



# 承 认 书

## SPECIFICATION FOR APPROVAL

客户名称 Manufacturer	SHUN DA CHENG TECHNOLOGY CO., LTD		
客户项目名 Customer Project Name	DNN21S	顺达成项目名 SDC Project Name	DNN21S
客户编码 Customer P/N		顺达成料号 SDC P/N	PCB5008B-0814L-265 PCB5009B-0814L-220
频段 Band	WIFI2. 4G/5. 8G/BT		



## 目录/Catalogue

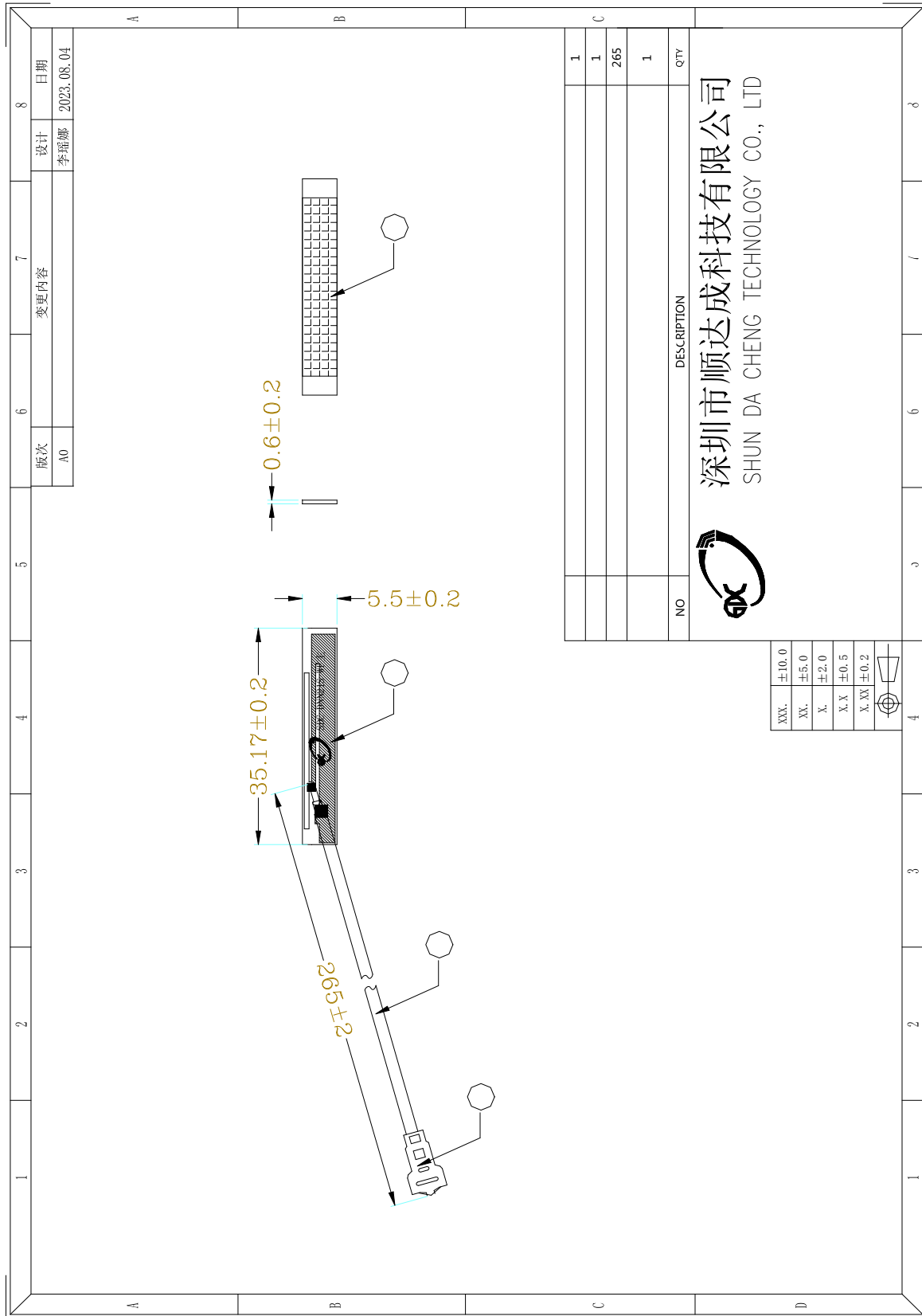
序号 No.	项目 Item	页码 Page No.
1	图纸或实物图片 Drawing or Product Image	3/5
2	尺寸测量报告 Dimensions Test Report	4/6
3	射频性能测试报告 RF Performance Test Report	7-10
4	可靠性测试报告 Reliability Test Report1	11
5	安装事宜或其它 Install Wizard or Other	12



# 深圳市顺达成科技有限公司

## SHUN DA CHENG TECHNOLOGY CO., LTD

产品图纸或实物图片  
Drawing or Product Image





# 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:

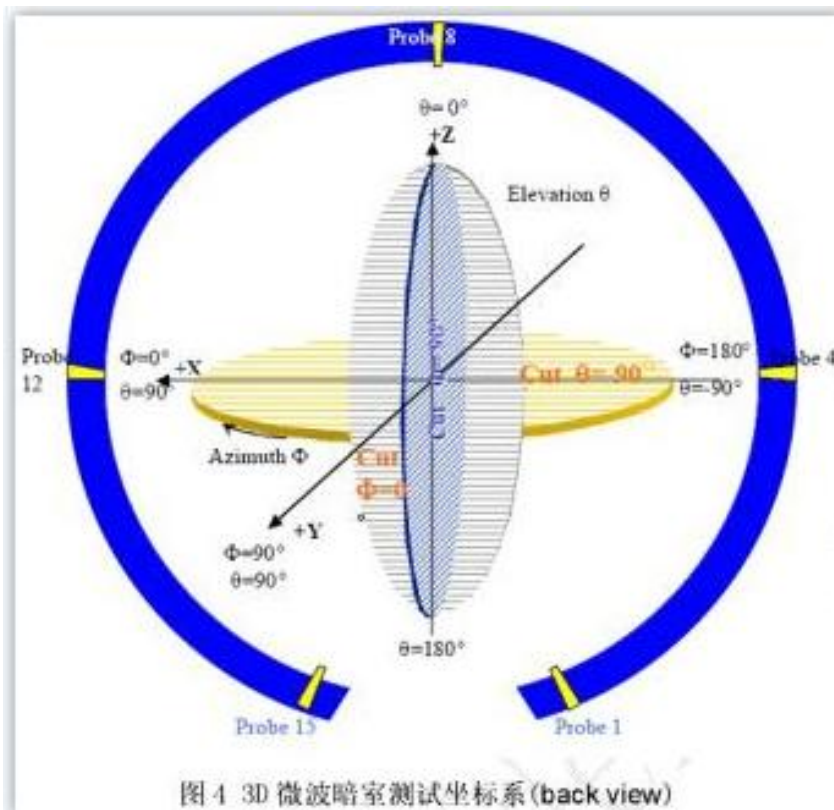


图4 3D 微波暗室测试坐标系 (back view)

### 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。

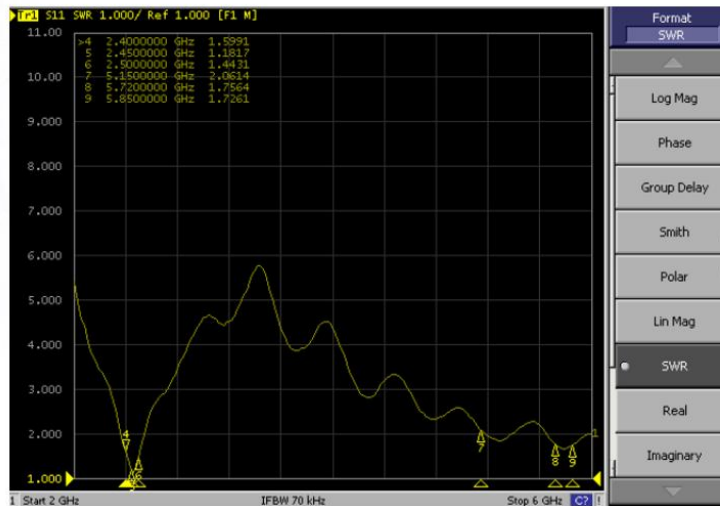
Measuring Method is a 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the S11 parameter, Keeping this fixture away from metal at least 20cm.



## S11 Parameter-VSWR

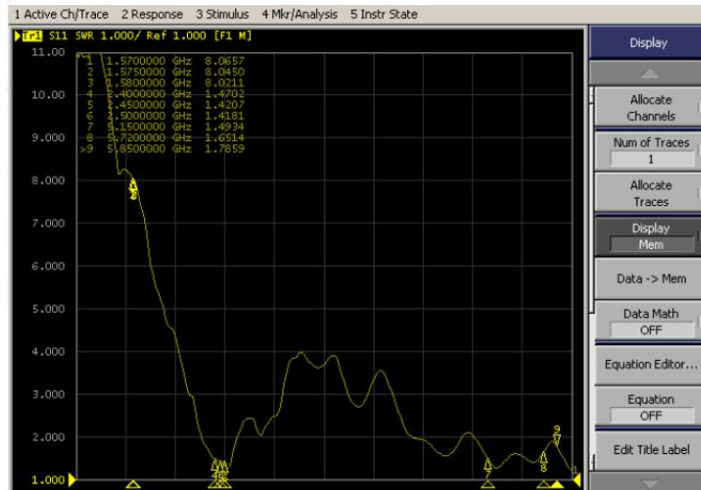
### S11 Parameter-SWR

WIFI主天线



### S11 Parameter-SWR

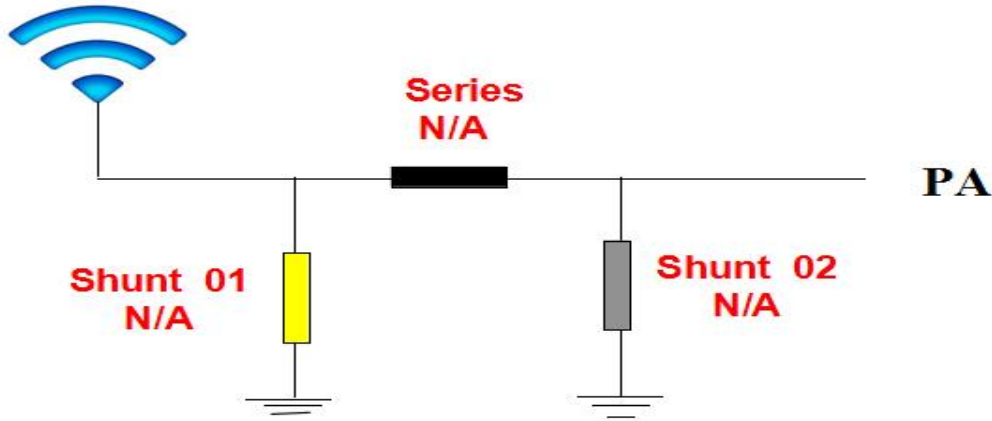
WIFI副天线



## 2. 天线匹配网络/Antenna Matching Network



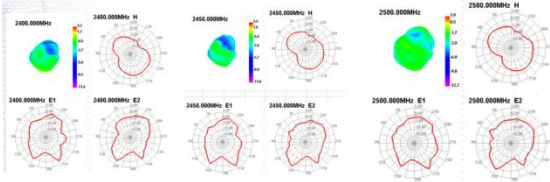
Antenna



3. Gain & Efficiency

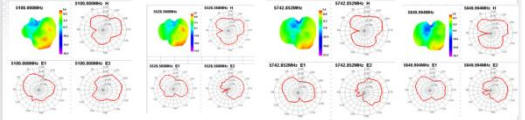
Gain & Efficiency WiFi主天线

Passive Test For 2.4G										
Freq (MHz)	Eff1 (%)	Eff1 (dB)	Gain (dB)	Gain (dBd)	OHIS (%)	OHIS (%)	Max (dB)	Min (dB)	Attenuat Hor	Attenuat Ver
2400	46.9	-3.29	3.16	1.01	22.318	24.585	3.16	-11.43	49.25	48.85
2450	49.71	-3.04	3.48	1.31	22.77	26.339	3.48	-11.31	49.38	49.14
2500	46.11	-3.36	1.91	-0.22	23.105	23.007	1.91	-12.73	49.46	49.37



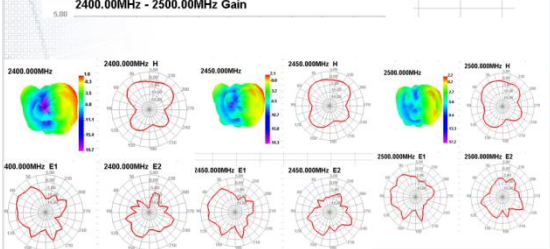
Gain & Efficiency WiFi主天线

Passive Test For 5.8G										
Freq (MHz)	Eff1 (%)	Eff1 (dB)	Gain (dB)	Gain (dBd)	OHIS (%)	OHIS (%)	Max (dB)	Min (dB)	Attenuat Hor	Attenuat Ver
5100	43.79	-3.59	1.57	-0.58	26.444	17.141	1.57	-18.08	61.56	60.95
5207.14	46.4	-4.04	0.87	-1.28	23.155	16.245	0.87	-20.26	60.3	60.51
5314.28	49.39	-4.39	0.54	-1.63	21.301	15.435	0.54	-19.85	60.49	59.93
5421.43	49.27	-3.87	1.39	-0.79	24.578	18.389	1.39	-21.39	61.44	60.85
5528.57	44.41	-3.53	1.67	-0.28	26.051	18.384	1.67	-22.99	63.27	62.68
5635.71	49.03	-4.31	0.72	-1.43	21.579	15.451	0.72	-21.86	63.73	63.15
5742.85	42.47	-3.72	1.37	-0.78	23.828	18.643	1.37	-21.99	64.08	63.49
5849.99	46.72	-3.3	1.83	-0.33	26.83	21.193	1.83	-18.71	64.24	64



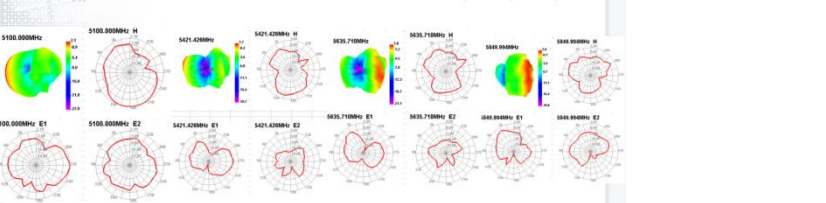
Gain & Efficiency WiFi副天线

Passive Test For 2.4G										
Freq (MHz)	Eff1 (%)	Eff1 (dB)	Gain (dB)	Gain (dBd)	OHIS (%)	OHIS (%)	Max (dB)	Min (dB)	Attenuat Hor	Attenuat Ver
2400	43.91	-3.57	1.84	-0.31	22.401	21.511	1.84	-19.67	49.25	48.85
2450	44.88	-3.48	2.13	-0.02	22.888	21.979	2.13	-19.33	49.5	49.28
2500	45.49	-3.42	2.16	0.01	23.63	21.852	2.16	-17.18	49.51	49.52



Gain & Efficiency WiFi副天线

Passive Test For 5.8G										
Freq (MHz)	Eff1 (%)	Eff1 (dB)	Gain (dB)	Gain (dBd)	OHIS (%)	OHIS (%)	Max (dB)	Min (dB)	Attenuat Hor	Attenuat 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	17.326	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	60.89	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	18.897	2.27	-21.05	63.75	63.17
5849.99	41.95	-3.77	2.04	-0.11	27.652	14.265	2.04	-18.91	64.46	64.3



4. OTA Data



## WIFI OTA Data

2.4G	802.11b, (2.4G) 11M		
Channel	CH1	CH6	CH11
TRP	13.92	13.07	13.14
TIS	-80.17	-79.52	-79.63
5.8G	802.11a, (5.8G) 54M		
Channel	CH36	CH60	CH161
TRP	11.09	10.43	10.87
TIS	-68.28	-68.34	-68.8

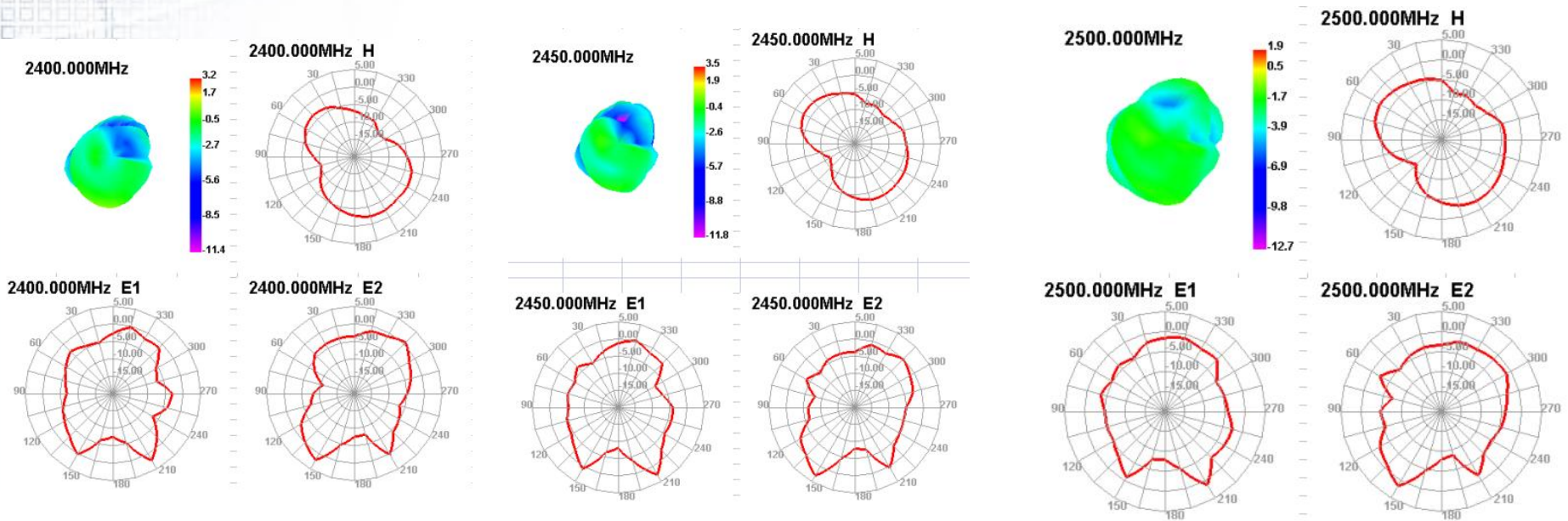


# Gain & Efficiency

WIFI MAIN ANT

顺达成科技

Passive Test For 2.4G										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	46.9	-3.29	3.16	1.01	22.318	24.585	3.16	-11.43	49.25	48.85
2450	49.71	-3.04	3.46	1.31	22.77	26.939	3.46	-11.81	49.38	49.16
2500	46.11	-3.36	1.93	-0.22	23.105	23.007	1.93	-12.73	49.46	49.37





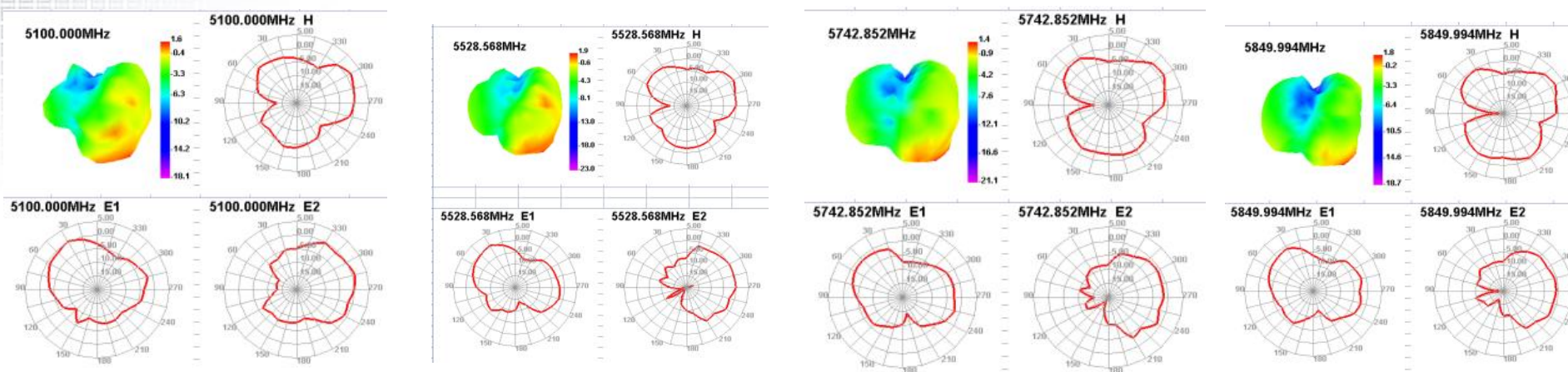


# Gain & Efficiency

WIFI

顺达成科技

Passive Test For 5.8G										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5100	43.79	-3.59	1.57	-0.58	26.644	17.141	1.57	-18.08	61.56	60.95
5207.14	40.4	-4.04	0.87	-1.28	23.155	16.245	0.87	-20.26	60.8	60.51
5314.28	40.93	-4.33	0.52	-1.63	21.301	15.632	0.52	-17.83	60.49	59.93
5421.43	42.97	-3.67	1.36	-0.79	24.578	18.389	1.36	-21.39	61.44	60.95
5528.57	44.41	-3.53	1.87	-0.28	26.025	18.384	1.87	-22.99	63.27	62.62
5635.71	40.03	-4.31	0.72	-1.43	21.579	15.451	0.72	-21.86	63.73	63.15
5742.85	42.47	-3.72	1.37	-0.78	23.828	18.643	1.37	-21.09	64.06	63.48
5849.99	46.72	-3.3	1.82	-0.33	25.53	21.193	1.82	-18.71	64.26	64





# Gain & Efficiency

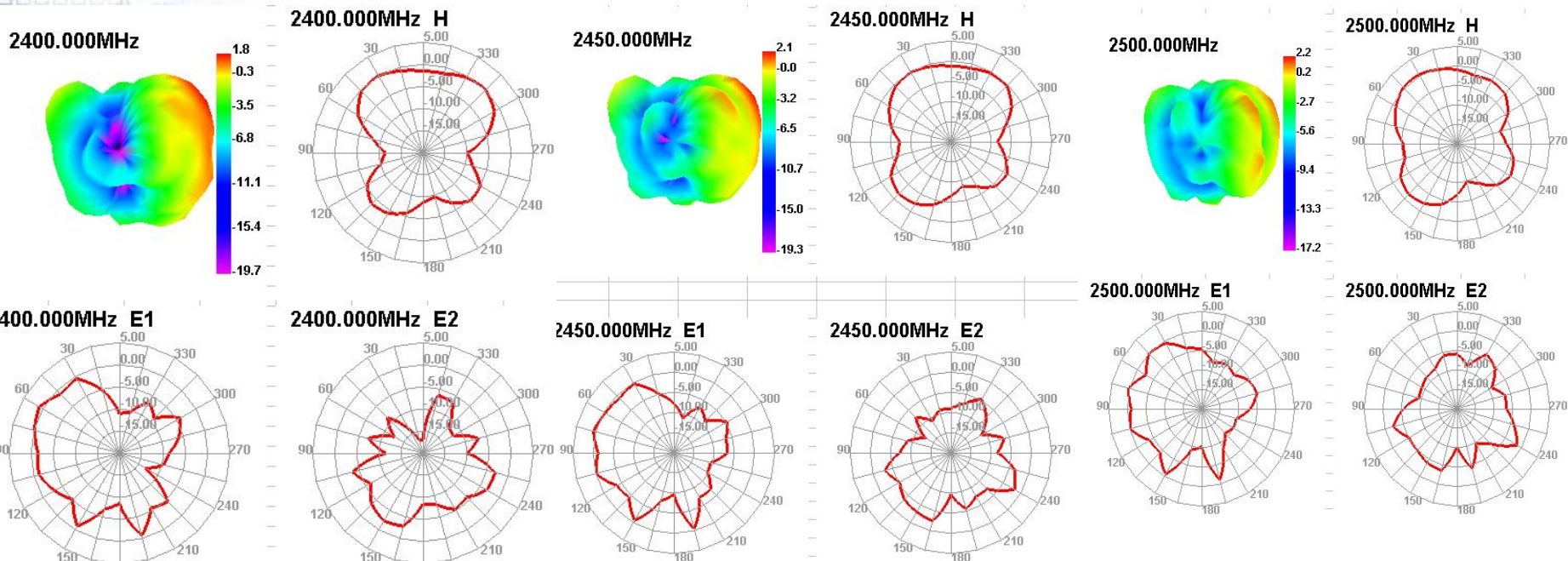
WIFI AUX ANT

顺达成科技

Passive Test For 2.4G											
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	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**

5.00





# Gain & Efficiency

WIFI

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Passive Test For 5.8G										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	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

