

APPROVAL SHEET

For

5DB 天线 project

Antenna componentst

频率范围 Frequency range	WIFI:(2.4G-5.8GHz))
驻波比系数 VSWR	<4.0
输入阻抗 Input Impedance	50 (Ω)
极化方式 Polarization	垂直极化 Vertical Polarization
半功率波束 (3dB) HPW	180° H-plane 120° E-plane

RF by		Checked by	
ME by		Date	
Customer Confirm			

Project:		Author:Wang	File Name: 5DB 天线
Date: 2020-09-25			
TEST:	Language:	Check: Zhong	
A	English		
地址:深圳市龙华新区东环一路柏佳润工业区 3 栋 2 楼 电话: 0755-29195258 传真: 0755-29590286 Shenzhen Lxc Electronics Technology Co ., Ltd			

Revision History

Date	Revision	Description of Changes
2020-09-25	RA	Measured with SUS301 sample.

错误！未定义书签。

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1 Technical Summary

This report summarizes the electrical results of the proposed antenna to support the **5DB 天线** program. We test the antenna with the latest version handset. And it seems to be acceptable.

2 General Description

2.1 Components/Part revisions

VSWR: Voltage Standing Wave Rate.

3 Mechanical Description

4 Electrical Performance

4.1 Set-up

4.1.1 VSWR

VSWR measurements (S11) were performed using an Agilent 8753D Network Analyzer and the previously described test fixture. Coaxial chokes were used to mitigate surface currents on the outside of the cabling. The testing was performed in free space.

4.1.2 Gain & Radiation Patterns

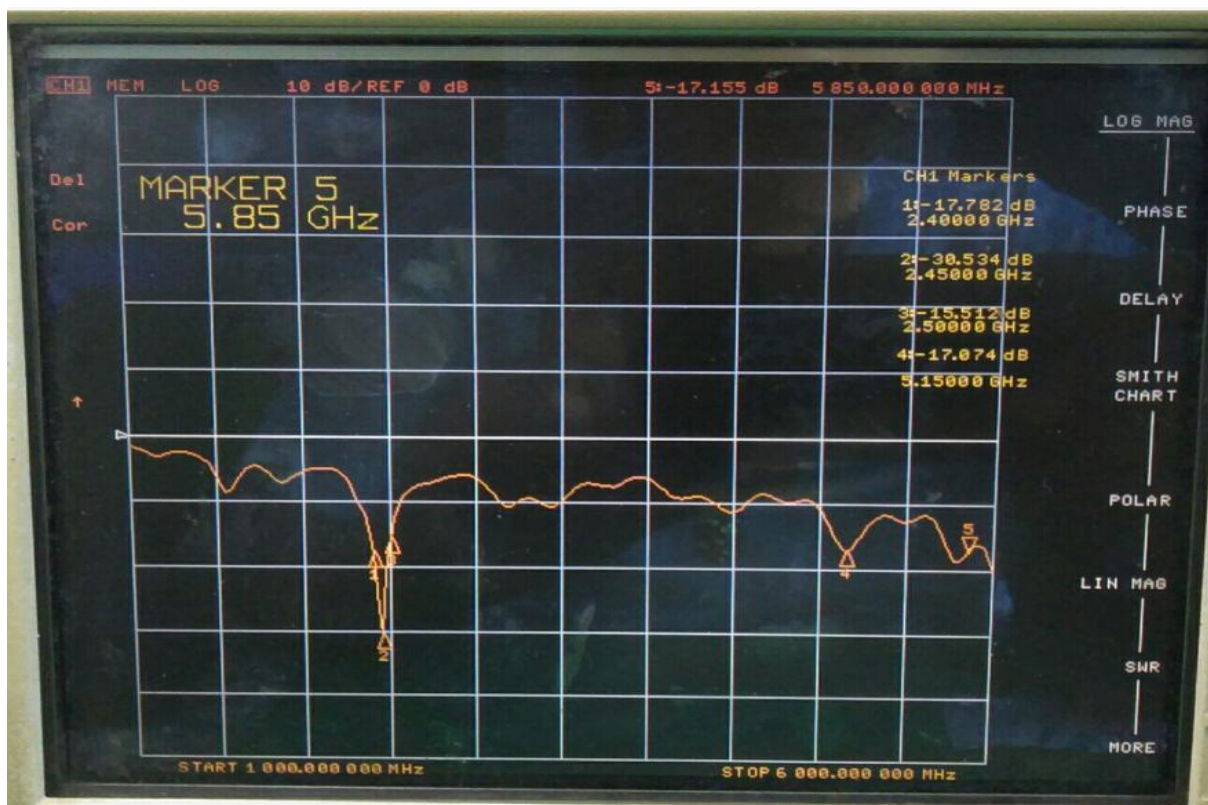
The gain of the antenna was measured in the Lxc's anechoic chamber. Coaxial chokes on the feed cable were used to mitigate surface currents. The chamber provides less than -30 dB reflectivity from 800 MHz through 3 GHz and an 18" diameter spherical quiet zone. The measurement results are calibrated using both dipole and leaky wave horn standards.

4.1.3 Matching Circuit Description

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4.2 Measurement Data

4.2.1 Active result (WIFI)



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Passive Test For WIFI2.4										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	67.15	-0.6	5.66	3.51	34.249	52.905	5.66	-13.23	49.73	50.01
2410	64.78	-0.72	5.5	3.35	33.628	51.156	5.5	-13.15	49.65	49.76
2420	62.89	-0.81	5.07	2.92	33.895	48.995	5.07	-13.39	49.5	49.55
2430	63.84	-0.77	4.81	2.66	35.864	47.977	4.81	-14.22	49.43	49.5
2440	60.06	-0.45	4.88	2.73	40.079	49.977	4.88	-14.01	49.85	49.92
2450	67.78	-0.1	4.99	2.84	44.334	53.446	4.99	-13.39	50.28	50.38
2460	62.99	0.13	5.21	3.06	46.508	56.477	5.21	-13.6	50.59	50.62
2470	62.45	0.11	5.29	3.14	45.633	56.816	5.29	-14.34	50.85	50.69
2480	61.3	0.06	5.35	3.2	44.581	56.724	5.35	-15.88	50.86	50.52
2490	64.32	0.18	5.32	3.17	45.976	58.34	5.32	-16.79	50.83	50.54
2500	60.51	0.02	4.98	2.83	45.264	55.245	4.98	-17.91	50.51	50.26

Passive Test For 5.8G-WIFI										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5150	34.06	-4.68	-0.27	-2.42	20.42	13.642	-0.27	-25.52	60.54	60.32
5160	39.53	-4.03	0.68	-1.47	23.367	15.666	0.68	-20.87	60.42	60.14
5170	43.42	-3.62	1.34	-0.81	26.574	16.85	1.34	-18.92	60.59	60.35
5180	44.08	-3.56	1.46	-0.69	26.974	17.108	1.46	-19.55	60.04	59.77
5190	43.98	-3.57	1.47	-0.68	26.649	17.327	1.47	-20.97	59.67	59.87
5200	35.46	-4.5	0.43	-1.72	21.406	14.056	0.43	-23.2	59.67	59.29
5210	39.45	-4.04	0.89	-1.26	23.679	15.771	0.89	-21.91	60.06	59.77
5220	46.13	-3.36	1.55	-0.6	27.655	18.479	1.55	-20.33	60.66	60.39
5230	49.19	-3.08	1.68	-0.47	29.382	19.804	1.68	-18.9	60.76	60.37
5240	54.24	-2.66	2.05	-0.1	32.24	22.005	2.05	-18.8	60.73	60.59
5250	41.3	-3.84	0.76	-1.39	24.428	16.876	0.76	-18.92	59.73	59.31
5260	41.34	-3.84	0.6	-1.55	24.42	16.919	0.6	-18.43	59.6	59.58
5270	43.65	-3.6	0.84	-1.31	25.76	17.886	0.84	-17.27	59.46	59.31
5280	51.91	-2.85	1.54	-0.61	30.507	21.405	1.54	-16.35	59.98	59.91
5290	61.66	-2.1	2.39	0.24	36.045	25.617	2.39	-16.92	60.38	60.9
5300	46.04	-3.37	1.02	-1.13	26.356	19.687	1.02	-21.81	60.12	59.95
5310	42.29	-3.74	0.21	-1.94	23.748	18.545	0.21	-15.95	60.33	60.26
5320	46.88	-3.29	0.61	-1.54	26.706	20.175	0.61	-13.39	59.71	59.74
5330	47.78	-3.21	1	-1.15	27.461	20.319	1	-13.45	59.58	59.19
5340	59.16	-2.28	2.33	0.18	33.955	25.209	2.33	-13.72	60.05	60.3
5350	51.53	-2.88	1.7	-0.45	29.123	22.412	1.7	-17.56	60.24	60.26
5360	42.88	-3.68	0.56	-1.59	23.882	18.999	0.56	-16.58	60.73	60.49
5370	46.53	-3.32	0.84	-1.31	26.141	20.39	0.84	-14.19	60.67	60.58
5380	46.72	-3.3	1.09	-1.06	26.396	20.329	1.09	-14.09	60.67	60.42
5390	51.72	-2.86	1.63	-0.52	29.06	22.659	1.63	-13.94	60.26	60.22
5400	58.3	-2.34	1.9	-0.25	32.719	25.582	1.9	-13.37	60.73	60.41

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5410	51.55	-2.38	1.28	-0.87	29.044	22.507	1.28	-13.5	60.72	60.33
5420	48.26	-3.16	0.97	-1.18	27.311	20.952	0.97	-13.04	60.73	60.05
5430	51.79	-2.86	1.54	-0.61	29.323	22.466	1.54	-13.28	61.33	61.12
5440	60.24	-2.2	2.11	-0.04	33.73	26.506	2.11	-14.81	61.93	61.53
5450	65.32	-1.85	2.16	0.01	36.562	28.759	2.16	-14.61	62.24	61.84
5460	55.22	-2.58	1.14	-1.01	31.003	24.218	1.14	-14.15	61.9	61.01
5470	54.6	-2.63	1.17	-0.98	30.777	23.826	1.17	-14.36	61.75	61.01
5480	60.73	-2.17	1.64	-0.51	34.217	26.508	1.64	-13.57	61.58	61.23
5490	62.19	-2.06	1.69	-0.46	35.221	26.97	1.69	-13.89	61.91	60.97
5500	74.28	-1.29	2.47	0.32	41.806	32.471	2.47	-13.52	62.9	62.33
5510	63.82	-1.95	1.86	-0.29	35.778	28.044	1.86	-15.59	63.09	62.23
5520	63.47	-1.97	1.82	-0.33	35.335	28.14	1.82	-16.89	63.3	62.9
5530	63.54	-1.97	1.94	-0.21	35.492	28.053	1.94	-13.49	63.46	62.62
5540	63.79	-1.95	1.41	-0.74	35.661	28.134	1.41	-14.87	63.47	62.22
5550	70.82	-1.5	1.84	-0.31	39.448	31.371	1.84	-15.74	63.5	62.34
5560	66.48	-1.77	1.95	-0.2	36.793	29.684	1.95	-15.98	63.64	62.51
5570	65.72	-1.82	2.01	-0.14	36.292	29.428	2.01	-13.44	64.32	63.43
5580	64.2	-1.92	1.52	-0.63	35.509	28.691	1.52	-15.3	64.18	63.47
5590	69.83	-2.23	1.11	-1.04	32.98	26.854	1.11	-16.28	64.34	63.52
5600	63.63	-1.96	1.72	-0.43	34.998	28.629	1.72	-16.87	64.03	63.04
5610	68.35	-1.65	2.07	-0.08	37.375	30.976	2.07	-14.51	63.75	63.17
5620	60.33	-2.2	1.57	-0.58	33.046	27.279	1.57	-14.11	63.64	62.92
5630	68.23	-2.35	1.24	-0.91	32.01	26.217	1.24	-14.33	63.56	62.95
5640	57.76	-2.38	1.23	-0.92	31.744	26.013	1.23	-14.58	63.99	63.4
5650	71	-1.49	2.41	0.26	38.707	32.298	2.41	-15.34	64.16	63.88
5660	69.69	-1.57	2.49	0.34	38.135	31.558	2.49	-14.45	63.86	63.47
5670	63.27	-1.99	1.89	-0.26	34.59	28.683	1.89	-14.72	63.37	63.03
5680	65.86	-1.81	2.14	-0.01	36.292	29.572	2.14	-13.11	63.07	62.93
5690	60.16	-2.21	1.85	-0.3	33.234	26.93	1.85	-13.28	62.96	62.34
5700	64.64	-1.9	2.3	0.15	35.552	29.084	2.3	-12.92	63.29	62.59
5710	70.94	-1.49	2.95	0.8	38.733	32.207	2.95	-13.38	63.94	63.44
5720	69.92	-1.55	2.89	0.74	37.89	32.029	2.89	-14.11	64.17	63.95
5730	74.48	-1.28	2.98	0.83	40.495	33.986	2.98	-13.21	64.5	64.23
5740	66.02	-1.8	2.48	0.33	36.082	29.943	2.48	-11.61	63.88	63.43
5750	66.77	-1.75	2.55	0.4	36.401	30.367	2.55	-11.28	63.62	63.17
5760	74.67	-1.27	2.97	0.82	40.406	34.266	2.97	-10.54	63.48	63.24
5770	74.02	-1.31	3.04	0.89	39.483	34.532	3.04	-10.17	63.82	63.51
5780	75.61	-1.21	3.3	1.15	40.05	35.556	3.3	-10.8	64.54	64.02
5790	68.18	-1.66	2.78	0.63	35.81	32.373	2.78	-11.51	64.39	64.26
5800	67.66	-1.7	2.89	0.74	35.571	32.088	2.89	-10.15	64.68	64.35
5810	73.81	-1.32	3.2	1.05	38.748	35.067	3.2	-9.23	64.51	64.11
5820	69.5	-1.58	2.82	0.67	36.377	33.118	2.82	-9.3	64.09	63.57
5830	70.82	-1.5	2.87	0.72	36.352	34.464	2.87	-8.66	64.14	63.62
5840	71.41	-1.46	2.93	0.78	36.11	35.3	2.93	-8.42	64.19	63.92
5850	70.61	-1.51	2.95	0.8	35.276	35.334	2.95	-8.58	64.64	64.25

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6 Mechanical drawing

由 Autodesk 教育版产品制作

Technical drawing of a mechanical part with the following dimensions and callouts:

- Overall length: 190.0 ± 5.0
- Overall width: 176.50 ± 2.0
- Top flange width: 1.20 ± 0.3
- Top flange thickness: 1.50 ± 0.3
- Bottom flange thickness: 2.50 ± 0.3
- Bottom flange width: 1.13 (callout 2)
- Top flange hole diameter: $\phi 1.13$ (callout 1)
- Top flange hole position: 1.13 (callout 3)
- Top flange hole diameter: $\phi 1.13$ (callout 4)

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1. 频段: (2400-2500MHz)

NO	DESCRIPTION	QTY
4	零件	1
3	PCB	1
2	1.13mm厚板	1
1	白色外置天线	1

备注:

- 标注“*”为重点尺寸, 未标公差尺寸按照 ± 0.15 控制
- 未标注尺寸请依图版。
- 符合RoHS 2.0

由 Autodesk 教育版产品制作

—		深圳市连兴创电子科技有限公司	
Third Angle	Part Name	Part No.	Part No.
$\phi 1.13$	$\phi 1.13$	$\phi 1.13$	$\phi 1.13$
$10 \sim 13$	± 0.10	± 0.10	± 0.10
$18 \sim 20$	± 0.12	± 0.12	± 0.12
$20 \sim 25$	± 0.15	± 0.15	± 0.15
$25 \sim 30$	± 0.20	± 0.20	± 0.20
$30 \sim 40$	± 0.25	± 0.25	± 0.25
$40 \sim 50$	± 0.30	± 0.30	± 0.30
$50 \sim 60$	± 0.35	± 0.35	± 0.35
$60 \sim 70$	± 0.40	± 0.40	± 0.40
$70 \sim 80$	± 0.45	± 0.45	± 0.45
$80 \sim 90$	± 0.50	± 0.50	± 0.50
$90 \sim 100$	± 0.55	± 0.55	± 0.55
$100 \sim 110$	± 0.60	± 0.60	± 0.60
$110 \sim 120$	± 0.65	± 0.65	± 0.65
$120 \sim 130$	± 0.70	± 0.70	± 0.70
$130 \sim 140$	± 0.75	± 0.75	± 0.75
$140 \sim 150$	± 0.80	± 0.80	± 0.80
$150 \sim 160$	± 0.85	± 0.85	± 0.85
$160 \sim 170$	± 0.90	± 0.90	± 0.90
$170 \sim 180$	± 0.95	± 0.95	± 0.95
$180 \sim 190$	± 1.00	± 1.00	± 1.00
$190 \sim 200$	± 1.05	± 1.05	± 1.05
$200 \sim 210$	± 1.10	± 1.10	± 1.10
$210 \sim 220$	± 1.15	± 1.15	± 1.15
$220 \sim 230$	± 1.20	± 1.20	± 1.20
$230 \sim 240$	± 1.25	± 1.25	± 1.25
$240 \sim 250$	± 1.30	± 1.30	± 1.30
$250 \sim 260$	± 1.35	± 1.35	± 1.35
$260 \sim 270$	± 1.40	± 1.40	± 1.40
$270 \sim 280$	± 1.45	± 1.45	± 1.45
$280 \sim 290$	± 1.50	± 1.50	± 1.50
$290 \sim 300$	± 1.55	± 1.55	± 1.55
$300 \sim 310$	± 1.60	± 1.60	± 1.60
$310 \sim 320$	± 1.65	± 1.65	± 1.65
$320 \sim 330$	± 1.70	± 1.70	± 1.70
$330 \sim 340$	± 1.75	± 1.75	± 1.75
$340 \sim 350$	± 1.80	± 1.80	± 1.80
$350 \sim 360$	± 1.85	± 1.85	± 1.85
$360 \sim 370$	± 1.90	± 1.90	± 1.90
$370 \sim 380$	± 1.95	± 1.95	± 1.95
$380 \sim 390$	± 2.00	± 2.00	± 2.00
$390 \sim 400$	± 2.05	± 2.05	± 2.05
$400 \sim 410$	± 2.10	± 2.10	± 2.10
$410 \sim 420$	± 2.15	± 2.15	± 2.15
$420 \sim 430$	± 2.20	± 2.20	± 2.20
$430 \sim 440$	± 2.25	$\$	

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7 Reliability tests

7.1 Test content

No	试验项目	试验方法	判定基准
1	盐水喷雾试验	把盐浓度 5%的溶液喷雾 48HR	不能有变色，歪（变形）脱落等的缺点 腐蚀面积不能过大

7.2 Test results

NO	样品数	试验期间	实验结果	备注
1	50	24 小时	OK	技术等级为 9 级 腐蚀<0.4mm
2	50	48 小时	OK	技术等级为 9 级 腐蚀<0.4mm

8

Conclusion

From the above test results, we can know the electrical performance of the antenna is seems good.

Shenzhen Electronics Technology Co., Ltd, look forward to your confirmation, thank you for your cooperation !

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