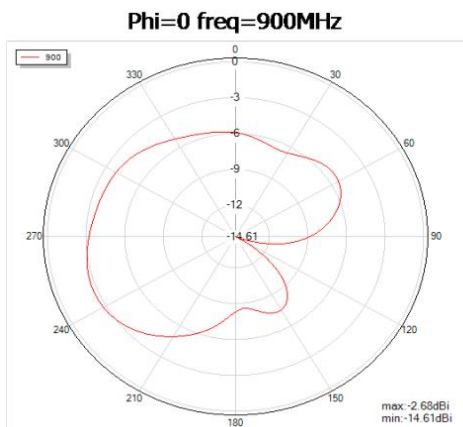
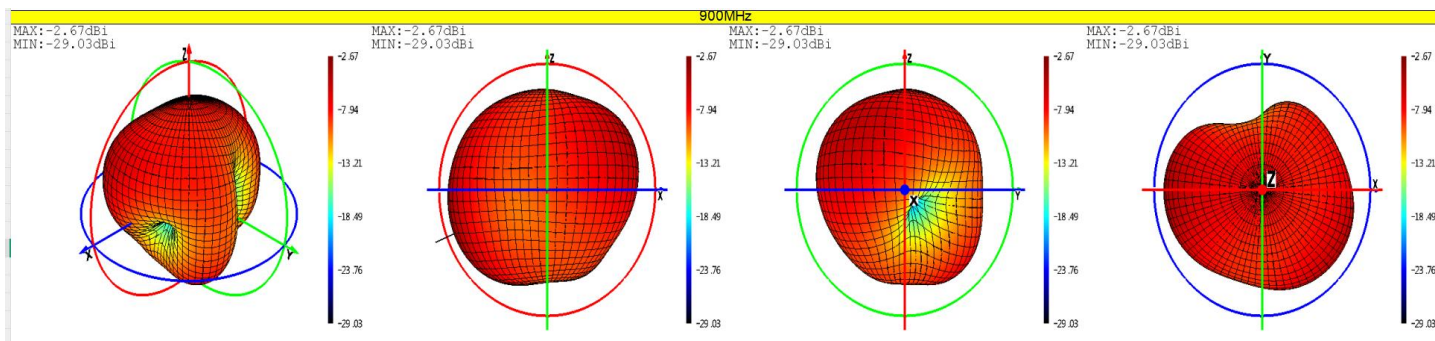
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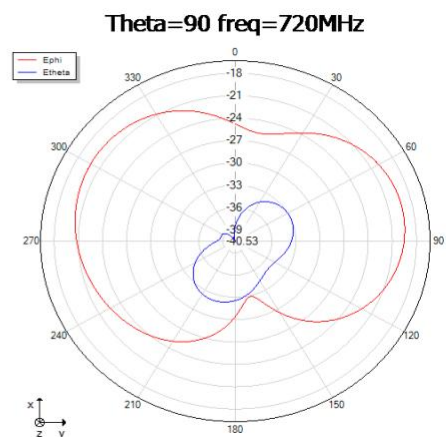
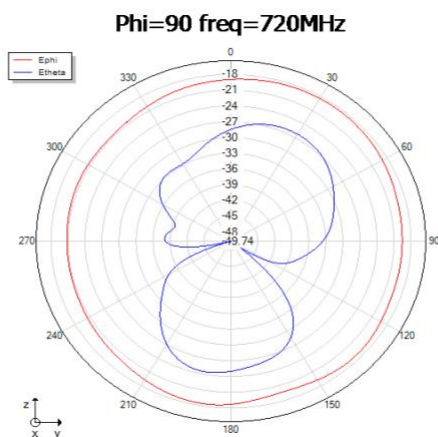
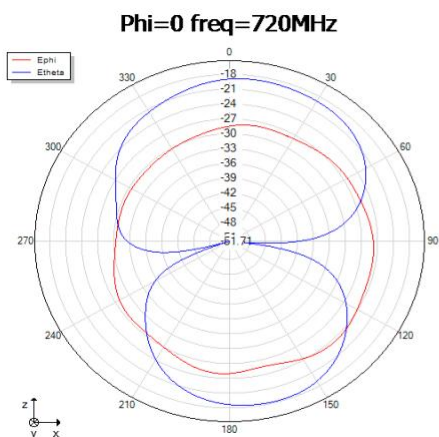
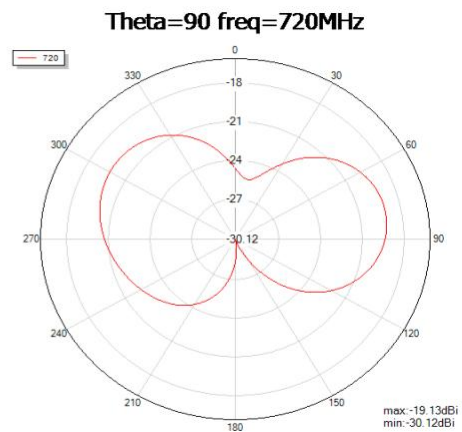
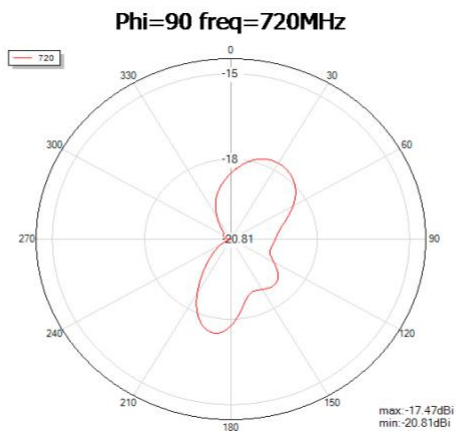
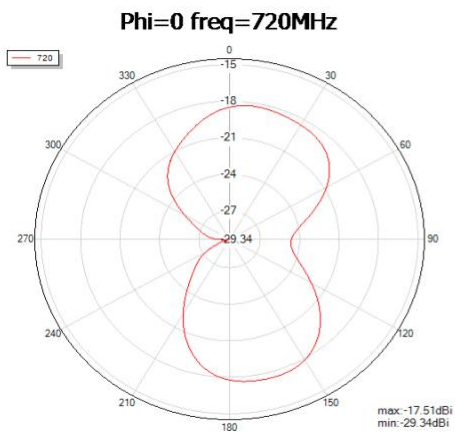
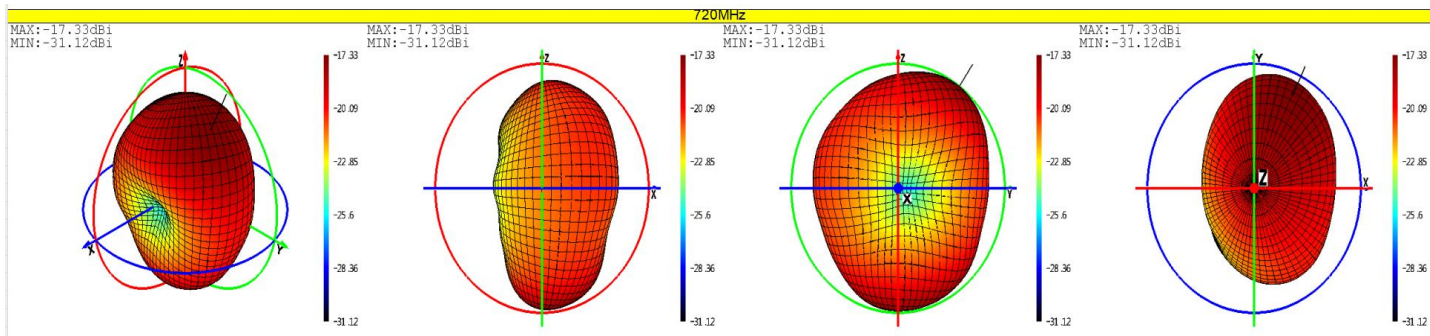


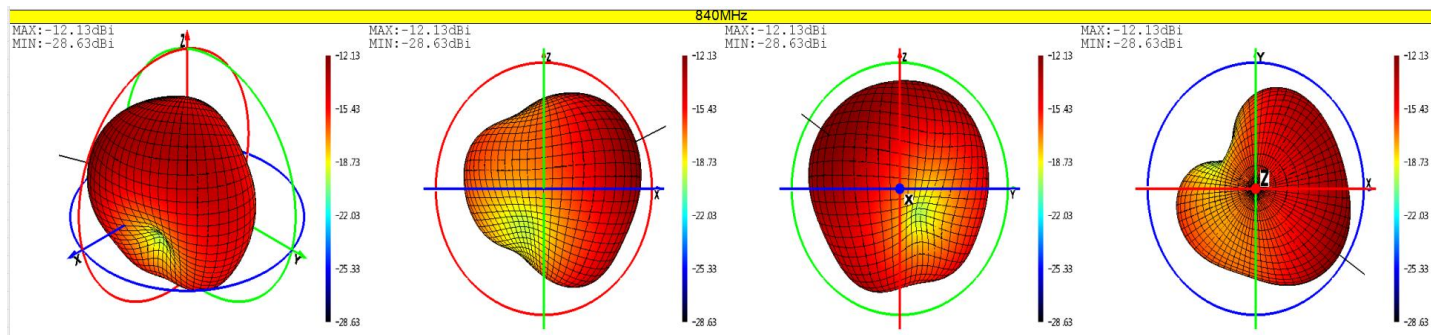
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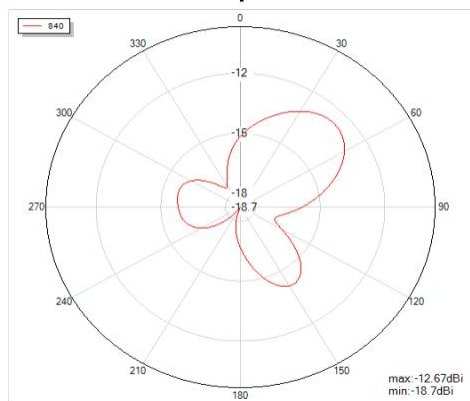




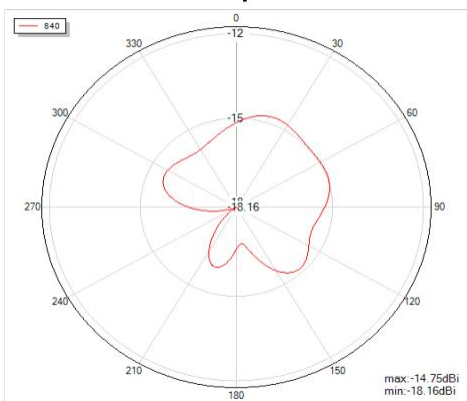




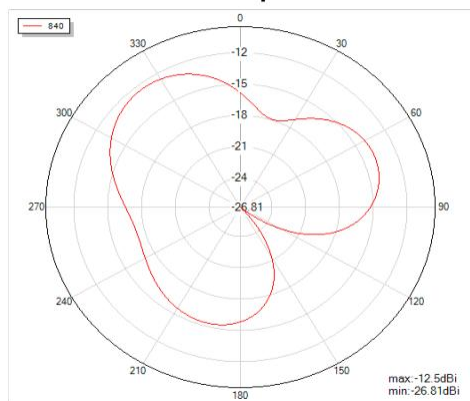
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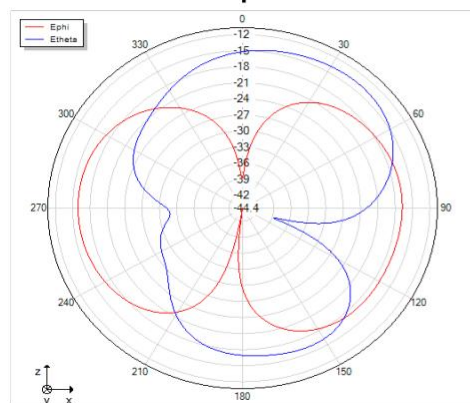
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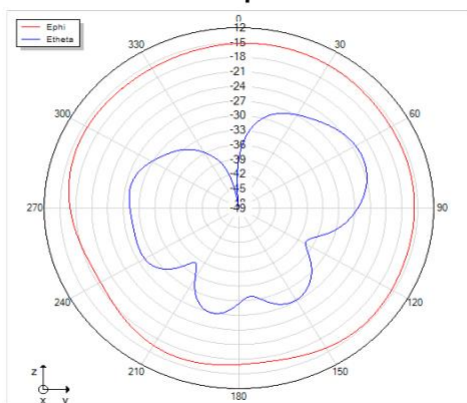
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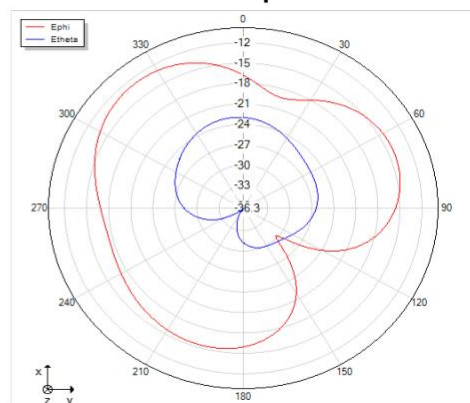
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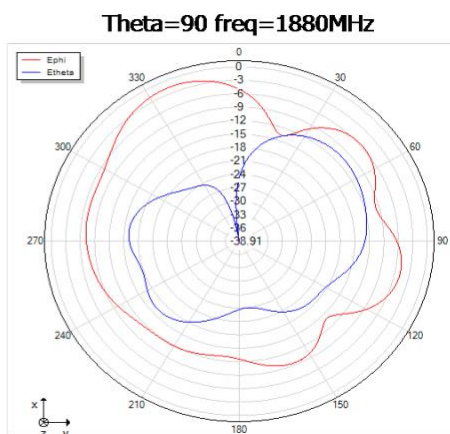
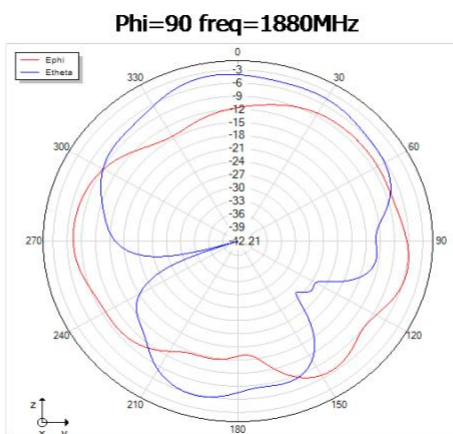
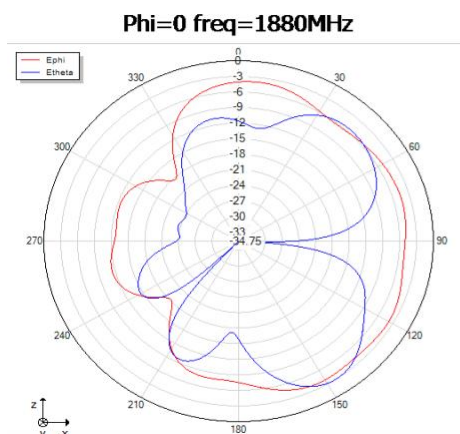
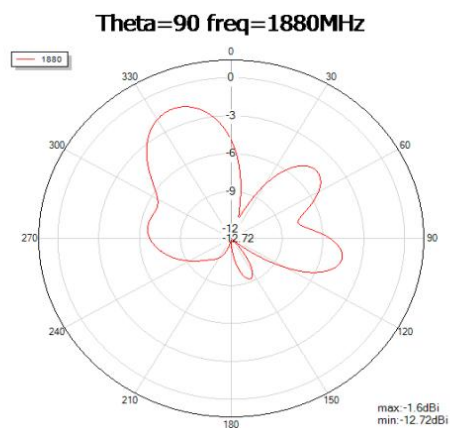
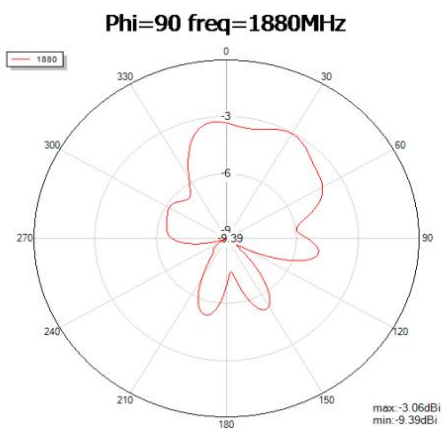
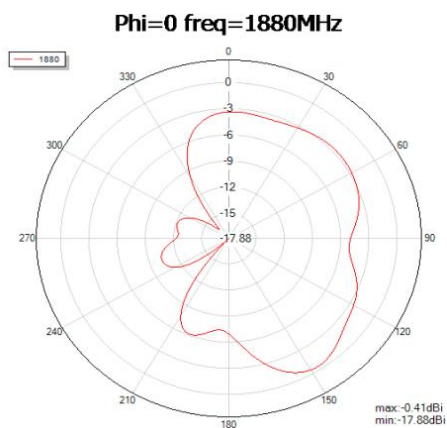
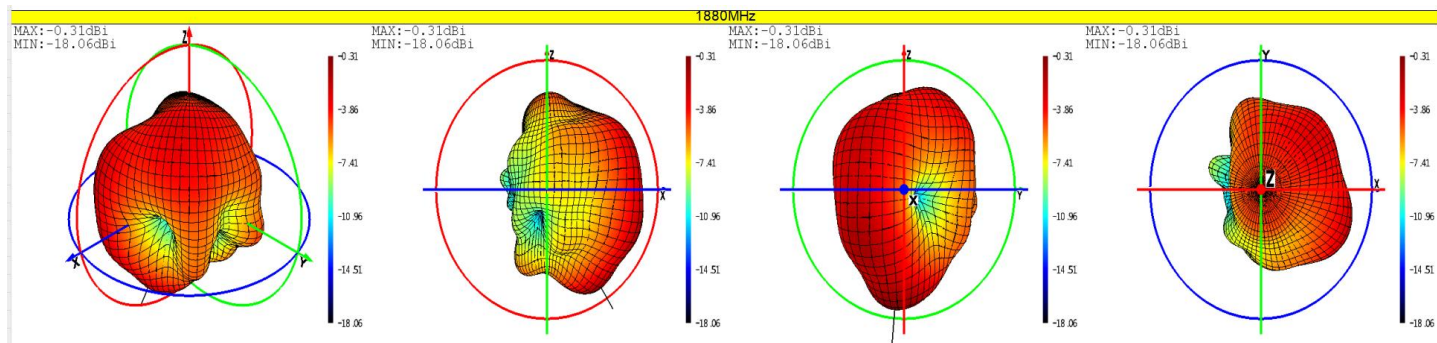


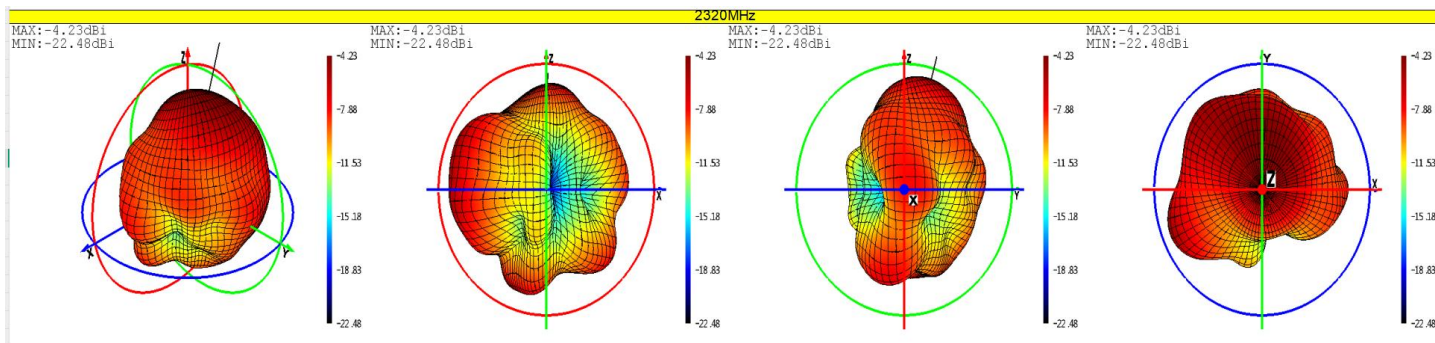
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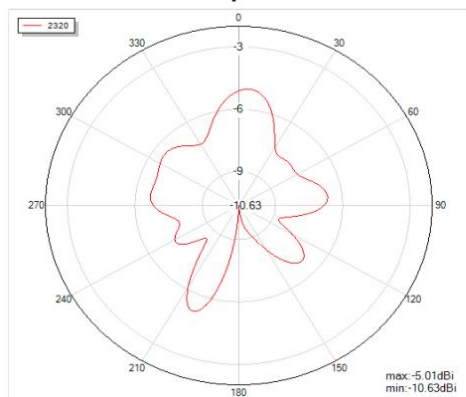
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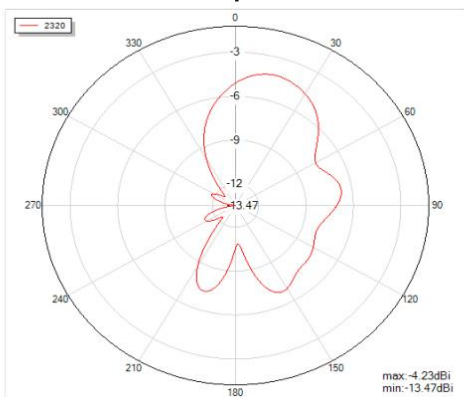




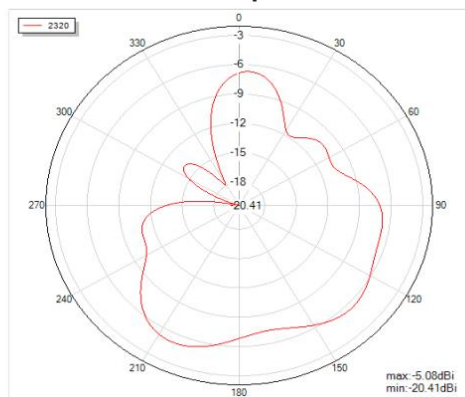
Phi=0 freq=2320MHz



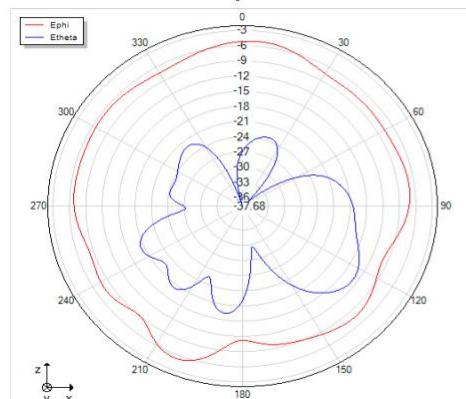
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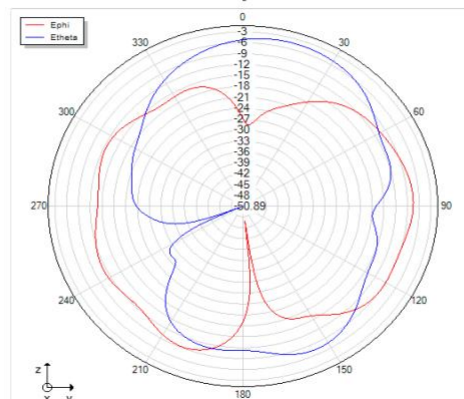
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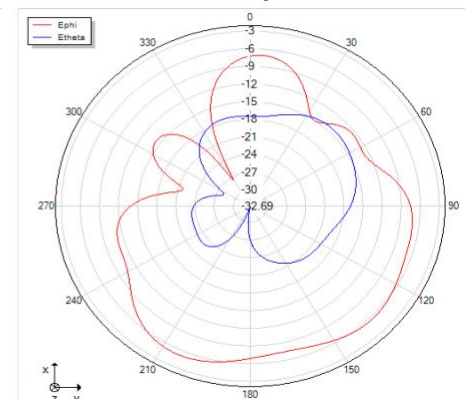
Phi=0 freq=2320MHz



Phi=90 freq=2320MHz



Theta=90 freq=2320MHz



深圳市亿铭远科技有限公司

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承认书

APPROVAL SHEET

客户 Customer	鸟鸟科技 Niao Niao Technology	规格型号 Specs	N73S
亿铭远料号 Part Number	YMY006-N73S-022-A0	频 段 Frequency Band	WIFI:2.4G/5.8
颜 色 Color	Black 黑色	版 本 Edition	REV:A0
销 售 Salesperson	陆发亮 Lu Faliang	设 计 Design	雷耀波 Lei Yaobo
结 构 Structure	覃云林 Qin Yunlin	确 认 Confirm	
日 期 Date	2024.3.28		
客户确认 Customer confirmation:			

携手共进 共创未来

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一、Product Specifications 产品规格

The report primarily provides the parameter test results of the N73S antenna's performance. The N73S antenna is a WIFI antenna. (As shown in Figure 1 below) 报告主要提供 N73S 天线性能的参数测试。N73S 天线为 WIFI 天线。（如下图 1 所示）

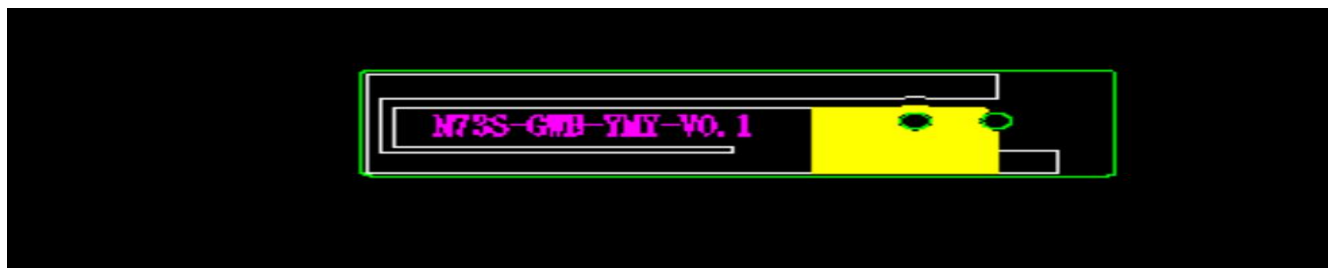


图 1 N73S 天线

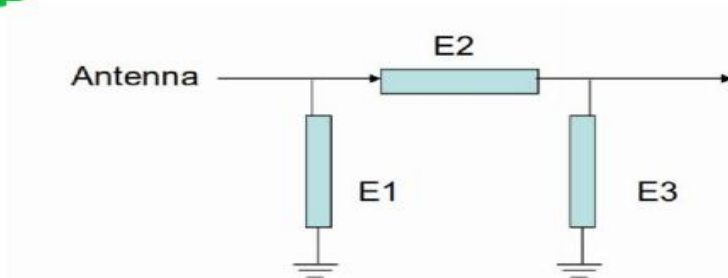
二、Electrical performance 电器性能

1. Specifications and Standards 规格标准

The N73S antenna operates in the frequency range of 2400-5800 MHz and resonates within this band. N73S 天线工作频段在 2400-5850MHz，在此频段产生谐振。

2. Antenna matching circuit 天线的匹配电路

Antenna structure type: FPC 天线的结构方式：FPC



Element	Value
E1	NC
E2	0欧姆
E3	NC

三、Testing of parameters 参数的测试

1. Test Settings 测试的设置

The VSWR test setup is connected in the following sequence: VSWR 测试装置依次的连接为:

E5071B Network Analyzer → 50 Ohm Coaxial Cable → 110mm Long Copper Tube → Test Fixture
E5071B 网络分析仪 → 50 欧姆的同轴 Cable → 110mm 长的铜管 → 测试治具

Handling of the test fixture: 测试治具的处理:

From the 50-ohm test point of the antenna on the mobile phone PCB, a rigid cable is led out to an SMA-J connector, connected to a copper tube with a ferrite choke, and then connected sequentially to other devices. 从手机 PCB 上天线 50 欧姆测试点处用一根硬质电缆引出 SMA-J 接头，与套有扼流圈的铜管连接，再依次连接其他装置。

2. Test results 测试结果

Everything is normal 一切正常

四、Active Test Setup 有源测试的设置

The connections for the active test device are as follows: 有源测试装置依次连接为:

Agilent 8960 → 50-ohm coaxial cable → Satimo SG16 testing system → mobile phone to be tested

Agilent8960 → 50 欧姆的同轴 Cable → Satimo SG16 测试系统 → 待测试的手机

1. Test site 测试的场地

AW Microwave Anechoic Chamber: Test frequency range is 400 MHz—6 GHz, quiet zone diameter is 40 cm, and reflectivity is less than -90 dB. AW 微波暗室 : 测试频率范围为 400MHz—6GHz, 静区范围为 40cm 圆周, 反射率小于-90 dB。

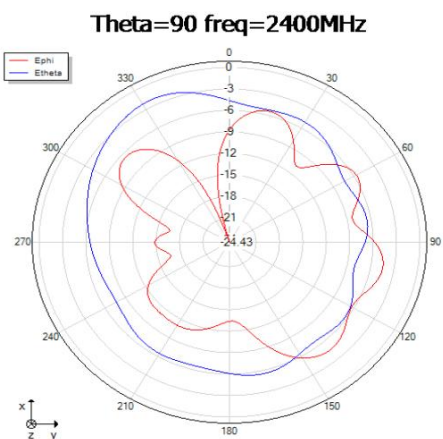
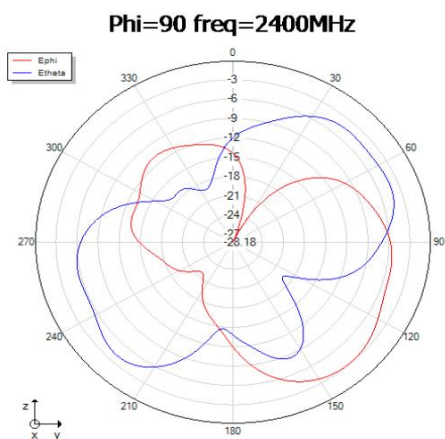
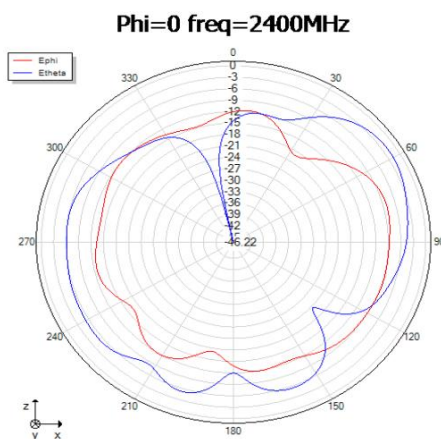
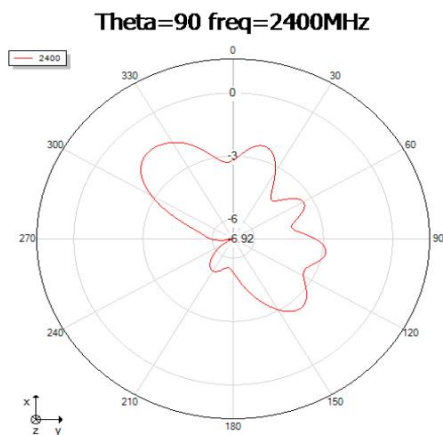
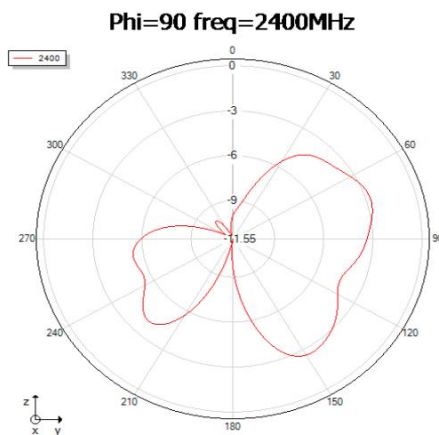
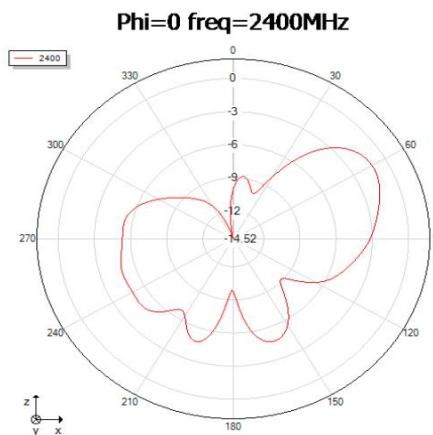
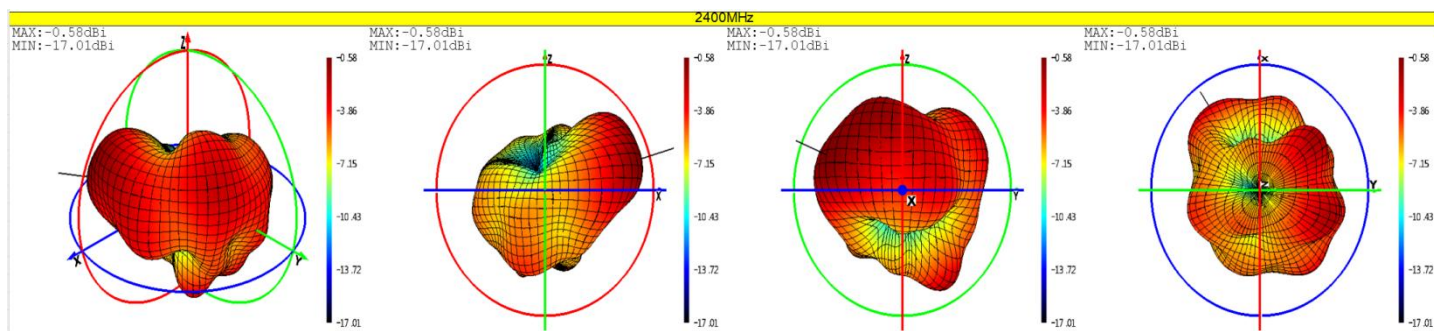
2. Test results 测试结果

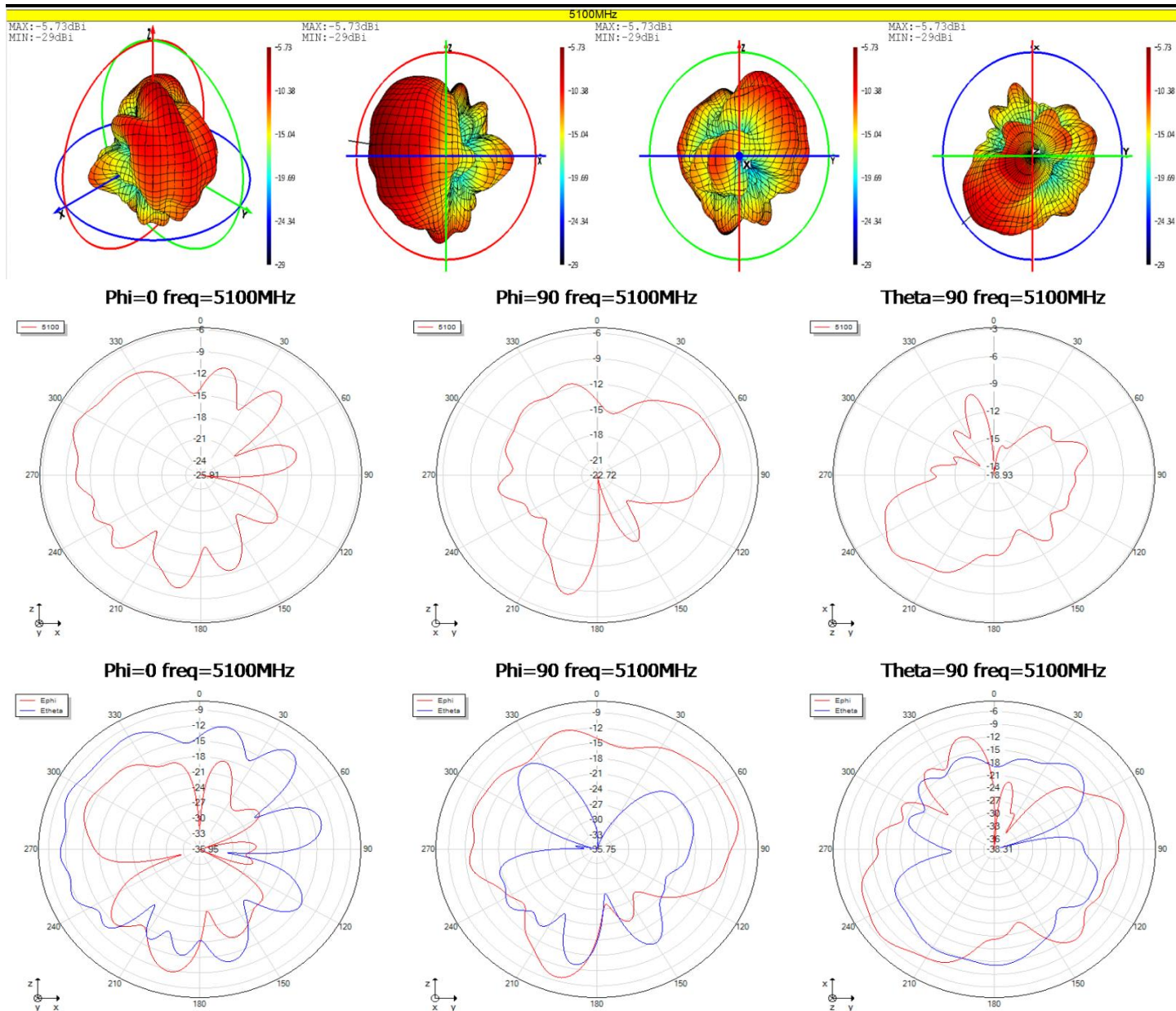
Maximum radiated power and maximum receiving sensitivity reflect the antenna's maximum power radiation value and optimal receiving performance across the entire radiation space. TRP and TIS reflect the antenna's average radiated power and average receiving sensitivity, that is, they represent the overall receiving performance of the antenna. 最大辐射功率和最大接收灵敏度反映了天线在整个辐射空间内最大功率辐射值和最佳接收性能。TRP 和 TIS 反映了天线的平均辐射功率和平均接收灵敏度, 即反映了天线的整体接收性能。

WIFI测试

Standard	Band	Channel	Frequency	TRP	TIS
WIFI_B	B_11M	1	2412	11.94	-74.9
WIFI_B	B_11M	6	2437	12.24	-75.23
WIFI_B	B_11M	11	2462	13.42	-76.5
WIFI_A	A_54M	36	5180	7.12	-69.7
WIFI_A	A_54M	64	5320	4.53	-66.5
WIFI_A	A_54M	165	5745	3.3	-64.35

Passive Test For WIFI2.4/5.8		
Frequency (MHz)	Efficiency (%)	Gain (dBi)
2400	33.27	-0.58
2450	38.7	0.76
2500	42.27	0.96
5100	9.49	-5.73
5300	13.07	-2.91
5850	23.15	0.48

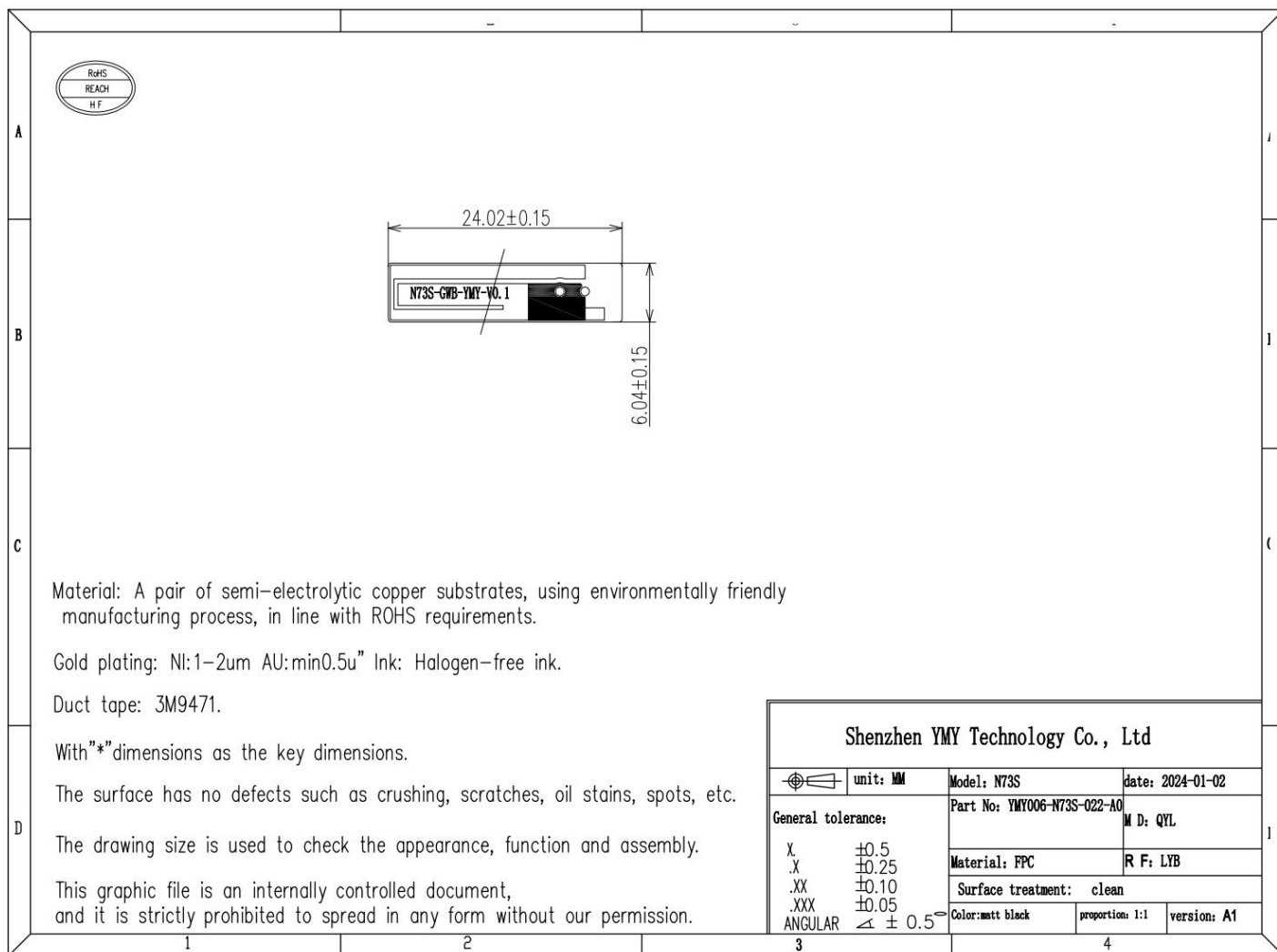




五、Recommendations and Conclusions 建议与结论

This report is based on the antenna electrical performance measured from the prototype provided by the client. Please review it carefully.
此报告是根据客户提供样机测得的天线电器性能,请贵公司认真查阅。

六、Structural drawings 结构图纸



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