承　　认　　书
SPECIFICATION FOR APPROVAL

客户名称 Customer Name	普耐尔		
客户项目名 Customer Project Name	T30A	顺达成项目名 SDC Project Name	T30A
客户编码 Customer P/N		顺达成料号 SDC P/N	WG4174B-0814R-25
频段 Band	WiFi2.4G/5G/GPS/BT		
版本号 Version	A0		
设计人信息/Designer Information			
射频工程师 RF Engineer	杨永辉	研发主管 R&D Diretor	符学荣
结构工程师 ME Engineer	李瑶娜		

审批/ Approval				客户批准/Customer Approval	
	制作 Prepared By	审核 Checked By	批准 Approval By	审核 Checked By	批准 Approval By
签章 Signature	李瑶娜	符学荣	陈华明		
日期 Date	2023.02.01	2023.02.01	2023.02.01		

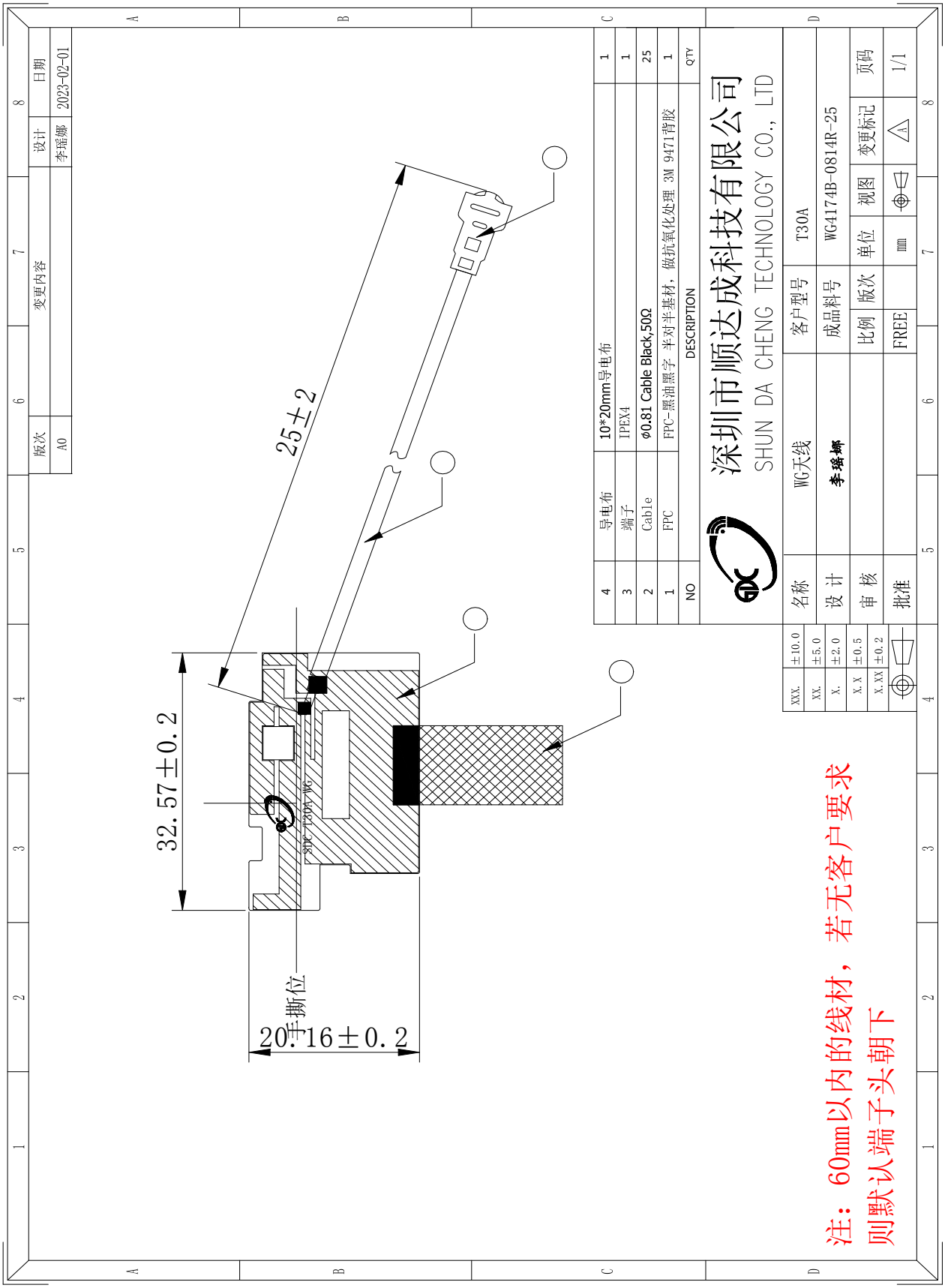
修订履历/Change Log				
版本 Version	修订内容 Change Description	责任人 Person in Charge	核准 Approval By	日期 Date

目录/Catalogue

序号 No.	项目 Item	页码 Page No.
1	图纸或实物图片 Drawing or Product Image	4
2	尺寸测量报告 Dimensions Test Report	5
3	射频性能测试报告 RF Performance Test Report	6-9
4	可靠性测试报告 Reliability Test Report1	10
5	包装文件 Package Document	11
6	环境有害物质管控一览表 RoHS Control list for Sample	12
7	安装事宜或其它 Install Wizard or Other	12

产品图纸或实物图片

Drawing or Product Image



公司地址：深圳市宝安区福永镇重庆路新福工业园 B5 栋 4 楼　　电话:0755-27211658　　传真:0755-29485750

Address: 4th Floor, Building B5, Xinfu Industrial Park, Chongqing Road, Fuyong Town, Bao'an District, Shenzhen Tel: 0755-27211658 Fax: 0755-29485750

深圳市顺达成科技有限公司
SHUN DA CHENG TECHNOLOGY CO., LTD

样品尺寸测量报告
Sample Dimensions Test Report

测试日期 Test Date	2023.02.01	样品数量 Sample Qty.	3	测试人 Inspector	许燕芳
尺寸编号 Dimension No.	标准 Standard	样品 1 Sample 1	样品 2 Sample 2	样品 3 Sample 3	Pass/NG
①长度	32.57±0.2mm	32.57	32.67	32.67	Pass
②宽度	20.16±0.2mm	20.16	20.26	20.16	Pass
③厚度	0.1±0.05mm	0.1	0.1	0.1	Pass
④线长	25±2mm	25	26	26	Pass
⑤					
⑥					
⑦					
最终结论 Conclusion					PASS
测试人&日期 Inspector & Date	许燕芳 2023.02.01		批准&日期 Approval &D ate		

公司地址：深圳市宝安区福永镇重庆路新福工业园 B5 栋 4 楼　　电话:0755-27211658　　传真:0755-29485750

射频性能测量报告

RF Performance Test Report

天线测试设备简介

Antenna Test Equipment Introduction

测试天线输入特性使用 **Agilent E5071C and Agilent 5062A** 矢量网络分析仪；辐射特性利用广屏三维近场暗室进行测试，并分别使用 8960 E5515 和 Agilent E4438C 进行了分析。暗房的测试坐标如下:

Test of antenna input characteristics using **Agilent E5071C and Agilent 5062A** vector network analyzer; The radiation pattern of the antenna are tested using the guangping 3D near field Anechoic Chamber, and the instrument is used to agilent8960 E5515 and Agilent E4438C. The test coordinates of the darkroom are as follows:

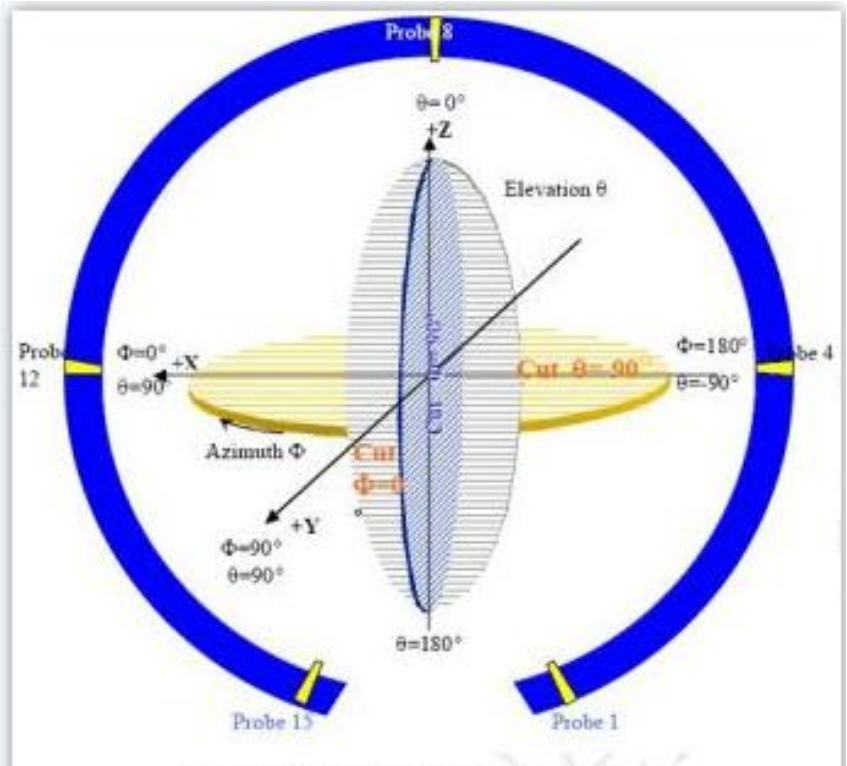


图 4 3D 微波暗室测试坐标系(back view)

1. S11 参数测量/*S11 Parameter-VSWR*

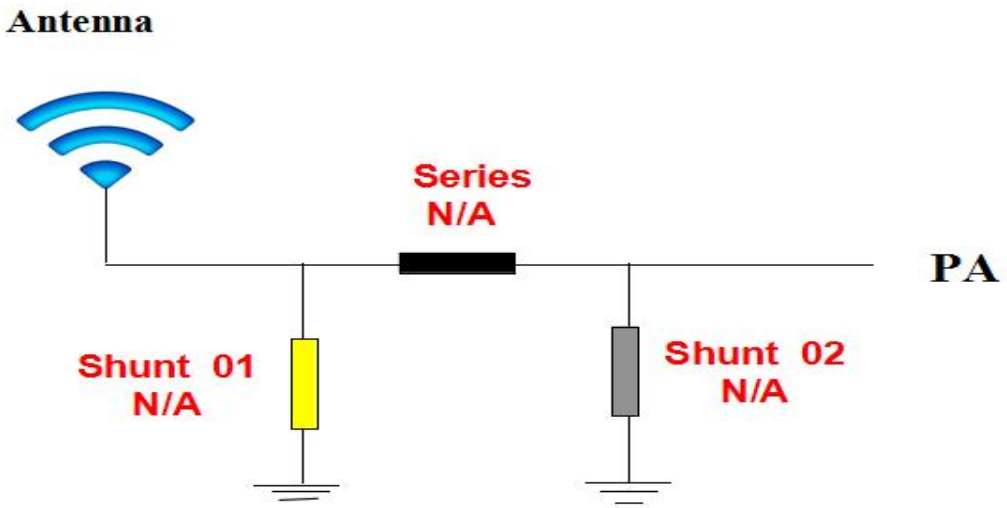
使用一根 50Ω同轴电缆连接到天线，然后该电缆连接到网络分析仪测量 S11 参数，被测量产品远离金属至少 20 厘米。

Measuring Method is a 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the S11 parameter, Keeping this fixture away from metal at least 20cm.

S11 Parameter-VSWR

Frequency (MHz)	1570	1575	1580	2400	2450	2500	5150	5720	5850
VSWR	1.54	1.53	1.57	2.12	1.10	1.98	1.52	1.36	1.59

2. 天线匹配网络/**Antenna Matching Network**

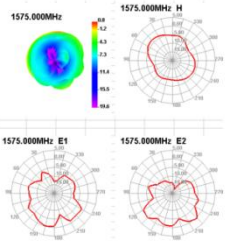


3.Gain & Efficiency

Passive Test For GPS-RB

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
1500	32.5	-3.14	2.8	0.65	16.66	31.838	0.8	-20.4	43.83	44.08
1525	32.86	-3.2	0.59	0.44	15.309	32.552	0.59	-21.47	43.89	43.93
1550	43.28	-3.64	1.82	-0.33	12.607	30.669	1.82	-15.36	44.11	44.11
1575	38.85	-4.58	0.81	-1.34	9.312	25.539	0.81	-19.56	44.82	44.78
1600	34.74	-4.59	0.67	-1.48	10.102	24.642	0.67	-20.95	46.1	45.91

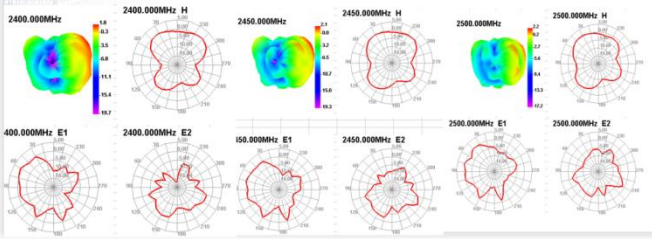
1500.00MHz - 1600.00MHz Gain



Passive Test For 2.4G

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	43.91	-3.57	1.84	-0.31	22.401	21.511	1.84	-19.67	49.25	48.85
2450	44.86	-3.48	2.13	-0.02	22.886	21.973	2.13	-19.33	49.5	49.28
2500	45.49	-3.42	2.16	0.01	23.63	21.862	2.16	-17.15	49.61	49.52

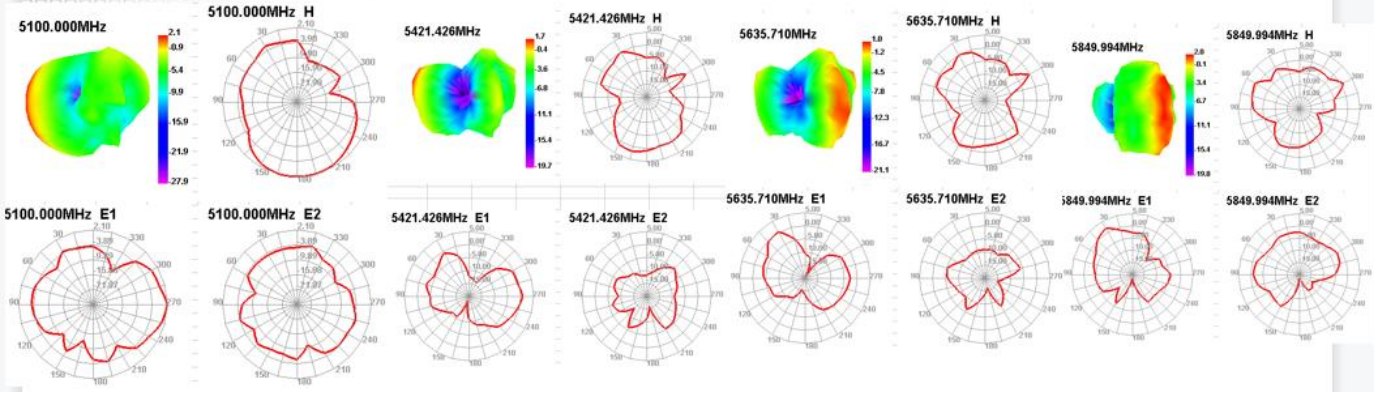
2400.00MHz - 2500.00MHz Gain



Passive Test For 5.8G

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5100	39.74	-4.01	2.1	-0.05	19.309	20.435	2.1	-27.87	64.41	63.8
5207.14	32.4	-4.9	0.91	-1.24	15.743	16.652	0.91	-24.89	61.01	60.71
5314.28	35.76	-4.47	1.73	-0.42	17.926	17.834	1.73	-18.84	60.15	59.59
5421.43	37.05	-4.31	1.73	-0.42	19.307	17.743	1.73	-19.66	60.88	60.38
5528.57	44.37	-3.53	2.03	-0.12	24.066	20.305	2.03	-27.5	63.75	63.1
5635.71	34.14	-4.67	1.05	-1.1	19.484	14.656	1.05	-21.15	63	62.42
5742.85	42.37	-3.73	2.27	0.12	26.477	15.897	2.27	-21.05	63.75	63.17
5849.99	41.95	-3.77	2.04	-0.11	27.682	14.265	2.04	-19.81	64.46	64.2

5100.00MHz - 5850.00MHz Gain



4. WIFI OTA Data

2.4G	802.11b，(2.4G)11M		
Channel	CH1	CH6	CH11
TRP	12.56	12.38	12.16
TIS	-77.29	-77.51	-77.3
5.8G	802.11a，(5.8G)54M		
Channel	CH36	CH60	CH161
TRP	9.76	10.08	10.19
TIS	-68.57	-68.33	-68.92

5.GPS 实测图 GPS RESULT