

亦轩 <东莞> 电子科技有限公司

YIXUAN DongGuan DianZI KeJi YouXianGongSi

客户名称: 深圳市轩辕星电子科技有限公司

机型: T30<黑色刀锋>

天线类型: WIFI+4G 天线

天线频段: 2.4G+4G

材质要求: PCB/同轴线/塑胶

颜色: 黑色

天线料号: T30-1R10G-325-A 制作日期: 2024-03-2

Version: A

承认签章			
Admit that signature			
亦轩 承认 Confirmation Signature		客户 承认 Customer Approved	
承辦人 Responsible	张立	承辦人 Responsible	
品质 QC	雷桃	主管 Chief	
核准 Approve	申中秋	核准 Approve	
日期 Date	2024/3/2	日期 Date	

目录

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一：概述

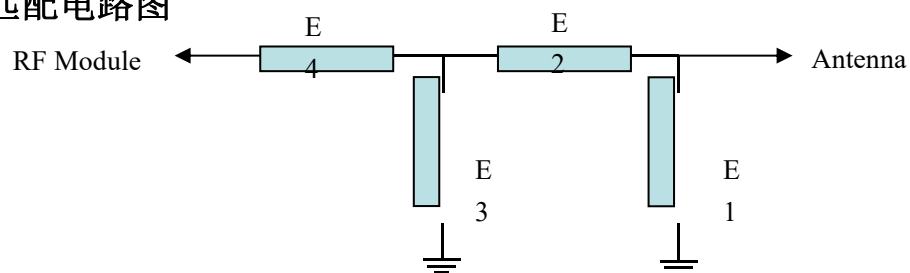
- This approval sheet supports for MID project. PCB antennas include in this project. This report is for the performance of WLAN ,4G antenna.
- Antenna shape size: Meet the requirement of MID
- Antenna band: 2400MHz~2500MHz, 824MHz-960MHz,1710MHz-2700MHz
- Antenna material: Antenna material meet the requirement of MID
- Antenna performance meet the spec below:

Description	2.4GHz~2.5GHz	824MHz-960MHz	1710MHz-2700MHz
VSWR	≤ 2.0	≤ 2.0	≤ 2.0
Antenna Efficiency	≥ 40	≥ 25	≥ 40
Feed Impedance	50 ohms		
Operating Temperature	-40 to +85 deg C		
Polarization / Azimuth	Linear / Omni-directional		

● Mechanical Information

Mechanical Dimension	
Cable Length	60mm/Black
Description	WLAN+4G antenna
Material	PCB
Coaxial Cable	50Ohm/O.D.1.78mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

匹配电路图

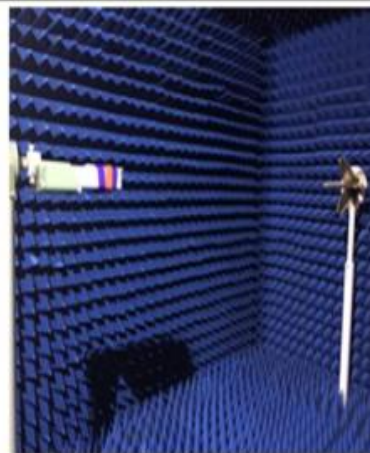


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二. 测试环境

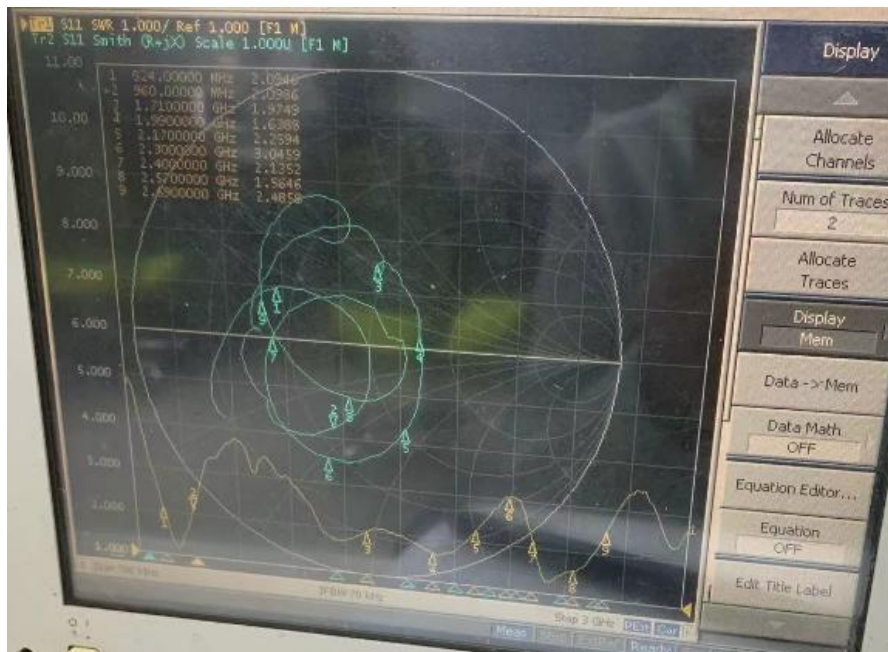
	测试项目	设备
1. S参数 (S-parameter)	1. 回波损耗 (Return Loss) 2. 电压驻波比 (VSWR)	网络分析仪: Agilent E5071B HP 8753D
2. 有源测试 (Active)	1. 发射功率 (TRP) 2. 接收灵敏度 (TIS) 3. 频率误差 4. 屏灭、屏亮	1. 暗室: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. 综合测试仪: Agilent 8960 E5515B x2 StarPoint SP6011
3. 无源测试 (Passive)	1. 天线增益 (Gain) 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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三. S11无源参数



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四. 4G天线TRP. TIS. TDD. FDD测试数据.

Test	LTE1 TRP		
Result	18050	18300	18550
TRP (dBm)	18.08	20.73	19.79

Test	LTE1 TIS
Result	18550
TIS (dBm)	-89.76

Test	LTE3 TRP		
Result	19250	19575	19900
TRP (dBm)	19.9	19.99	19.87

Test	LTE3 TIS
Result	19900
TIS (dBm)	-90.58

Test	LTE5 TRP		
Result	20450	20525	20600
TRP (dBm)	19.87	19.21	19.97

Test	LTE5 TIS
Result	20600
TIS (dBm)	-91

Test	LTE8 TRP		
Result	21500	21625	21750
TRP (dBm)	19.75	18.83	18.82

Test	LTE8 TIS
Result	21750
TIS (dBm)	-90.67

Test	LTE38 TRP		
Result	38750	28000	38150
TRP (dBm)	19.73	18.56	18.15

Test	LTE38 TIS
Result	38150
TIS (dBm)	-89.89

Test	LTE39 TRP		
Result	38350	38450	38550
TRP (dBm)	19.83	19.61	18.78

Test	LTE39 TIS
Result	38550
TIS (dBm)	-91.17

Test	LTE40 TRP		
Result	38750	39150	39550
TRP (dBm)	18.84	18.36	18.12

Test	LTE40 TIS
Result	39550
TIS (dBm)	-90.49

Test	LTE41 TRP		
Result	40340	4070	41140
TRP (dBm)	18.94	18.17	18.86

Test	LTE41 TIS
Result	41140
TIS (dBm)	-90.67

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五. WIFI天线2.4G有源参数和效率驻波比

WIFI天线2.4G

Application Information	
O4Version	4.95.303
TotalTime	0m 57s 631ms
AdditionalInfor	NULL

FETUKEJ	2400MHz~2.5MHz										
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-3.31	-3.55	-3.50	-3.63	-3.62	-3.70	-3.83	-4.32	-4.46	-4.35	-4.54
Peak EIRP (dBm)	3.18	2.91	3.07	2.94	2.97	2.97	2.95	2.47	2.40	2.58	2.49
Directivity (dBi)	6.49	6.46	6.56	6.57	6.59	6.67	6.77	6.80	6.85	6.93	7.03
Efficiency (dB)	-3.31	-3.55	-3.50	-3.63	-3.62	-3.70	-3.83	-4.32	-4.46	-4.35	-4.54
Efficiency (%)	46.60	44.10	44.70	43.40	43.40	42.70	41.40	37.00	35.80	36.70	35.20
Gain (dBi)	3.18	2.91	3.07	2.94	2.97	2.97	2.95	2.47	2.40	2.58	2.49
NHPRP $\pm\pi/4$ (dBm)	-4.43	-4.69	-4.64	-4.76	-4.75	-4.82	-4.94	-5.41	-5.51	-5.37	-5.55
NHPRP $\pm\pi/6$ (dBm)	-5.65	-5.90	-5.83	-5.94	-5.93	-6.00	-6.12	-6.59	-6.68	-6.53	-6.70
NHPRP $\pm\pi/8$ (dBm)	-6.63	-6.86	-6.76	-6.85	-6.84	-6.93	-7.06	-7.54	-7.63	-7.46	-7.62
Upper Hem. PRP (dBm)	-6.60	-6.77	-6.70	-6.83	-6.84	-6.94	-7.07	-7.57	-7.69	-7.55	-7.65
Lower Hem. PRP (dBm)	-6.07	-6.36	-6.33	-6.45	-6.43	-6.49	-6.62	-7.11	-7.26	-7.18	-7.45
Upper Hem. PRP (%)	21.90	21.02	21.40	20.74	20.70	20.25	19.65	17.52	17.02	17.57	17.19
Lower Hem. PRP (%)	24.74	23.09	23.29	22.64	22.74	22.42	21.77	19.43	18.79	19.16	17.98

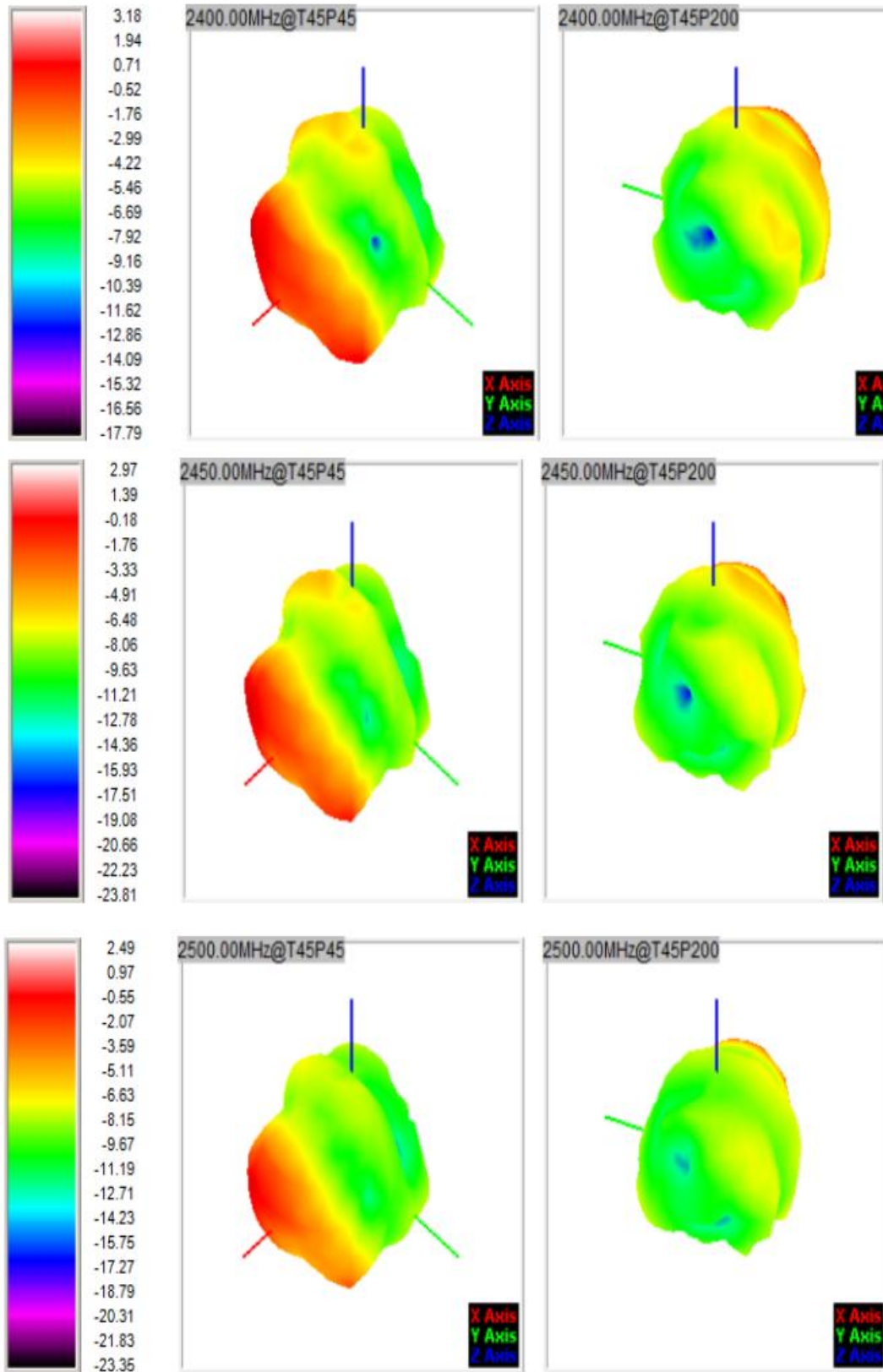


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五：结构图

