

深圳市云顶通讯电子有限公司

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APPROVAL SHEET

客 户 : 讯曼

品 名 规 格
DESCRIPTION: 板载天线

料 号
PART NO.: XM-WIFI

客 户 料 号
CUS PART NO.:

日 期
D A T E: 2022. 12. 7

云顶呈样签章

工 程 ENGINEERING DEPARTMENT	品 保 Q C DEPARTMENT	业 务 SALES DEPARTMENT
吴淑仪	刘丽	王洪涛

客户承认签章

工 程 ENGINEERING DEPARTMENT	品 保 Q C DEPARTMENT	采 购 PURCHASING DEPARTMENT

联系电话: 0755-23073599 150 1794 1162

※ 承认书一式三份, 惠蒙贵司承认签章

※ Admitted that book in triplicate, please signed by your company.

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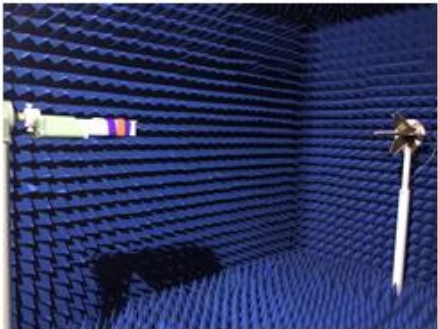
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1.测试项目与设备

	测试项目	设备
1. S11 参数 (S-parameter)	1. 回波损耗 (Return Loss) 2. 电压驻波比 (VSWR)	网络分析仪: Agilent E5071B HP 8753D
2. 有源测试 (Active)	1. 发射功率 (TRP) 2. 接收灵敏度 (TIS)	1. 暗室: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. 综合测试仪: Agilent 8960 E5515B ×2 StarPoint SP6011
3. 无源测试 (Passive)	1. 天线增益 (Gain) 2. 天线效率 (Efficiency)	1. 暗室: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. 网络分析仪: Agilent E5071B HP 8753D



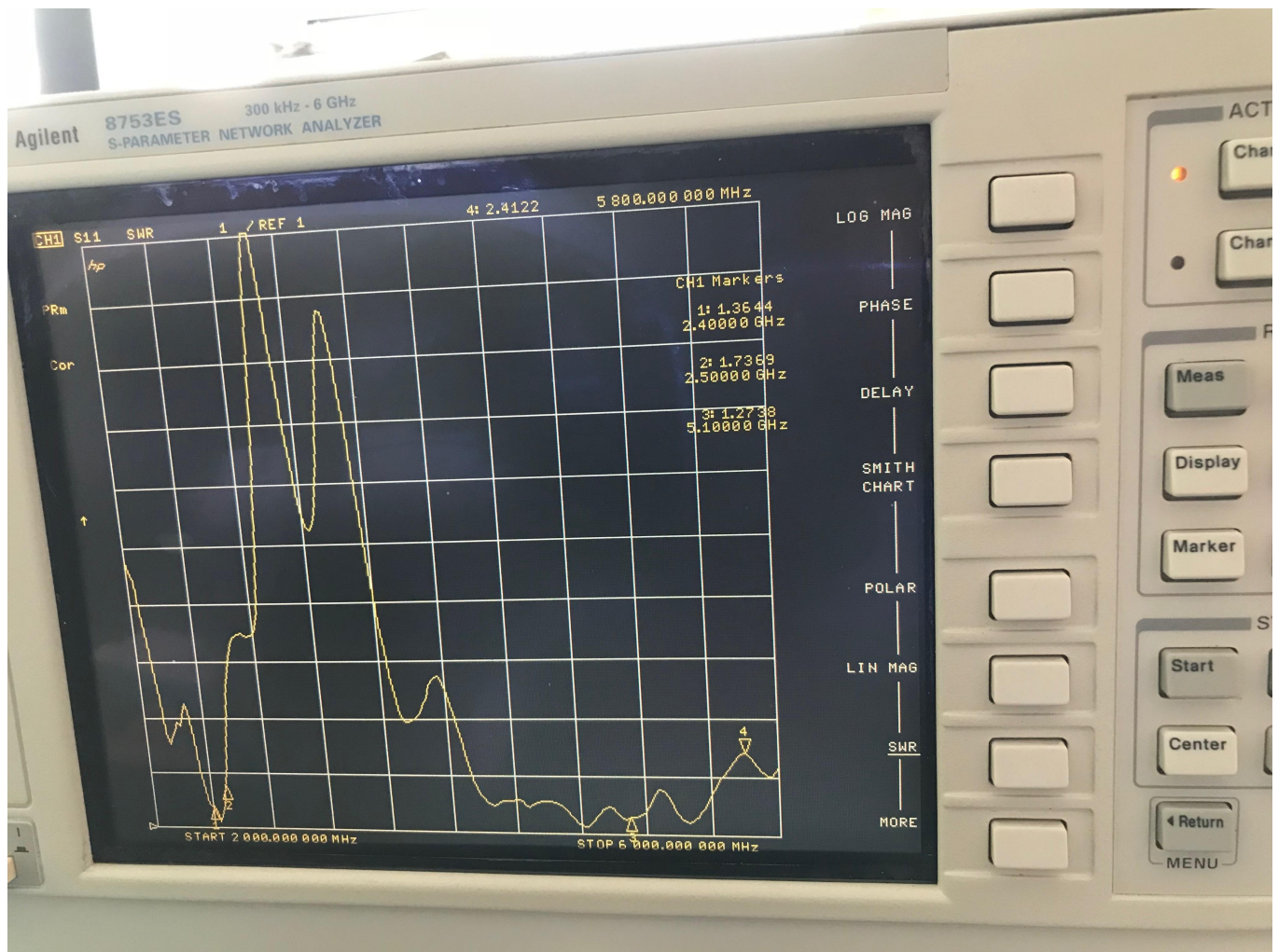
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2. WIFI 天线性能:



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3.WiFi 天线效率和增益

Passive Test For WIFI								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	49.22	-3.08	1.3	-0.85	1.3	-17.14	48.09	47.94
2410	49.19	-3.08	1.23	-0.92	1.23	-16.88	48.07	47.87
2420	48.97	-3.1	1.12	-1.03	1.12	-16.27	48.18	48
2430	48	-3.19	1	-1.15	1	-15.74	48.17	47.99
2440	49.81	-3.03	1.21	-0.94	1.21	-15.97	48.33	48.11
2450	51.97	-2.84	1.44	-0.71	1.44	-16.43	48.44	48.14
2460	51.39	-2.89	1.4	-0.75	1.4	-17.57	48.41	48.06
2470	51.84	-2.85	1.43	-0.72	1.43	-17.85	48.49	48.11
2480	52.99	-2.76	1.48	-0.67	1.48	-17.28	48.63	48.18
2490	53.53	-2.71	1.45	-0.7	1.45	-16.92	48.76	48.29
2500	50.61	-2.96	1.1	-1.05	1.1	-17.94	48.69	48.16

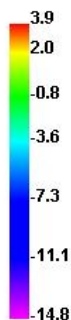
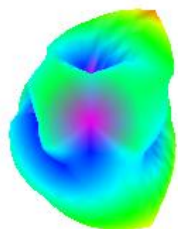
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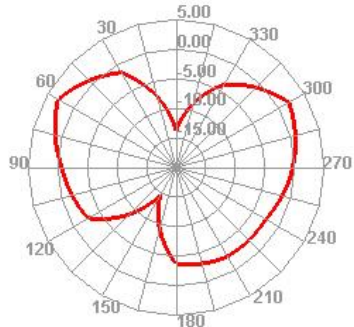
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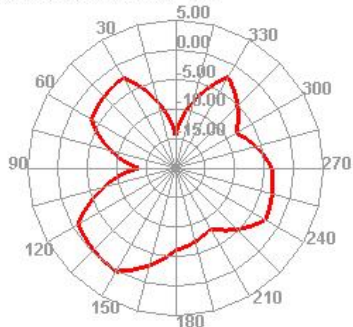
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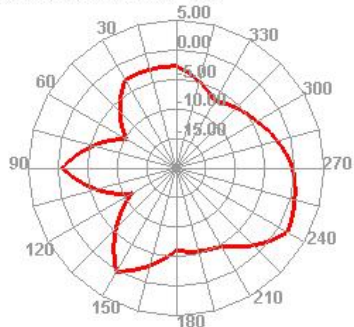
2400.000MHz H



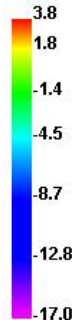
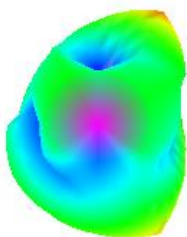
2400.000MHz E1



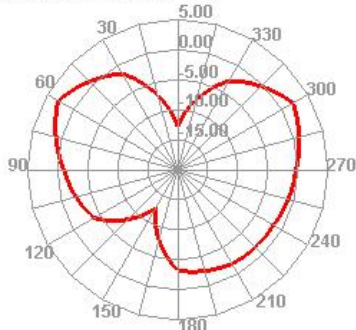
2400.000MHz E2



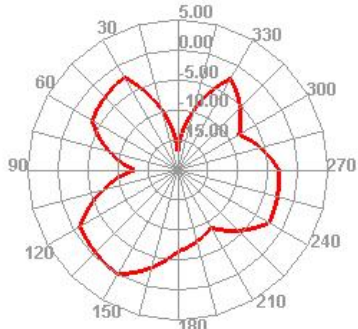
2410.000MHz



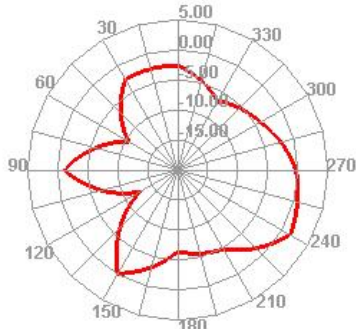
2410.000MHz H



2410.000MHz E1



2410.000MHz E2



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Passive Test For wifi								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5000	61.09	-2.14	2.63	0.48	2.63	-26.56	66.37	64.7
5010.11	54.25	-2.66	2.54	0.39	2.54	-18.03	65.8	63.94
5020.22	57.36	-2.41	3.2	1.05	3.2	-18.09	65.93	64.06
5030.34	57.28	-2.42	2.38	0.23	2.38	-17.2	66	64.47
5040.45	59.45	-2.26	1.83	-0.32	1.83	-23.67	65.96	64.1
5050.56	54.35	-2.65	1.67	-0.48	1.67	-22.89	65.38	63.69
5060.67	56.35	-2.49	2.69	0.54	2.69	-17.33	65.51	63.83
5070.78	54.79	-2.61	1.74	-0.41	1.74	-18.76	65.6	63.88
5080.9	60.29	-2.2	2.41	0.26	2.41	-16.11	65.72	64.15
5091.01	54.94	-2.6	2.8	0.65	2.8	-18.57	65.36	63.43
5101.12	51.82	-2.86	2.17	0.02	2.17	-14.46	65.11	63.84
5111.23	55.36	-2.57	1.97	-0.18	1.97	-15.35	65.48	63.79
5121.34	59.63	-2.25	3.36	1.21	3.36	-14.47	65.72	64.14
5131.46	52.48	-2.8	1.92	-0.23	1.92	-18.07	65.01	63.54
5141.57	50.7	-2.95	1.82	-0.33	1.82	-21.35	64.67	63.62
5151.68	54.54	-2.63	2.45	0.3	2.45	-19.27	64.86	63.52
5161.79	60.75	-2.16	2.48	0.33	2.48	-13.74	64.9	63.8
5171.9	60.34	-2.19	2.66	0.51	2.66	-16.05	64.96	63.45
5182.02	51.27	-2.9	1.86	-0.29	1.86	-18.55	64.31	63.11
5192.13	51.81	-2.86	2.01	-0.14	2.01	-17.18	64.32	63.08
5202.24	54.44	-2.64	1.99	-0.16	1.99	-16.8	64.44	63.22
5212.35	52.6	-2.79	2.28	0.13	2.28	-13.05	64.38	63.18
5222.46	50.14	-3.17	1.78	-0.37	1.78	-14.96	63.9	62.98
5232.58	57.12	-3.27	1.27	-0.88	1.27	-14.06	64.07	63.05
5242.69	50.67	-2.95	2.31	0.16	2.31	-14.67	64.2	63.39
5252.8	51.27	-3.07	1.62	-0.53	1.62	-14.44	64.02	63.03
5262.91	55.33	-3.44	1.7	-0.45	1.7	-16.34	63.72	63.01
5273.02	55.53	-3.42	1.06	-1.09	1.06	-14.17	63.8	63.09
5283.14	50.46	-2.97	1.98	-0.17	1.98	-13.25	64.05	63.18
5293.25	50.77	-2.94	1.63	-0.52	1.63	-14.65	64.14	63.13

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5303.36	51.69	-3.4	1.64	-0.51	1.64	-14.62	63.84	62.8
5313.47	53.6	-3.13	1.35	-0.8	1.35	-13.96	64.04	63.2
5323.58	50.79	-3.12	1.23	-0.92	1.23	-13.32	64.12	63.49
5333.7	52.78	-3.21	1.35	-0.8	1.35	-15.17	64.26	63.52
5343.81	50.24	-3.17	1.3	-0.85	1.3	-13.91	64.14	63.55
5353.92	52.47	-3.24	1.43	-0.72	1.43	-13.71	64.11	63.64
5364.03	52.57	-3.14	1.54	-0.61	1.54	-17.02	64.3	63.58
5374.14	51.58	-2.88	2.12	-0.03	2.12	-13.27	64.44	63.81
5384.26	57.71	-3.21	1.42	-0.73	1.42	-13.81	64.38	63.67
5394.37	50.61	-2.96	1.32	-0.83	1.32	-14.17	64.45	63.78
5404.48	55.91	-2.53	1.39	-0.76	1.39	-12.6	64.53	64.14
5414.59	51.64	-2.87	1.79	-0.36	1.79	-16.89	64.33	63.91
5424.7	51.04	-2.92	1.47	-0.68	1.47	-13.8	64.21	63.94
5434.82	52.09	-3.09	1.35	-0.8	1.35	-13.94	64.02	63.76
5444.93	50.12	-3.09	1.55	-0.6	1.55	-13.22	64.03	63.74
5455.04	58.88	-3.11	1.38	-0.77	1.38	-17.41	64.21	64.05
5465.15	56.43	-3.06	1.83	-0.32	1.83	-12.89	64.39	64.33
5475.26	58.98	-3.1	1.22	-0.93	1.22	-13.72	64.77	64.69
5485.38	56.47	-3.33	1.67	-0.48	1.67	-17.5	64.75	64.66
5495.49	57.8	-3.21	0.94	-1.21	0.94	-13.77	64.61	64.64
5505.6	57.1	-3.27	0.85	-1.3	0.85	-15.59	64.59	64.76
5515.71	55.34	-3.43	1.03	-1.12	1.03	-13.23	64.72	64.92
5525.82	55.92	-3.38	1.21	-0.94	1.21	-13.77	64.96	65.27
5535.94	55.99	-3.37	1.19	-0.96	1.19	-12.57	65.27	65.4
5546.05	54.62	-3.5	0.64	-1.51	0.64	-15.94	65.46	65.49
5556.16	53.33	-3.63	0.55	-1.6	0.55	-16.29	65.51	65.54
5566.27	52.45	-3.72	0.45	-1.7	0.45	-16.31	65.45	65.04
5576.38	53.73	-3.59	0.79	-1.36	0.79	-13.51	65.62	65.18
5586.5	51.65	-3.8	0.28	-1.87	0.28	-11.89	65.68	65.41
5596.61	51.55	-3.81	0.2	-1.95	0.2	-13.91	66.03	66.15

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5606.72	51.55	-3.81	0.4	-1.75	0.4	-15.58	66.26	65.99
5616.83	57.64	-3.22	1.57	-0.58	1.57	-14.94	66.35	66.1
5626.94	54.38	-3.53	1	-1.15	1	-12.53	66.26	65.79
5637.06	54.2	-3.55	0.53	-1.62	0.53	-13.44	66.1	65.66
5647.17	54.05	-3.56	1.21	-0.94	1.21	-14.18	66	65.64
5657.28	57.87	-3.2	1.23	-0.92	1.23	-14.03	66.15	66.37
5667.39	57.14	-3.27	0.51	-1.64	0.51	-12.07	65.95	65.77
5677.5	52.14	-2.83	1.61	-0.54	1.61	-10.56	65.8	66.1
5687.62	50.13	-3	1.01	-1.14	1.01	-14.67	65.7	65.51
5697.73	51.51	-2.88	1.56	-0.59	1.56	-13.87	65.33	65.35
5707.84	50.49	-2.97	1.23	-0.92	1.23	-12.95	65.18	64.96
5717.95	52.84	-2.77	2.12	-0.03	2.12	-10.61	65.13	65.49
5728.06	53.87	-2.69	1.21	-0.94	1.21	-11.44	65.37	65.42
5738.18	57.21	-2.43	1.35	-0.8	1.35	-10.58	65.59	65.56
5748.29	58.88	-2.3	1.23	-0.92	1.23	-9.77	65.85	65.82
5758.4	53.6	-2.71	1.88	-0.27	1.88	-11.64	65.79	65.78
5768.51	57.07	-2.44	1.77	-0.38	1.77	-14.52	65.92	66.14
5778.62	52.16	-2.83	1.68	-0.47	1.68	-10.95	65.65	65.59
5788.74	59.14	-2.28	1.34	-0.81	1.34	-11.59	65.6	65.65
5798.85	59.49	-2.26	2.15	0	2.15	-10.18	65.75	65.83
5808.96	58.1	-2.36	2.31	0.16	2.31	-10.93	65.86	65.83
5819.07	55.44	-2.56	1.74	-0.41	1.74	-12.64	66.06	66.01
5829.18	64.7	-1.89	2.25	0.1	2.25	-11.09	66.6	66.74
5839.3	55.96	-2.52	2.02	-0.13	2.02	-13.11	66.43	66.28
5849.41	65.71	-1.82	2.43	0.28	2.43	-9.6	66.36	66.74
5859.52	62.77	-2.02	2.82	0.67	2.82	-9.78	66.26	66.74
5869.63	62.05	-2.07	2.45	0.3	2.45	-9.77	66.45	66.79
5879.74	55.3	-2.57	2.49	0.34	2.49	-14.18	66.55	66.78
5889.86	65.5	-1.84	3	0.85	3	-9.77	67.04	67.72
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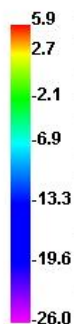
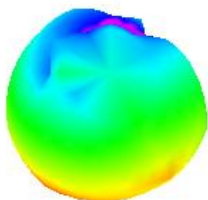
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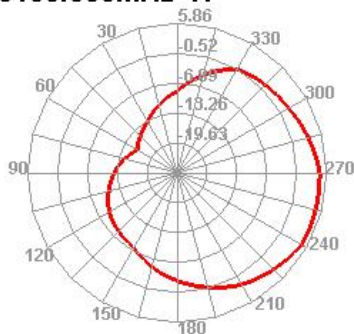
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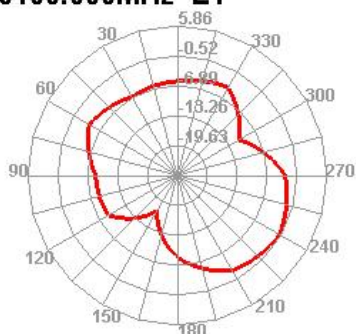
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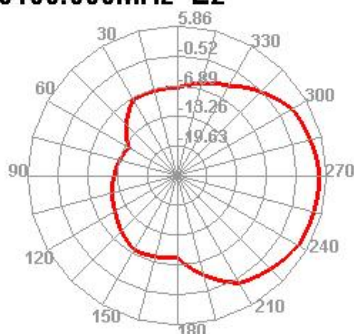
5100.000MHz H



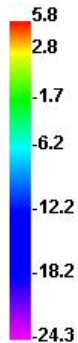
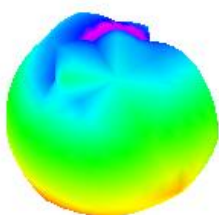
5100.000MHz E1



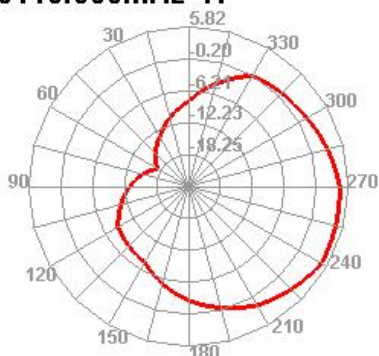
5100.000MHz E2



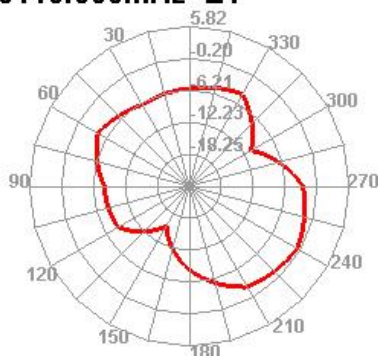
5110.000MHz



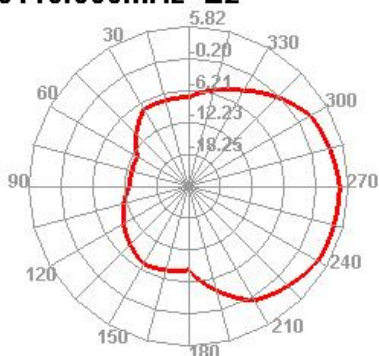
5110.000MHz H



5110.000MHz E1



5110.000MHz E2



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4.天线结构图

