

承 认 书

SPECIFICATION APPROVAL SHEET

客 户 :
CUSTOMER _____

客 户 料 号 : 版次:
CUS PART NO _____ REV X1

品 名 / 规格 : 2.4~2.5/5.15~5.85GHz 单重:
SPECIFICATION WIFI MAIN Antenna L=290mm(Ø0.81+MHF) weight _____

供 方 料 号 :
SUP PART NO SLEingB225780290

日 期 :
DATE 2022.04.06

厂 商 核 准 :
SUP APPROVED

核准 APPROVED	审核 CHECKED	品保审核 QA CHECKED	承办 DESIGNED
<i>Tommy</i>	<i>HZH</i>	<i>ZQ</i>	<i>X.ang</i>



客 户 核 准 :
CUS APPROVED

核准 APPROVED	审核 CHECKED	品保审核 QA CHECKED	承办 DESIGNED

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DONGGUAN CITY SLEing INTEL-TECH CO., LTD

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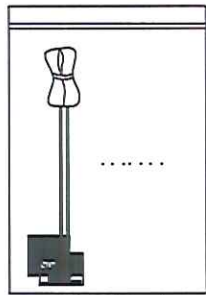
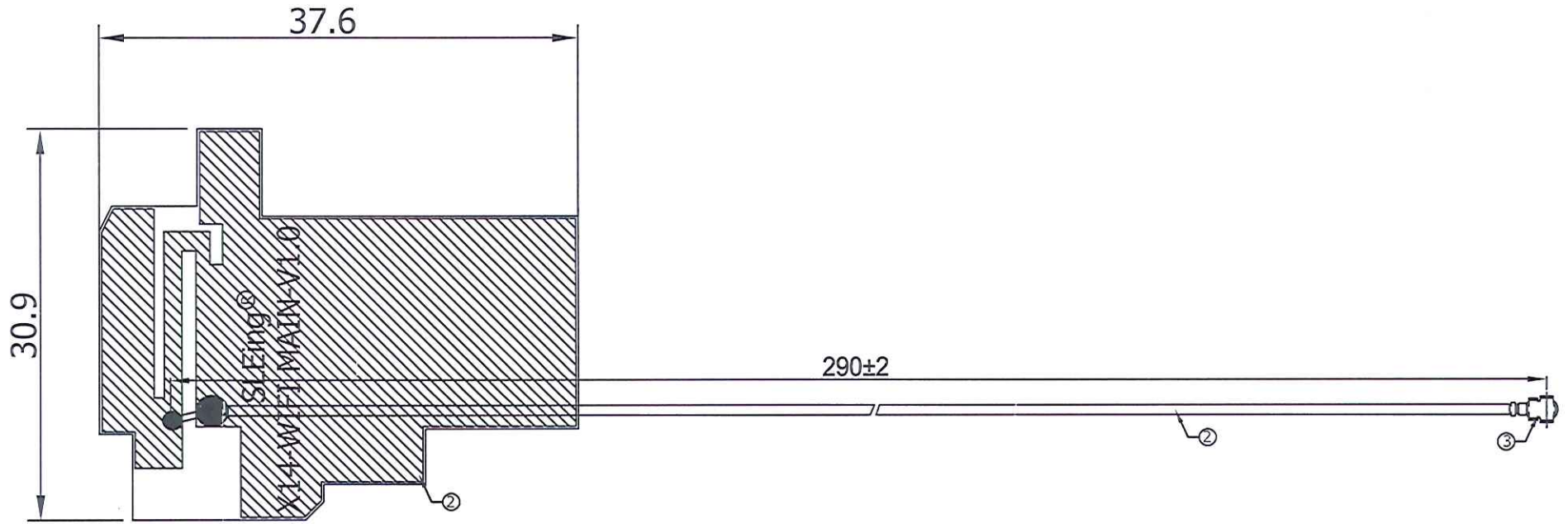
www.sleing.com

正本由承办单位保存

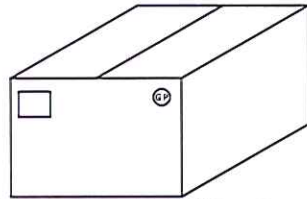
承认书项目表 Spec Item

NO.	内容 (Contents)	页数 (Number of Page)	页码 (Page Code)
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REV.	CONTENT	DATE
X1	First Issue	2022.04.06



25pcs/Bundle
Packing:50pcs/bag



外箱须贴GP标签与物料标签各1PCS

Specification:
Frequency Rang:2.4~2.5/5.15~5.85GHz(带机测试)
Return Loss:-10dB or less
VSWR:1.92 Max

<p align="center">SLEing® 森岭 东莞市森岭智能科技有限公司 DONGGUAN SLEing INTEL-TECH CO.,LTD</p>			CUSTOMER			
			PART NO			
			TITLE		WIFI+BT ANTENNA	
			S.L P/NO		SLEingB225780290	
 TOLERANCE UNLESS OTHERWISE SPECIFIED		SIZE	DRAWN	CHECKED	APPROVED	
3	Connector	MHF Plug for $\Phi 0.81$ Cable	第四代端子	1	A4 	
2	Cable	$\Phi 0.81$ mm Coaxial Cable Black,50 Ω		1		
1	FPCB	L37.6*W30.9*T0.1mm,Color:Black		1		
NO	PART NAME	DESCRIPTION	REMARK	Q'TY	SCALE: 1/1	XXX. ± 2.0

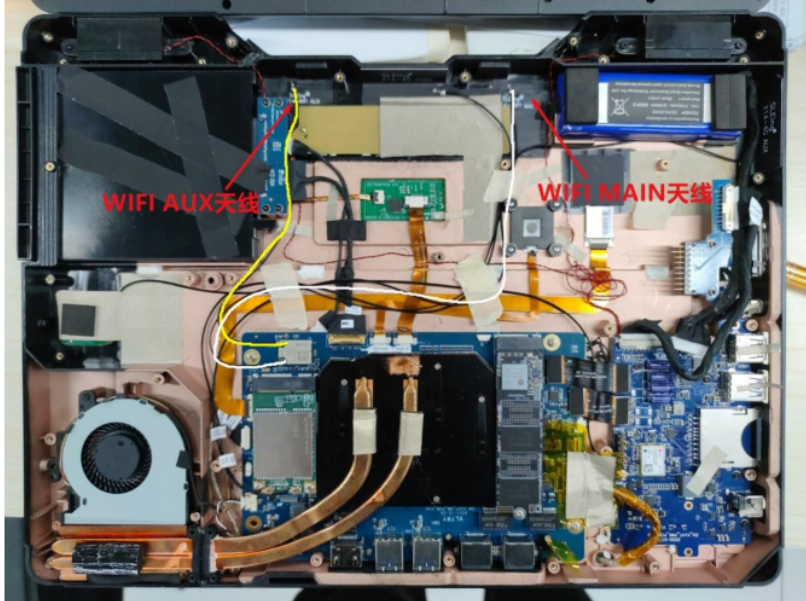



电性测试报告 Test Reports

Electrical Properties	
Frequency	2.4~2.5/5.15~5.85GHz(带机测试)
Impedance	50 Ohm Nominal
V.S.W.R	≤1.92
Return Loss	-10 dB Max
Radiation	Omni-directional
Gain (Peak)	3.23 dBi
Polarization	Linear, Vertical
Admitted Power	2 W
Connector	IPEX
Physical Properties	
Antenna Material	FPCB
Cable Type	Φ0.81mm Black
Operating Temp.	-10 ~ +60 °C
Storage Temp.	-20~ +80 °C

天线组装图

Antenna Profile

<p><i>Devie</i></p>	<p>1、天线粘贴位置和走线</p> 
<p><i>Antenna</i></p>	<p>2、WIFI MAIN 天线粘贴</p> <p>线长 290mm，直径 0.81mm，4 代端子</p> 

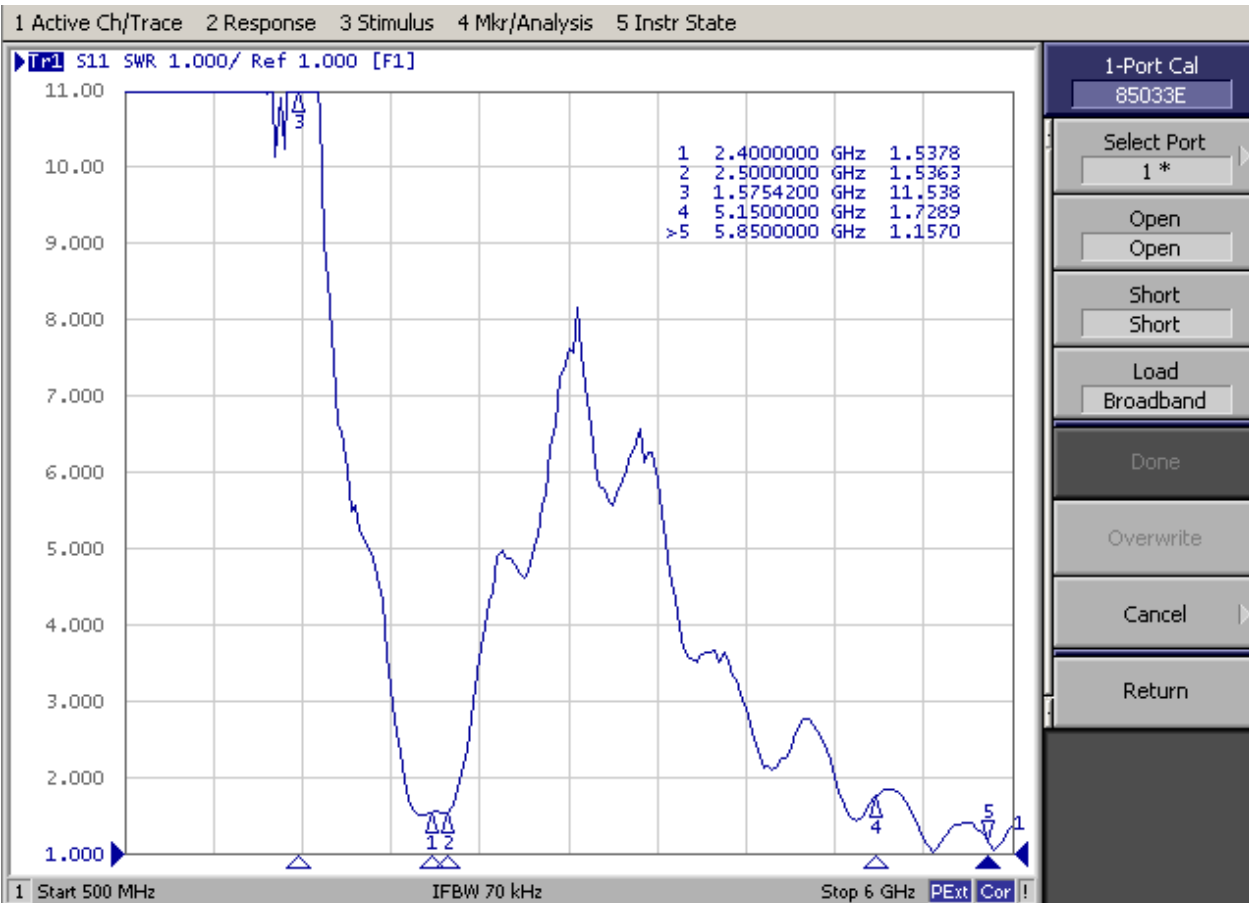
S 参数测试

S Parameter Test

Agilent E5071C Network Analyzer

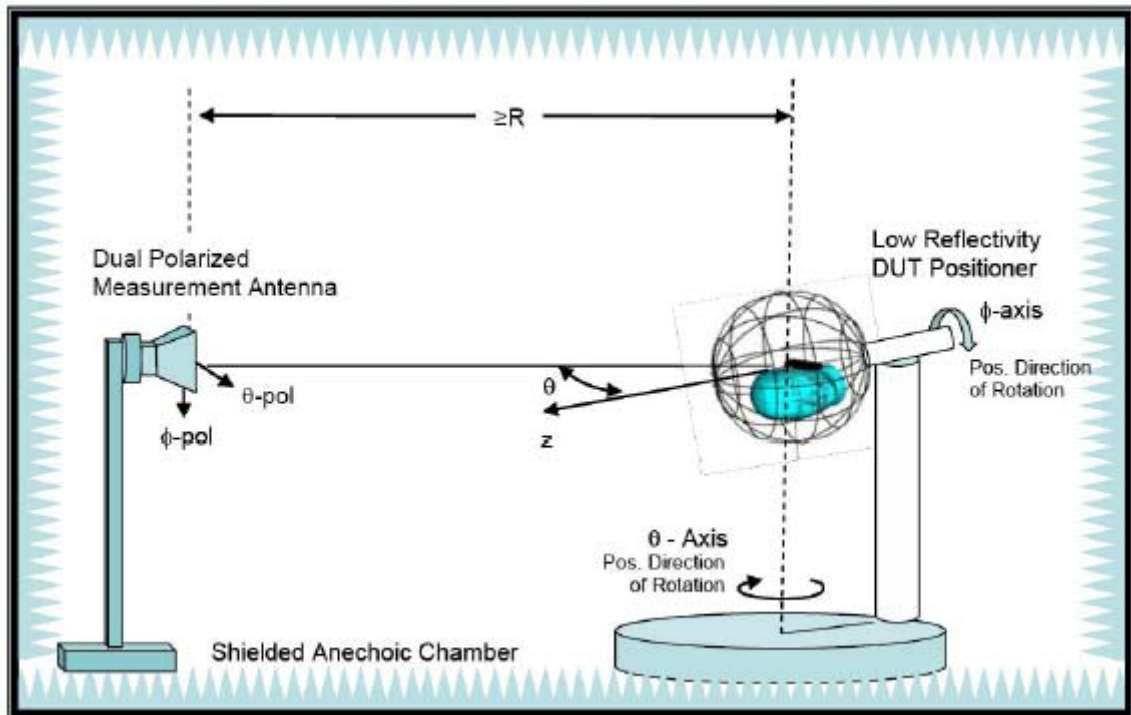
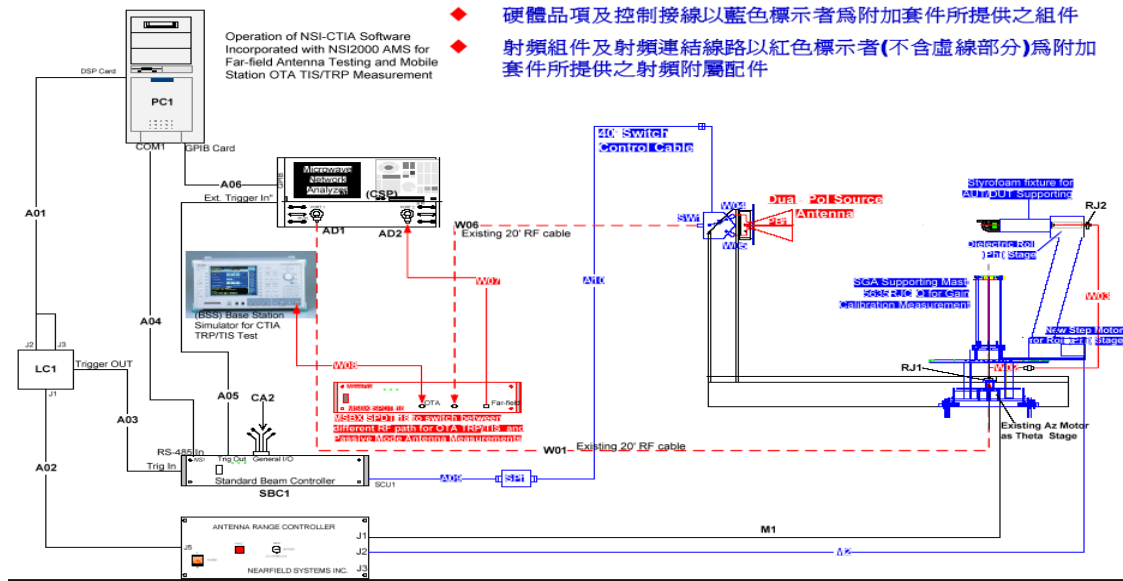


WiFi Antenna (NO.1)



测试设备 Test Setup

NFC-500S 3D Chamber Coordinate System Definition



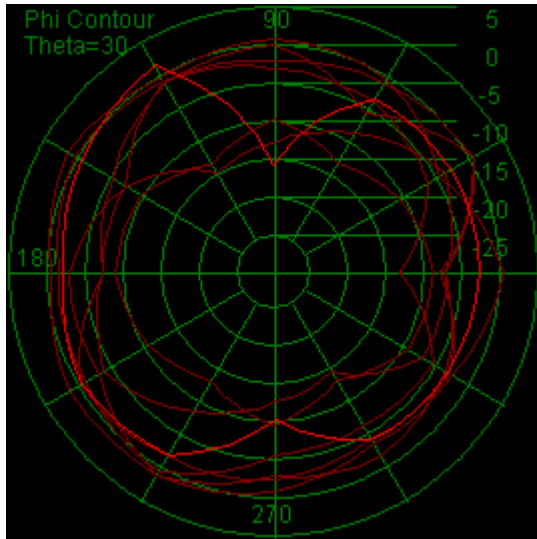
Configuration of 3D Chamber

方向图 (5.8G)

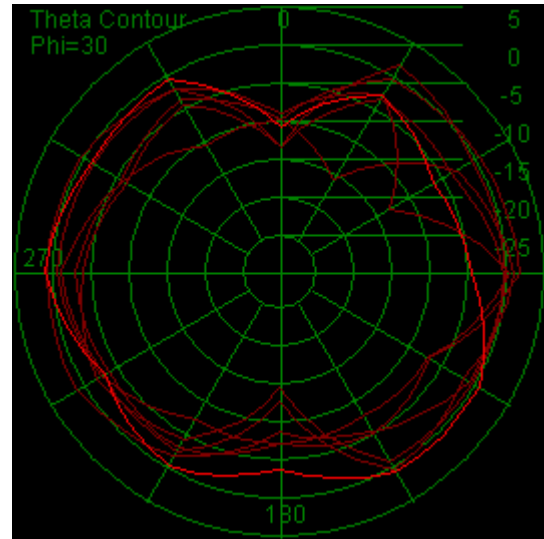
Patten

1.3 2D Radiation patterns test results (Passive Antenna)

XZ Plane

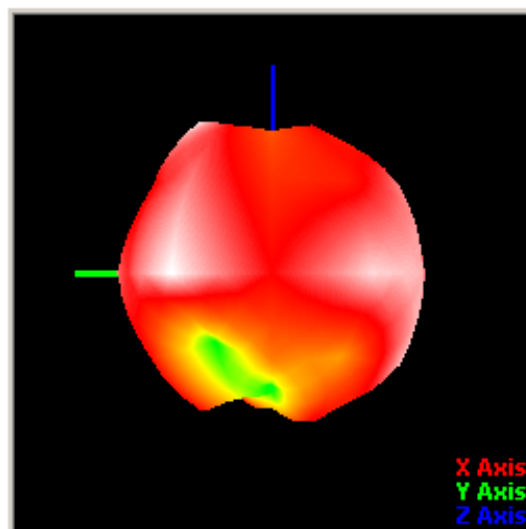


YZ Plane



1.5 3D Radiation patterns test results (Passive Antenna)

3D





测试效率

Test Efficiency

Test Point ID	Freq. (MHz)	TRP (dBm)	Gain (dBi)	Directivity (dBi)	Efficiency (%)	Efficiency (dB)	Max (dBm)	Theta of Max	Phi of Max	Min (dBm)	Theta of Min	Phi of Min	AVG (dBm)	Max/Min (dB)	Max/AVG (dB)	Min/AVG (dB)
1	2412.0	2412.00	2.50	5.21	43.6%	-2.71	2.50	150	90	-11.28	90	120	-2.60	13.78	5.10	-8.69
2	2417.0	2417.00	2.54	5.38	52.0%	-2.84	2.54	150	90	-10.29	90	120	-2.64	12.83	5.18	-7.65
3	2422.0	2422.00	2.44	5.24	52.4%	-2.80	2.44	150	90	-10.31	90	0	-2.50	12.75	4.94	-7.81
4	2427.0	2427.00	2.55	5.29	53.2%	-2.74	2.55	150	90	-10.61	90	0	-2.50	13.16	5.05	-8.11
5	2432.0	2432.00	2.70	5.33	54.6%	-2.63	2.70	150	90	-12.58	90	0	-2.42	15.28	5.12	-10.16
6	2437.0	2437.00	2.43	5.32	51.4%	-2.89	2.43	150	90	-12.52	90	0	-2.60	14.94	5.03	-9.91
7	2442.0	2442.00	2.19	5.39	47.8%	-3.21	2.19	150	90	-12.85	90	0	-2.88	15.04	5.07	-9.97
8	2447.0	2447.00	2.14	5.53	45.7%	-3.40	2.14	150	120	-14.05	90	0	-3.08	16.19	5.21	-10.98
9	2452.0	2452.00	2.05	5.71	43.1%	-3.66	2.05	150	90	-12.29	90	0	-3.23	14.34	5.28	-9.06
10	2457.0	2457.00	2.54	6.20	43.0%	-3.67	2.54	150	90	-13.91	90	0	-2.93	16.45	5.47	-10.98
11	2462.0	2462.00	3.06	6.52	45.1%	-3.45	3.06	150	90	-16.75	90	0	-2.63	19.81	5.69	-14.12
12	2467.0	2467.00	2.71	5.98	47.1%	-3.27	2.71	150	90	-14.66	90	330	-2.62	17.37	5.33	-12.04
13	2472.0	2472.00	2.82	6.26	45.3%	-3.44	2.82	150	90	-14.50	90	60	-2.87	17.32	5.69	-11.64
14	2484.0	2484.00	3.23	6.66	45.4%	-3.43	3.23	150	90	-13.41	60	0	-2.72	16.64	5.95	-10.69

Test Point ID	Freq. (MHz)	TRP (dBm)	Gain (dBi)	Directivity (dBi)	Efficiency (%)	Efficiency (dB)	Max (dBm)	Theta of Max	Phi of Max	Min (dBm)	Theta of Min	Phi of Min	AVG (dBm)	Max/Min (dB)	Max/AVG (dB)	Min/AVG (dB)
1	5120.0	5120.00	1.13	3.51	45.8%	-3.50	1.13	90	150	-20.48	90	270	-5.41	20.49	5.42	-15.07
2	5240.0	5240.00	0.85	4.44	43.9%	-3.72	0.85	90	30	-16.85	180	120	-4.97	17.57	5.70	-11.87
3	5360.0	5360.00	1.36	4.47	46.2%	-3.38	1.36	60	120	-18.88	150	180	-4.32	19.97	5.40	-14.56
4	5480.0	5480.00	1.23	4.49	48.5%	-3.29	1.23	90	120	-15.53	120	330	-3.76	16.73	4.95	-11.78
5	5560.0	5560.00	1.00	6.41	48.6%	-3.08	1.00	60	120	-12.84	0	120	-3.65	16.16	6.98	-9.18
6	5680.0	5680.00	1.57	4.31	41.3%	-3.01	1.57	90	120	-12.02	120	240	-3.71	13.32	5.02	-8.30
7	5760.0	5760.00	1.83	3.38	45.3%	-1.37	1.83	150	60	-11.98	150	180	-2.03	14.00	4.05	-9.94
8	5840.0	5840.00	0.90	3.50	48.4%	-3.40	0.90	150	330	-13.02	90	180	-4.33	13.12	4.43	-8.69
9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

吞吐量	2.4G WIFI (Mbps)		5G WIFI (Mbps)	
	上传	下载	上传	下载
1米	89	97	322	349
	87	95	319	350
	92	93	324	351
15米	96	80	245	310
	95	81	247	306
	94	90	243	313
30米	98	94	230	232
	95	96	224	231
	97	93	228	242

项目:	主+副天线	Performance request (性能要求)	信道	结果	判定	备注
2.4G WiFi_11b_CCK_11M	TRP	$\geq 11 \pm 1 \text{ dBm}$	1	10.53	PASS	
			7	10.65		
			13	10.02		
	TIS	$\leq -60 \text{ dBm}$	1	-80.81	PASS	
			7	-81.35		
			13	-80.45		
5G WiFi_11a_54M	TRP	$\geq 10 \pm 1 \text{ dBm}$	36	12.88	PASS	
			64	12.29		
			157	12.91		
	TIS	$\leq -65 \pm 1 \text{ dBm}$	36	-71.94	PASS	
			64	-72.66		
			157	-72.5		