深圳市英佳创电子科技有限公司

Shenzhen Yingjiachang Electronic Technology Co., LTD.

样品承认规格书

PART SHEET FOR APPROVAL

制造商名称： Manufacturer：	深圳市英佳创电子科技有限公司 Shenzhen Yingjiachang Electronic Technology Co., LTD.
供应商名称 Supplier:：	深圳市英佳创电子科技有限公司 Shenzhen Yingjiachang Electronic Technology Co., LTD.
产品名称： Part Description:	2.4G/5G 内置金属插件天线(WIFI-R) 2.4G/5G built-in metal plug-in antenna
规格型号: Model No:	YJC-6N000-B403
物料编码： Cust P/N:	
日期： Issued Date：	2022.10.28

供应商确认 Supplier confirmation

承办 Made By	审核 Engineer	批准 Approver
吴佳雄	方文锋	肖汉

承认原因:

Approval Reason：	☐新物料 New Part ☐替代料 Substitute Part			
承办 Made By	审核 Engineer			批准 Approver
	品质 Quality	研发 R&D	业务 Sales	

备注：签名表明提交样品获得承认，图纸规格已经受控。Note：Signature indicates that the submitted sample is approved and the drawing/specification is now the controlling document.

APPROVAL SHEET
承认书

CUSTOMER NAME 客户名称	
CUSTOMER P/N 客户料号	
PART NAME 品　　名	2.4G/5G 内置金属插件天线(WIFI-R) 2.4G/5G built-in metal plug-in antenna
P/ N 料　　号	YJC-6N000-B403
APPROVAL REV. 版　　次	A0
DELIVERY DATE 送样日期	2022 年 10 月 28 日
PREPARED BY 承　办	吴佳雄
CHECKED BY 审　核	方文锋
APPROVED BY 核　准	肖 汉

Customer Approved 客　户　承　认		
Prepared By 承　办	Checked By 审　核	Approved By 核　准

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公司网址(Website Address)：http://www.szsyjc.com　电子信箱(E-mail)：yjc@szsyjc.com

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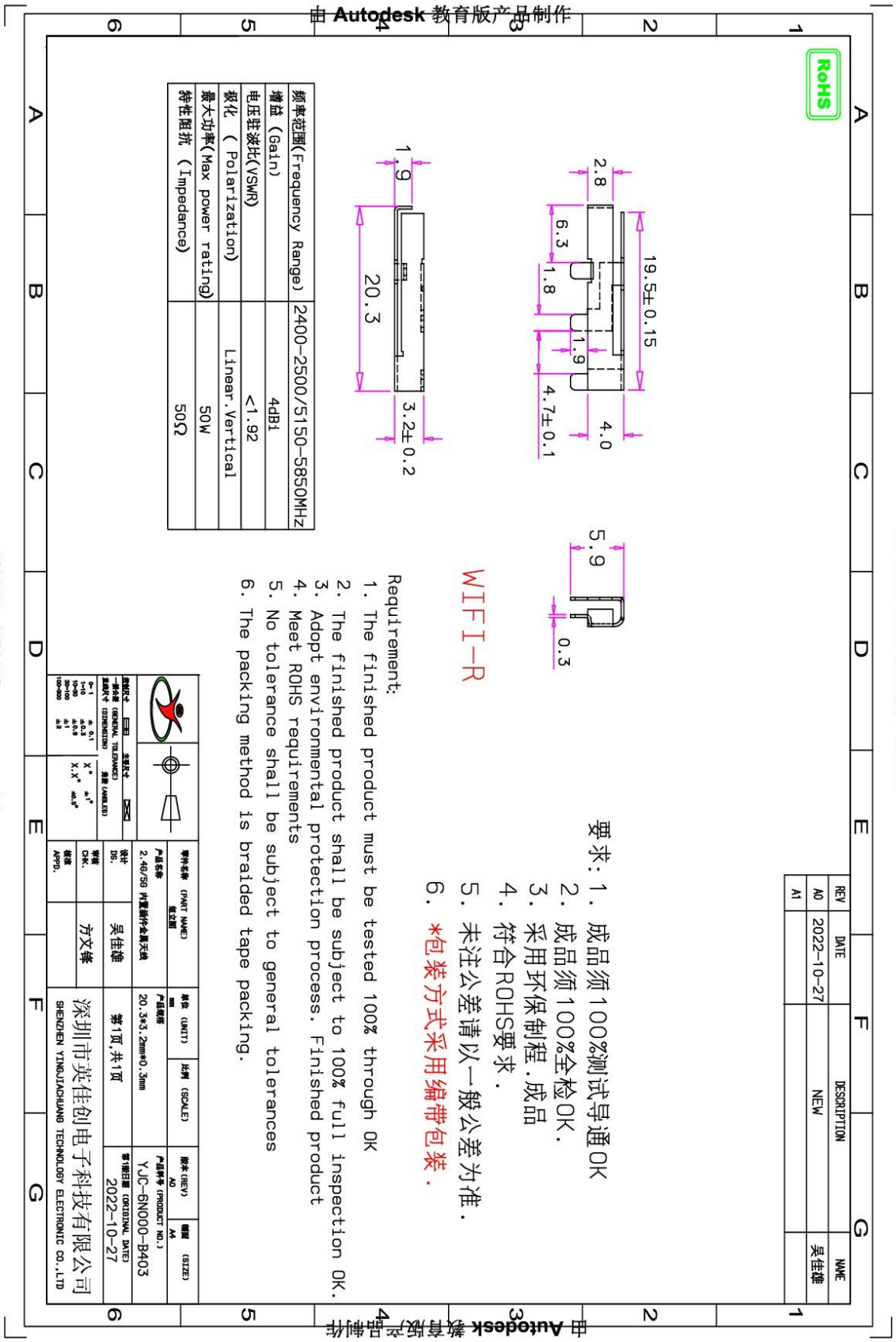
履历表(Resumer)：

版本 Version	变更内容及更改原因 Changes and reasons	发行 publish	发行 publish
A/0	初版发行（Issued）	2022 年 10 月 28 日 （October 28, 2022）	

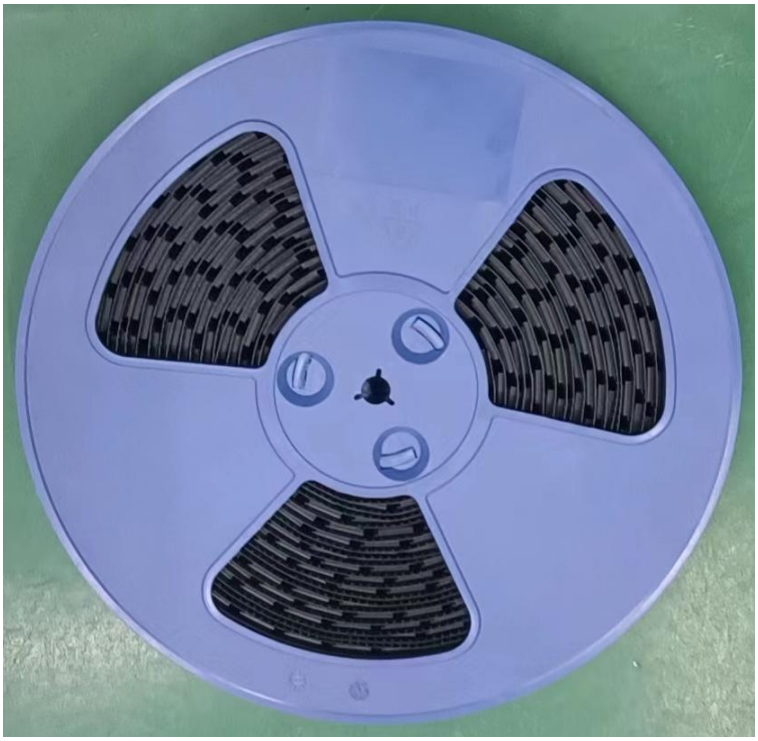
产品平面图(Product plan)：



天线技术参数(Antenna technical parameters)：

电气技术参数(Electrical technical parameters)	
电 性 能 指 标（Electrical Specifications）	
频率范围 （Frequency Range）	2400 -2500/5150-5850MHZ
电压驻波比（VSWR）	＜1.92
输入阻抗（Input Impedance）	50 Ω
方向（Direction）	全向
增益（Gain）	WIFI2: 2.4G≧1. 76dBi，5G≧1. 71dBi BT:2.4G≧1. 44dBi
机 械 指 标（Mechanical Specifications）	
材质	304 不锈钢（Stainless steel）
工作温度	-20℃~+70℃
工作湿度	20~80%

包装方式（The packing way）：



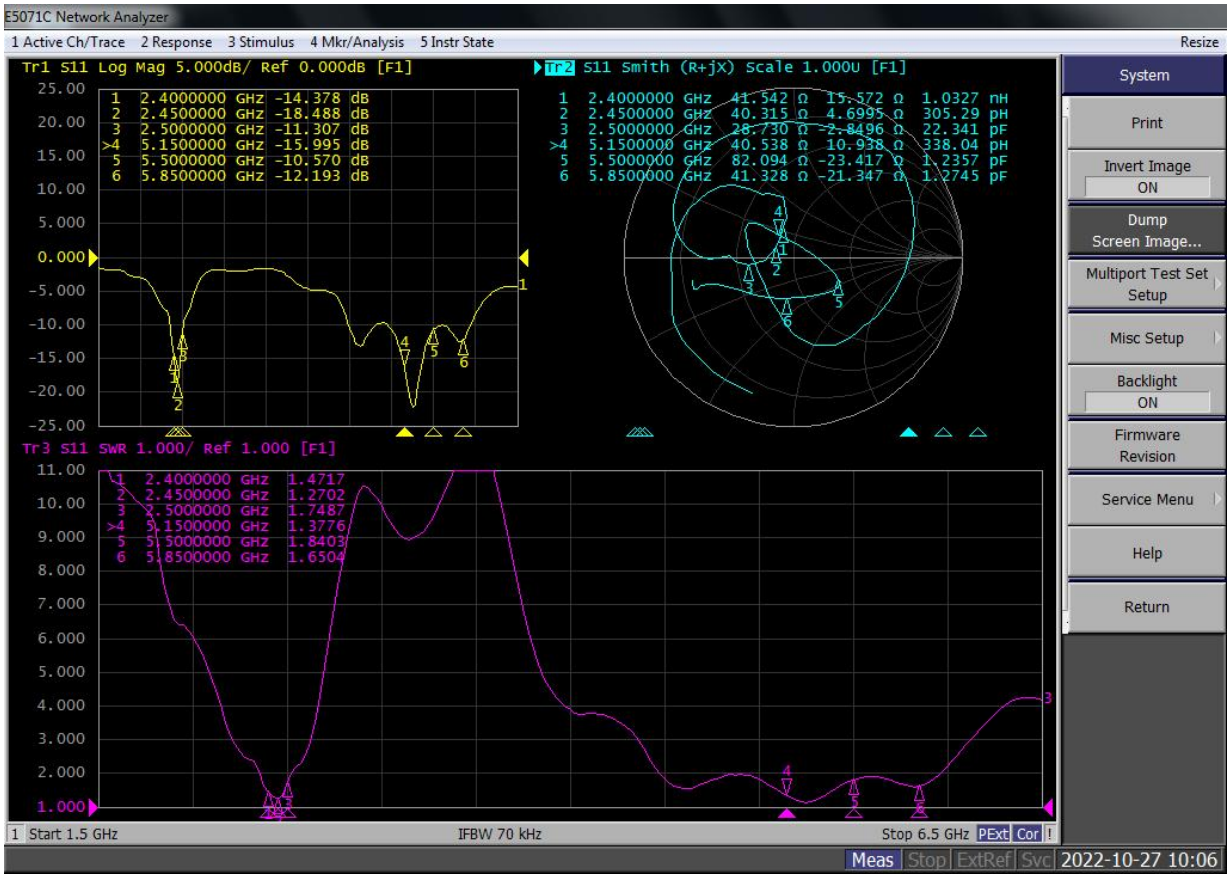
环境性能测试(Environmental performance testing)：

项目(Project)	测试条件(Test condition)	规格(Specification)
储存环境 Storage Conditions	In the absence of specified test temperature, humidity, air pressure is as follows: 在没有指定的情况下测试温度、湿度、气压如下： 1.Temperature is - 30 ℃ ~ + 80 ℃ 1.温度为-30℃～+80℃ 2.Relative humidity of 45% to 85% 2.相对湿度为45%-85% 3. Air pressure is 86 kpa to 106 kpa 3.气压为86kpa-106kpa	Electrical and mechanical properties is normal 电气机械性能正常
高低温试验 high and low temperature test	Between 70 ℃ and -20 ℃ for 5 loops, then 1-2 h under normal conditions, check the appearance quality. 在70℃与-20℃之间进行5次循环，然后在正常条件下1-2H，检查外观质量。	Size should meet the requirements and should satisfy the content with the electrical and mechanical properties 尺寸应满足规定并应满足于机械、电气性能
耐恒定湿热试验 Constant damp and hot resistance test	95 + / - 3% relative humidity, temperature test: 40 ℃. Lasts 2 h after, try to take out the determination of electrical properties, within 5 min after try 1-2 h under article normal thing, check the appearance quality 相对湿度95±3%，试验温度：40℃.持续2H作用后，试品取出后5min之内测定电气性能，试品在正常条件下1-2H，检查外观质量	Size should meet the requirements and should satisfy the content with the electrical and mechanical properties 尺寸应满足规定并应于机械、电气性能
振动试验 vibration test	10-55 hz, vibration frequency range of displacement amplitude: 0.35 MM, acceleration amplitude: 50.0 M/S, sweep cycles: 30 times 振频范围10-55HZ，位移幅值：0.35MM， 加速度幅值：50.0M/S，扫频循环次数：30次	Electrical and mechanical properties is normal 电气机械性能正常
跌落试验 fall down test	1 m high altitude in accordance with the perpendicular axis free drop 3 times 1M高空按照互相垂直的轴方向自由跌落3次	Electrical and mechanical properties is normal 电气机械性能正常

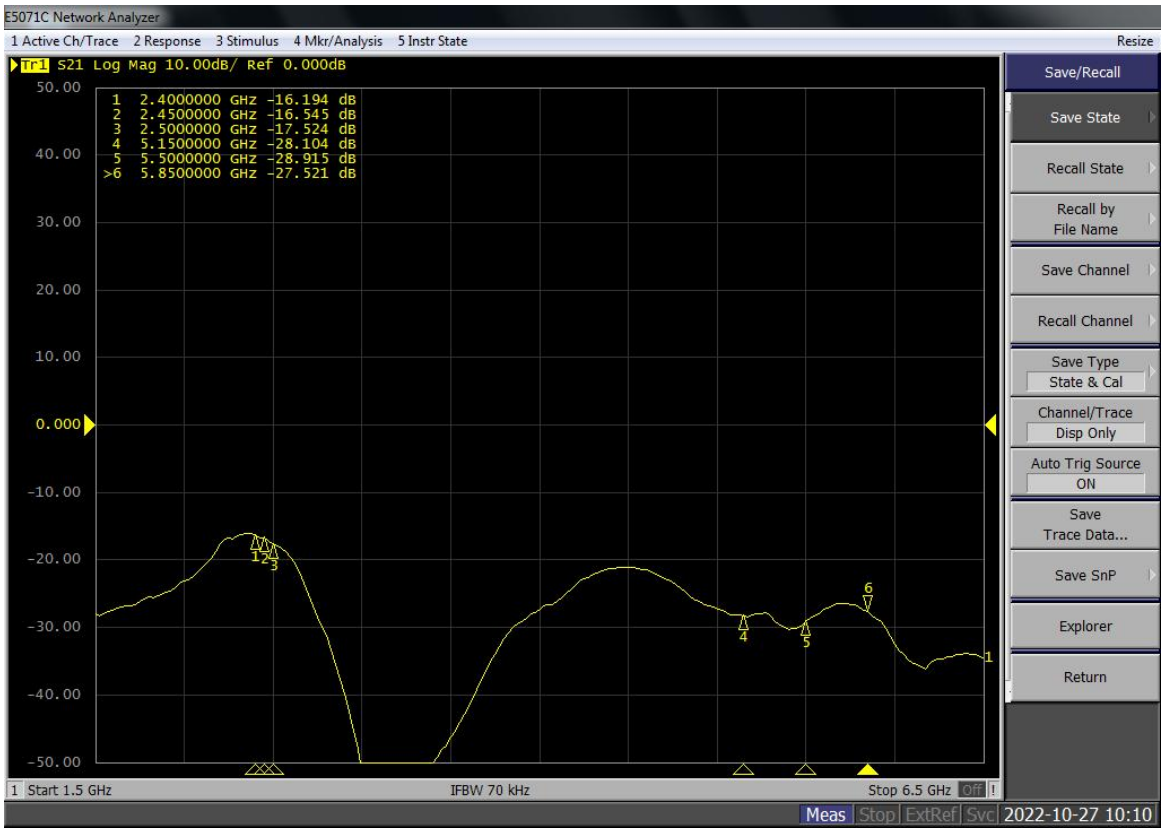
天线贴附位置图(Antenna attachment position diagram)：

天线贴附位置图
Antenna attachment position diagram

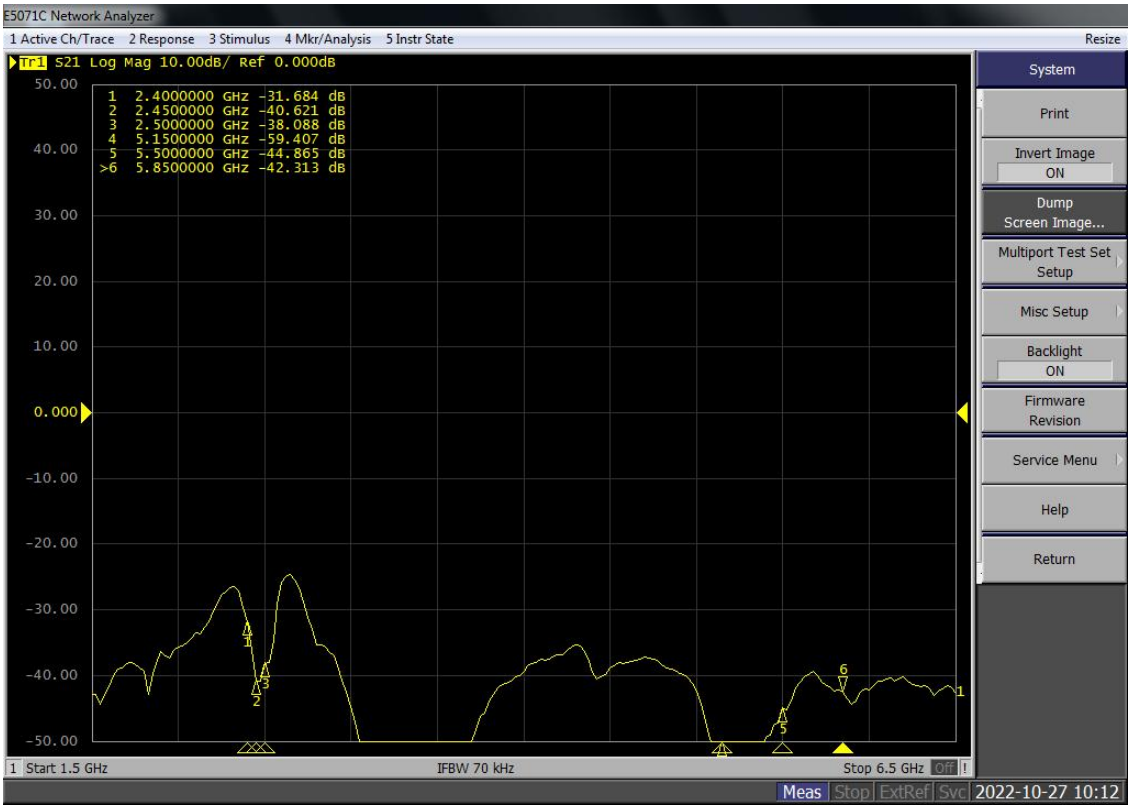
天线性能测试图(Antenna performance test diagram)(WIFI2)：



WIFI 1--WIFI 2 隔离层



WIFI 2--BT 隔离层


E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Resize
Tr1 S21 Log Mag 10.00dB/ Ref 0.000dB
1 2.4000000 GHz -31.684 dB
2 2.4500000 GHz -40.621 dB
3 2.5000000 GHz -38.088 dB
4 5.1500000 GHz -59.407 dB
5 5.5000000 GHz -44.865 dB
>6 5.8500000 GHz -42.313 dB
50.00
40.00
30.00
20.00
10.00
0.000
-10.00
-20.00
-30.00
-40.00
-50.00
1 Start 1.5 GHz
IFBW 70 kHz
Stop 6.5 GHz
System
Print
Invert Image ON
Dump Screen Image...
Multiport Test Set Setup
Misc Setup
Backlight ON
Firmware Revision
Service Menu
Help
Return
Meas Stop ExtRef Svc 2022-10-27 10:12

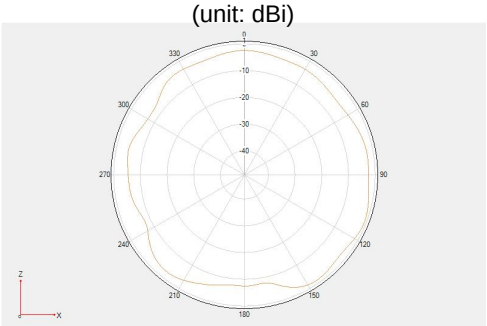
2D、3D 测试数据 Test data(WIFI 2: 2.4G/5G) ：

Frequency(MHz)	Efficiency (%)	Gain.(dBi)
2400	61.38	2.86
2410	60.53	2.61
2420	61.52	2.6
2430	61.09	2.51
2440	62.66	2.6
2450	62.52	2.53
2460	63.68	2.39
2470	63.68	1.98
2480	64.12	1.76
2490	64.86	1.95
2500	64.27	1.97
5000	60.39	2.27
5025	61.09	2.16
5050	61.38	1.97
5075	59.98	1.71
5100	62.09	1.8
5125	64.57	2.13
5150	62.37	2.17
5175	62.23	2.4
5200	63.68	2.69
5225	64.12	2.63
5250	64.71	2.8
5275	66.07	3.07
5300	68.71	3.24
5325	68.87	3.24
5350	68.23	3.29
5375	69.98	3.59
5400	70.63	3.85
5425	69.98	3.85
5450	69.98	3.92
5475	68.23	3.95
5500	66.83	3.87
5525	65.16	3.83
5550	65.46	3.91
5575	65.46	3.92
5600	64.27	3.88

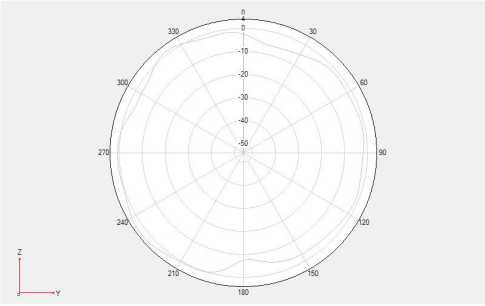
Frequency(MHz)	Efficiency (%)	Gain.(dBi)
5625	64.27	3.75
5650	62.81	3.71
5675	61.52	3.91
5700	61.52	4.02
5725	61.38	3.88
5750	60.81	3.71
5775	60.39	3.65
5800	59.57	3.62
5825	60.81	3.79
5850	60.67	3.88

WIFI 2 天线方向图-2.4G/5G(Antenna direction diagram - 2.4G/5G)

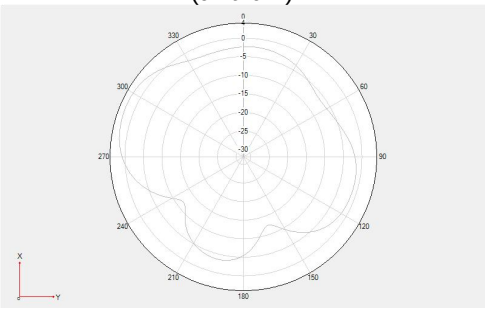
Phi =0 freq=2400MHz
(unit: dBi)



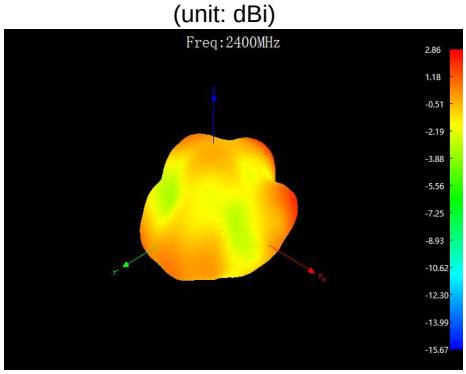
Phi =90 freq=2400MHz
(unit: dBi)



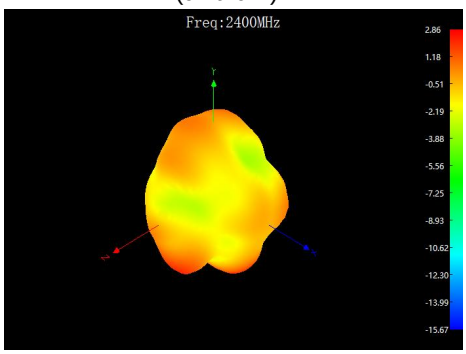
Theta =90 freq=2400MHz
(unit: dBi)



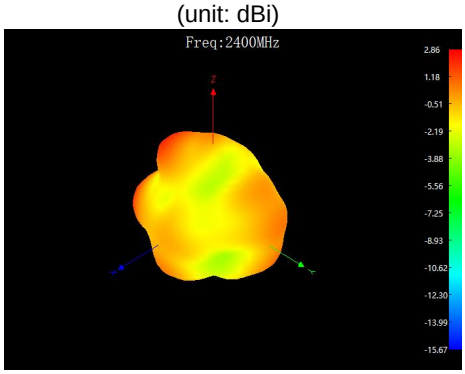
(unit: dBi)



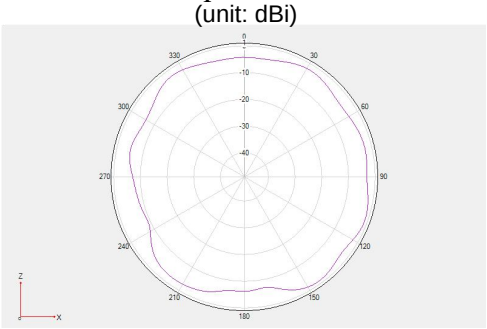
(unit: dBi)



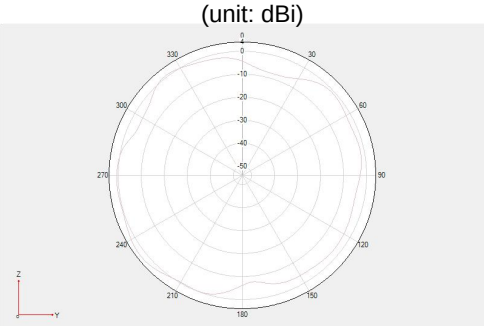
(unit: dBi)



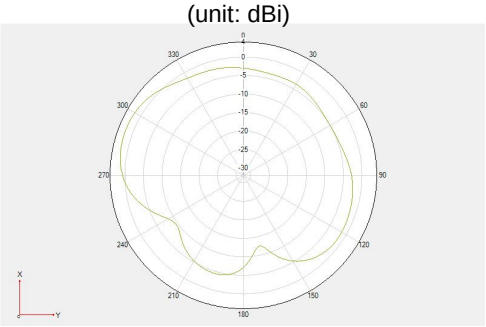
Phi =0 freq=2450MHz
(unit: dBi)



Phi =90 freq=2450MHz
(unit: dBi)



Theta =90 freq=2450MHz
(unit: dBi)



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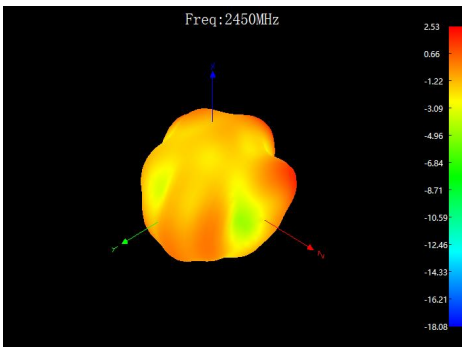

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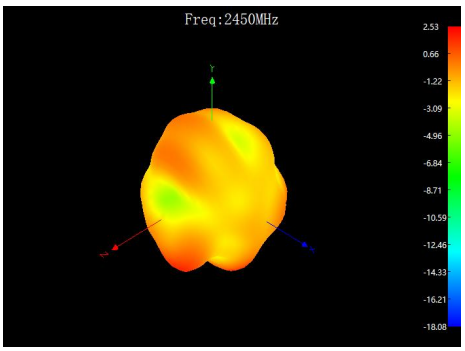

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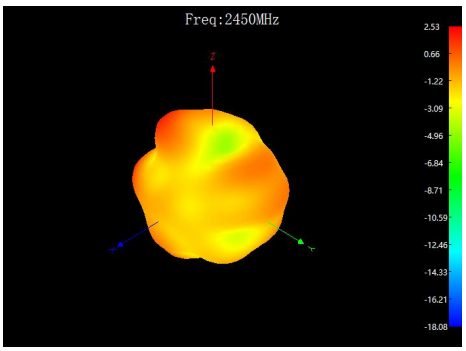
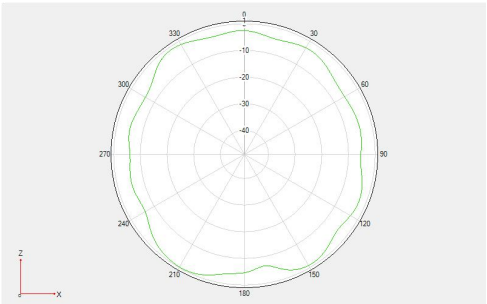
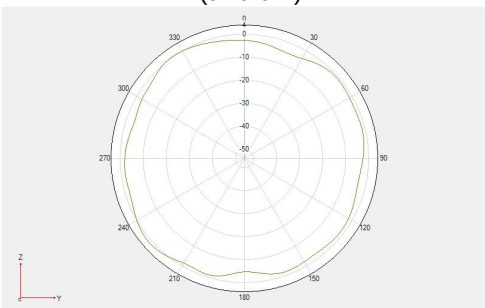


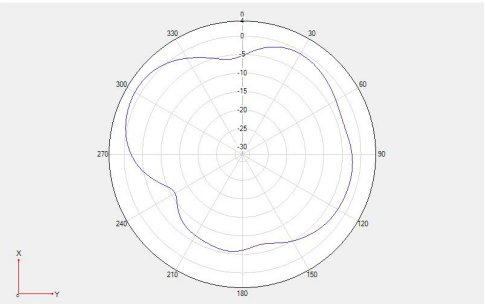
Phi =0 freq=2500MHz
(unit: dBi)



Phi =90 freq=2500MHz
(unit: dBi)



Theta =90 freq=2500MHz
(unit: dBi)



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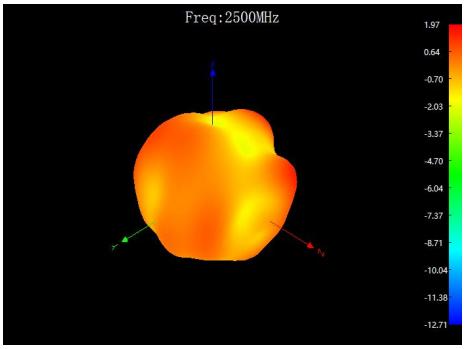

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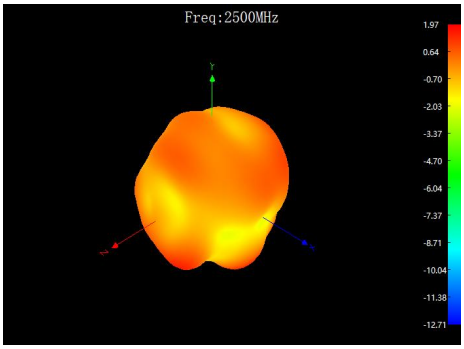

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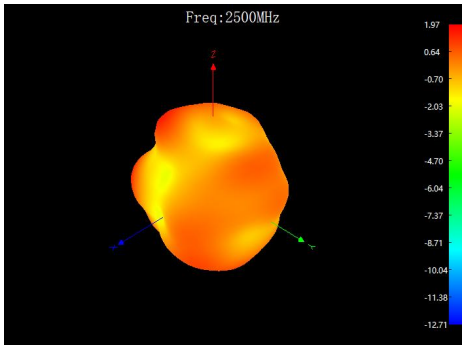
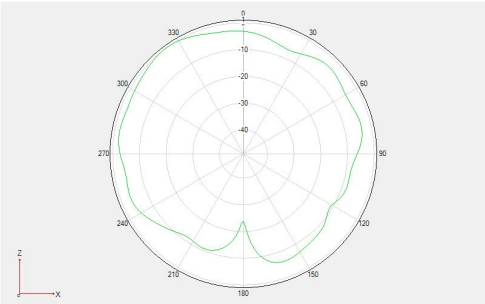


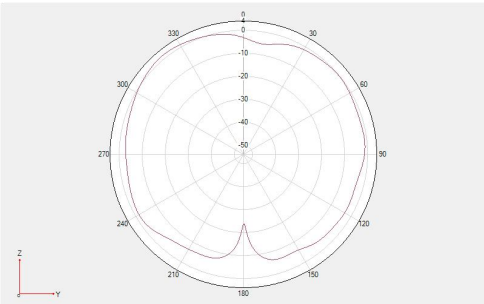
Phi =0 freq=5150MHz

(unit: dBi)



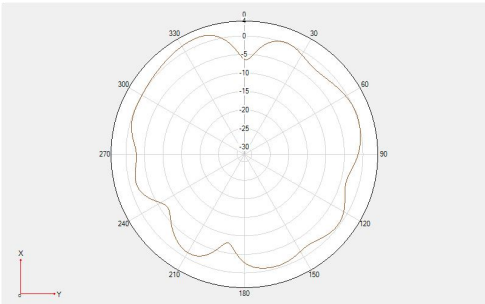
Phi =90 freq=5150MHz

(unit: dBi)

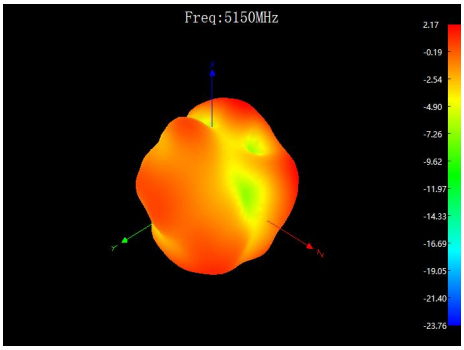


Theta =90 freq=5150MHz

(unit: dBi)



(unit: dBi)



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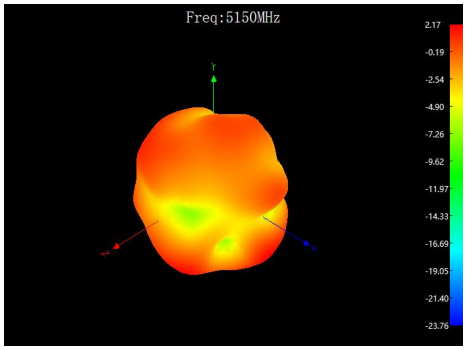

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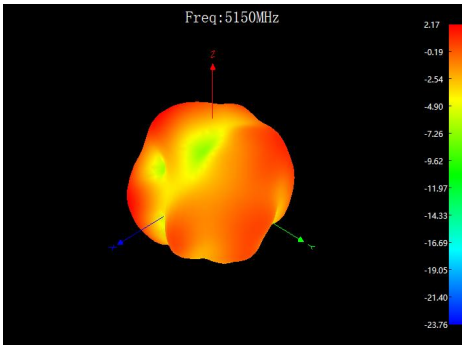
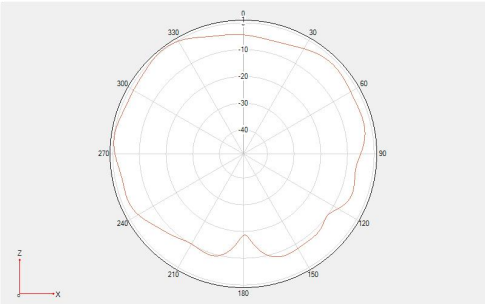


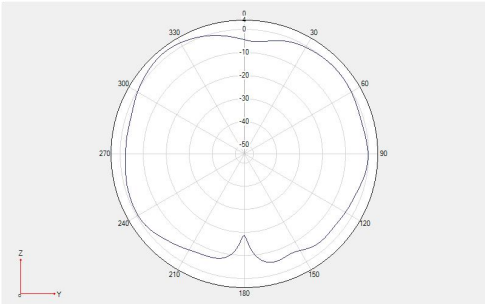
Phi =0 freq=5350MHz

(unit: dBi)



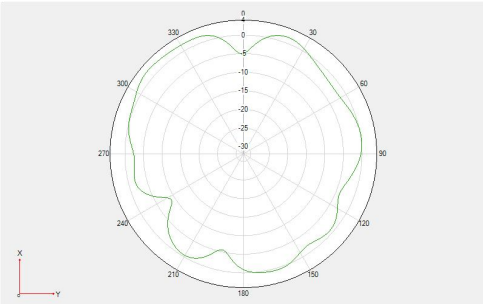
Phi =90 freq=5350MHz

(unit: dBi)

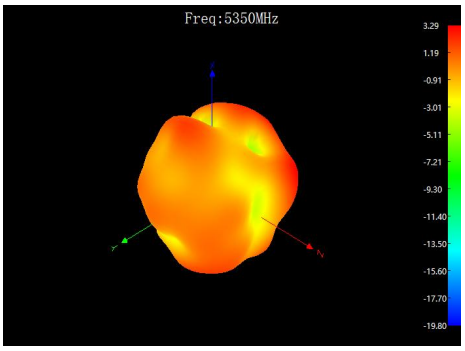


Theta =90 freq=5350MHz

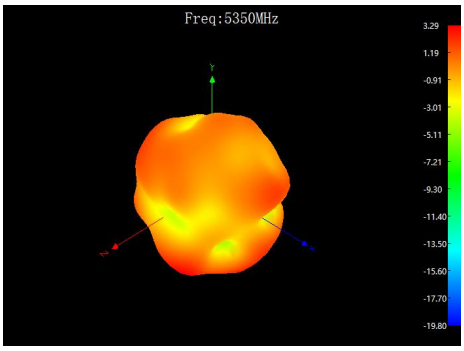
(unit: dBi)



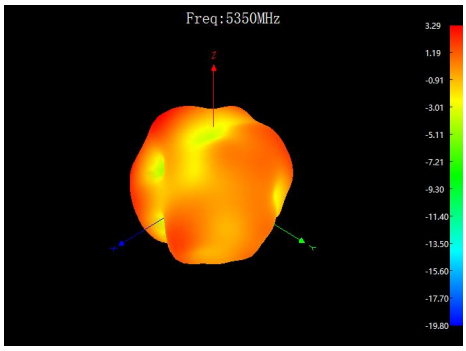
(unit: dBi)



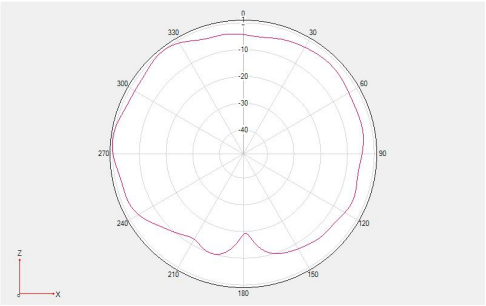
(unit: dBi)



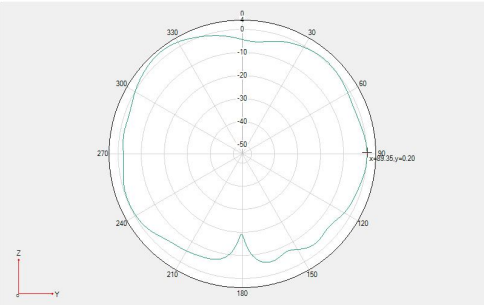
(unit: dBi)



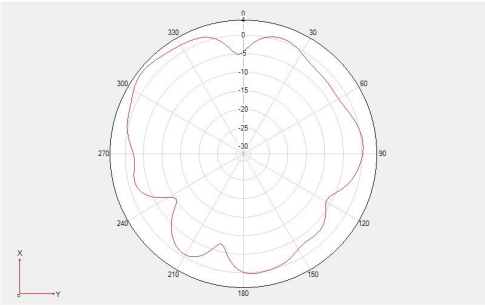
Phi =0 freq=5500MHz
(unit: dBi)



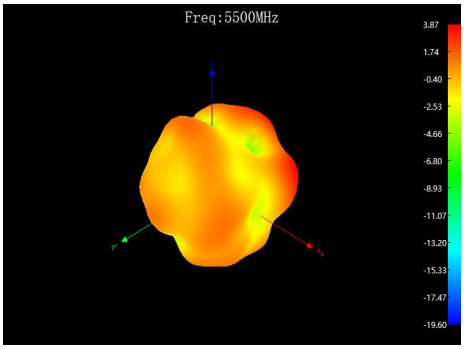
Phi =90 freq=5500MHz
(unit: dBi)



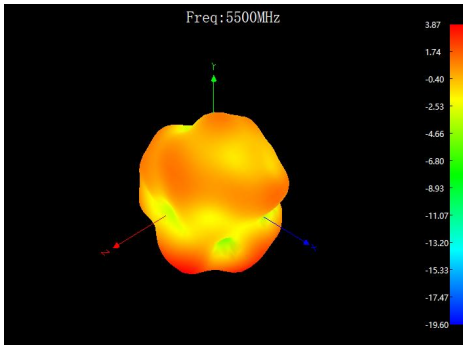
Theta =90 freq=5500MHz
(unit: dBi)



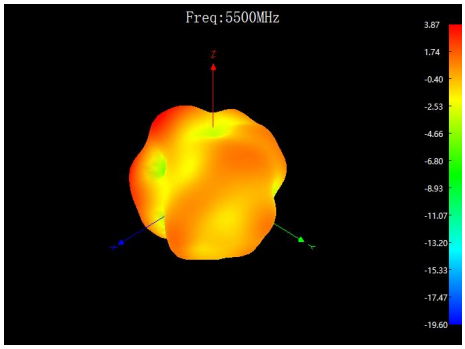
(unit: dBi)



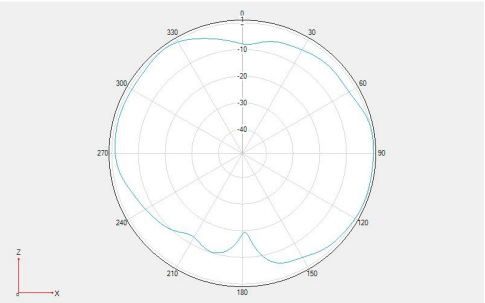
(unit: dBi)



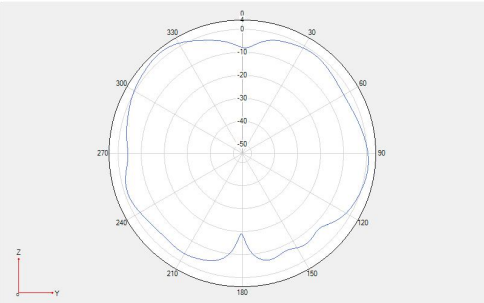
(unit: dBi)



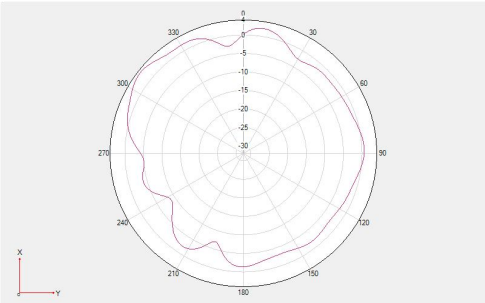
Phi =0 freq=5850MHz
(unit: dBi)



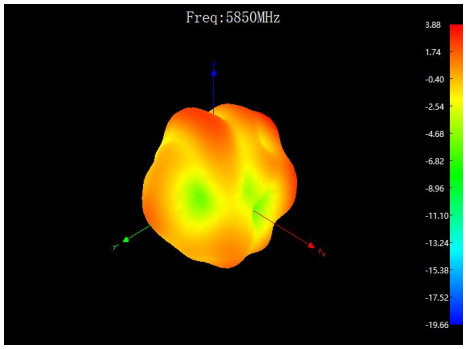
Phi =90 freq=5850MHz
(unit: dBi)



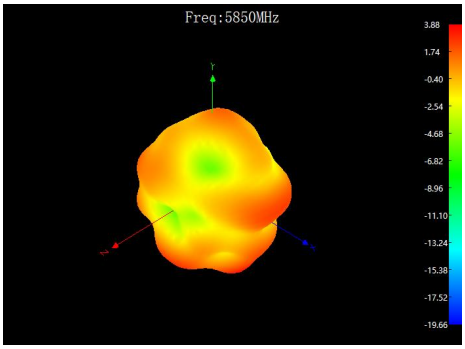
Theta =90 freq=5850MHz
(unit: dBi)



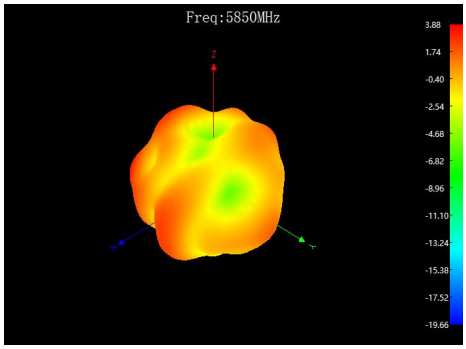
(unit: dBi)



(unit: dBi)



(unit: dBi)



吞吐量测试数据(Throughput test data)：

2.4G 11n HT20

NO.	Item	CH	ATT (Unit:dB)	Standard	Throughput	
					RX (Unit:Mb)	TX (Unit:Mb)
1	Attenuation throughput test 11n HT20	1	0	RX>90M TX>70M	109	108
2			25	RX>80%Peak value TX>80%Peak value	113	108
3			45		33	98
4		6	0	RX>90M TX>70M	109	108
5			25	RX>80%Peak value TX>80%Peak value	112	107
6			45		44	102
7		11	0	RX>90M TX>70M	111	107
8			25	RX>80%Peak value TX>80%Peak value	112	107
9			45		31	99

2.4G 11n HT40

NO.	Item	CH	ATT (Unit:dB)	Standard	Throughput	
					RX (Unit:Mb)	TX (Unit:Mb)
1	Attenuation throughput test 11n HT40	1	0	RX>180M TX>140M	231	215
2			25	RX>70%Peak value TX>70%Peak value	227	211
3			45		27	162
4		6	0	RX>180M TX>140M	233	218
5			25	RX>70%Peak value TX>70%Peak value	221	217
6			45		62	175
7		11	0	RX>180M TX>140M	229	212
8			25	RX>70%Peak value TX>70%Peak value	220	211
9			45		43	164

5G 11ac HT80

NO.	Item	CH	ATT (Unit:dB)	Standard	Throughput	
					RX (Unit:Mb)	TX (Unit:Mb)
1	Attenuation throughput test 11ac HT80	36	0	RX>350M TX>250M	483	481
2			5	RX>80%Peak value TX>70%Peak value	476	480
3			25		209	439
4		64	0	RX>350M TX>250M	472	484
5			5	RX>80%Peak value TX>70%Peak value	462	481
6			25		159	433
7		100	0	RX>350M TX>250M	459	484
8			5	RX>80%Peak value TX>70%Peak value	446	486
9			25		104	337
10		161	0	RX>350M TX>250M	448	486
11			5	RX>80%Peak value TX>70%Peak value	456	483
12			25		243	351

2.4G 11n HT20

NO.	Item	Distance (Unit:m)	CH	Angle	ATT (Unit:dB)	RSSI (Unit:dBm)	Standard (Unit:Mb)	Throughput RX Average (Unit:Mb)	Throughput TX Average (Unit:Mb)
1	Angle throughput test 11n HT20	25	1	0°	0	-43	RX Tput>80 TX Tput>60	101	96
2				90°	0	-44		103	93
3				180°	0	-44		105	93
4				270°	0	-43		99	94
5			6	0°	0	-41	RX Tput>80 TX Tput>60	109	93
6				90°	0	-42		110	97
7				180°	0	-40		110	99
8				270°	0	-41		101	82
9			11	0°	0	-43	RX Tput>80 TX Tput>60	96	92
10				90°	0	-45		109	78
11				180°	0	-43		102	90
12				270°	0	-45		85	81

2.4G 11n HT40

NO.	Item	Distance (Unit:m)	CH	Angle	ATT (Unit:dB)	RSSI (Unit:dBm)	Standard (Unit:Mb)	Throughput RX Average (Unit:Mb)	Throughput TX Average (Unit:Mb)
1	Angle throughput test 11n HT40	25	1	0°	0	-43	RX Tput>140 TX Tput>120	180	187
2				90°	0	-43		174	166
3				180°	0	-43		204	187
4				270°	0	-41		161	164
5			6	0°	0	-40	RX Tput>140 TX Tput>120	206	171
6				90°	0	-44		201	173
7				180°	0	-43		197	146
8				270°	0	-45		174	178
9			11	0°	0	-43	RX Tput>140 TX Tput>120	169	166
10				90°	0	-43		173	183
11				180°	0	-44		187	188
12				270°	0	-47		170	154

5G 11ac HT80

NO.	Item	Distance (Unit:m)	CH	Angle	ATT (Unit:dB)	RSSI (Unit:dBm)	Standard (Unit:Mb)	Throughput RX Average (Unit:Mb)	Throughput TX Average (Unit:Mb)
1	Angle throughput test 11ac HT80	25	36	0°	0	-46	RX Tput>320 TX Tput>220	457	465
2				90°	0	-41		428	462
3				180°	0	-43		446	463
4				270°	0	-42		436	460
5			64	0°	0	-52	RX Tput>320 TX Tput>220	419	475
6				90°	0	-49		416	475
7				180°	0	-49		411	461
8				270°	0	-47		406	462
9			100	0°	0	-48	RX Tput>320 TX Tput>220	408	474
10				90°	0	-49		384	453
11				180°	0	-52		382	467
12				270°	0	-51		391	475
13			161	0°	0	-42	RX Tput>320 TX Tput>220	433	473
14				90°	0	-43		440	474
15				180°	0	-41		440	477
16				270°	0	-44		443	475

2.4G 11n HT20

Item	Bluetooth	CH	ATT (Unit:dB)	Standard	RX (Unit:Mb)	TX (Unit:Mb)
2.4G 11n HT20	Bluetooth speaker Disconnected to play audio	1	0	RX>90M TX>70M	109	108
		6	0	RX>90M TX>70M	109	108
		11	0	RX>90M TX>70M	111	107
	Bluetooth speaker Connected to play audio	1	0	RX>60%Peak value TX>60%Peak value &Smooth audio	109	108
		6	0	RX>60%Peak value TX>60%Peak value &Smooth audio	109	108
		11	0	RX>60%Peak value TX>60%Peak value &Smooth audio	110	108

OTA 有源测试数据统计(OTA active test data statistics)：

Item	Measurement	Band	Channel	Frequency	Total
1	TRP	WIFI_B (11M)	1	2412	12.91
2	TRP	WIFI_B (11M)	6	2437	13.83
3	TRP	WIFI_B (11M)	11	2462	14.87
4	TIS FAST	WIFI_B (11M)	1	2412	-81.74
5	TIS FAST	WIFI_B (11M)	6	2437	-72.79
6	TIS FAST	WIFI_B (11M)	11	2462	-72.86
7	TRP	WIFI_A (54M)	36	5180	14.32
8	TRP	WIFI_A (54M)	64	5320	14.79
9	TRP	WIFI_A (54M)	100	5500	15.58
10	TRP	WIFI_A (54M)	161	5805	13.73
11	TIS FAST	WIFI_A (54M)	36	5180	-70.08
12	TIS FAST	WIFI_A (54M)	64	5320	-70.06
13	TIS FAST	WIFI_A (54M)	100	5500	-67.16
14	TIS FAST	WIFI_A (54M)	161	5805	-69.61
15	TRP	WIFI_N_ISM (65M)	1	2412	10.16
16	TRP	WIFI_N_ISM (65M)	6	2437	11.73
17	TRP	WIFI_N_ISM (65M)	11	2462	11.86
18	TIS FAST	WIFI_N_ISM (65M)	1	2412	-67.32
19	TIS FAST	WIFI_N_ISM (65M)	6	2437	-61.67
20	TIS FAST	WIFI_N_ISM (65M)	11	2462	-60.73
21	TRP	WIFI_N_UNII (65M)	36	5180	13.04
22	TRP	WIFI_N_UNII (65M)	64	5320	13.63
23	TRP	WIFI_N_UNII (65M)	100	5500	14.3
24	TRP	WIFI_N_UNII (65M)	161	5805	12.59
25	TIS FAST	WIFI_N_UNII (65M)	36	5180	-67.44
26	TIS FAST	WIFI_N_UNII (65M)	64	5320	-66.59
27	TIS FAST	WIFI_N_UNII (65M)	100	5500	-62.74
28	TIS FAST	WIFI_N_UNII (65M)	161	5805	-66.26

ROHS 物料控制报告(ROHS Material control report)

兹证明向貴司交货的零組件、辅助材料所使用的原材料、以及生产工程中的添加剂等均符合 RoHS 限制使用有害物质指令的环保要求（RoHS 指令 2011/65/EU)
This is to certify that the components delivered to your company, the raw materials used for auxiliary materials, and the additives used in the production project all meet the environmental requirements of the RoHS directive on limiting the use of hazardous substances . （RoHS 指令 2011/65/EU)

关于零组件、辅助材料所使用的原材料、包装材料以及和产过程中使用的添加剂等的构成成份报告如下：
The report on the composition of raw materials, packaging materials, and additives used in the manufacturing process for component auxiliary materials is as follows

组成物料名称 Component /Part Name	组成材料 Material Composition	ICP 报告编号 ICP report #	测试机构 Test Org.	测试时间 Test Date	有 害 物 质 含 量(ppm)						是否合格? PASS?
					Cd	Pb	Hg	Cr^{6+}	PBB	PBDE	PASS
金属件	304 不锈钢 Stainless steel	SZXEC2200123701	SGS	22/01/18	ND	ND	ND	ND	ND	ND	PASS