

Yixuan<Dongguan>ElectronicTechnologyCo.

CustomerName: ShenzhenXuanyuanxingElectronicTechnologyCo.

models:X14

Antenna type: WIFI antenna

Antenna frequency band: 2.4GHz

Material requirement: Copper tube / coaxial cableColor: Black

Antenna part number: X14-1R11G-100-A

Production date: 2023-11-02

Version: A

Admitthatsignature			
Confirmation Signature		CustomerApproved	
Responsible	张立	Responsible	
QC	雷桃	Chief	
Approve	申中秋	Approve	
Date	2023/11/02	Date	

18th Floor, No. 2, Lane 5, Xindiwei South Road, Yongtuo, Chang'an
Town, Dongguan City, Guangdong Province
telephone: 13058053185

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一: Overview

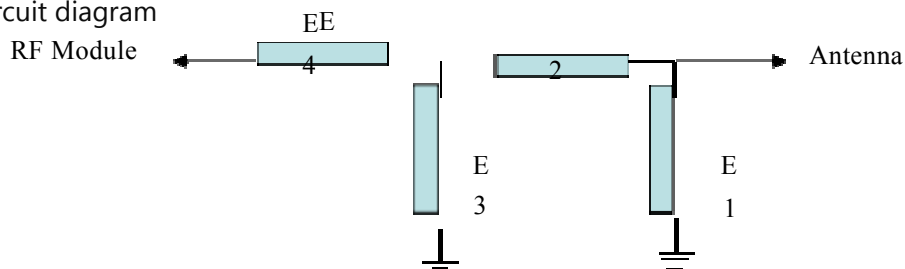
- This approval sheet supports for MID project.PCB antennasincludein thisproject.Thisreport is for theperformance of WLAN,4G antenna.
- Antenna shape size: Meet therequirement of MID
- Antenna band: 2400MHz~2500MHz,
- Antenna material: Antenna materialmeet therequirement of MID
- Antenna performance meet the specbelow:

Description	2.4GHz~2.5GHz	Units
VSWR	≤ 2.0	
Average Antenna Gain	≥ 1.5	dB
Antenna Efficiency	≥ 40	%
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85deg C	
Polarization / Azimuth	Linear / Omni-directional	

- **Mechanical Information**

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

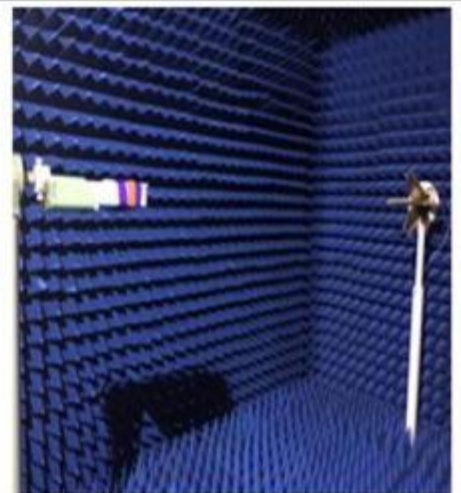
Matching circuit diagram



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 telephone: 13058053185

二. Testing environment

	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 × 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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三. Complete machine debugging instructions

1. Actual testing scenario



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Chang'an Town, Dongguan City, Guangdong Province
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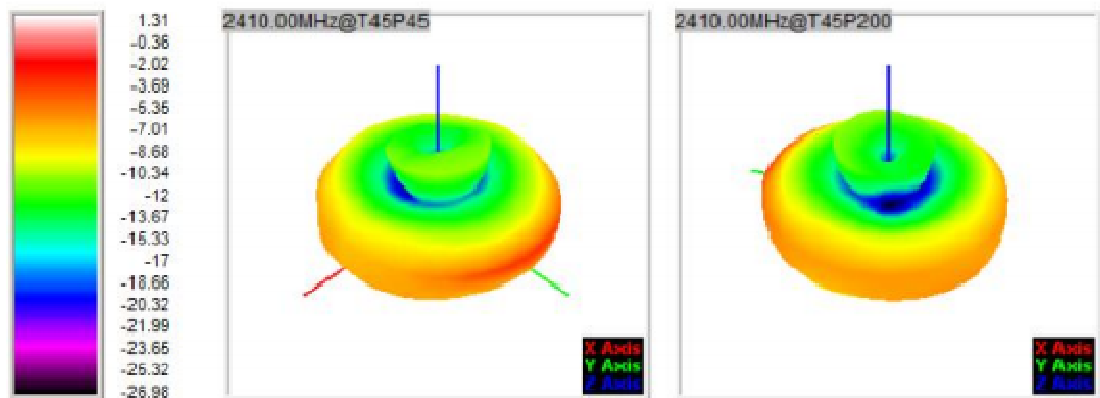
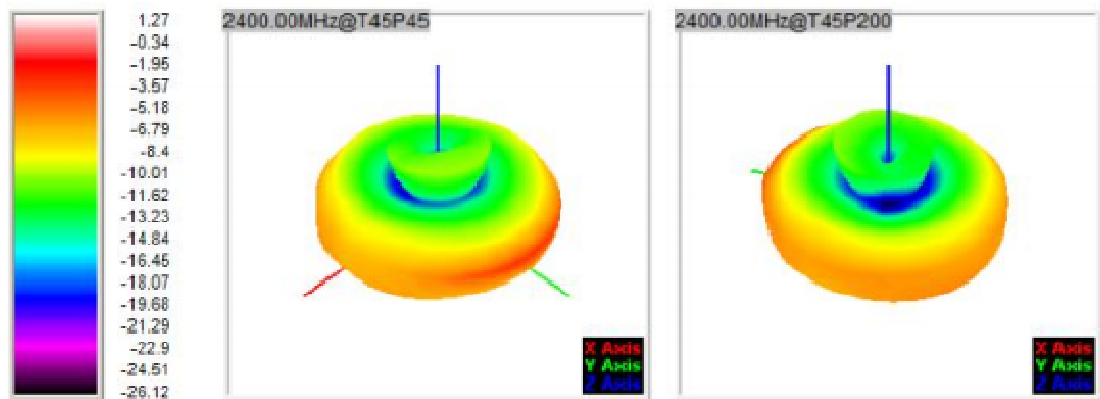
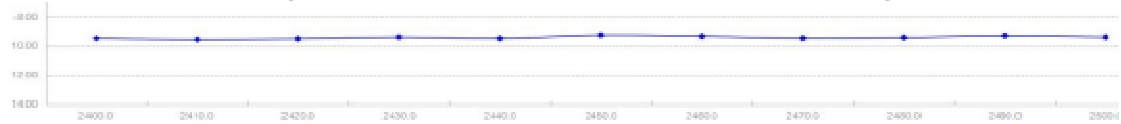
四. WIFI Antenna 2.4G efficiency:

FETUKEJI											
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)	-4.53	-4.57	-4.50	-4.32	-4.31	-4.06	-4.15	-4.36	-4.39	-4.31	-4.40
Peak EIRP (dBm)	1.27	1.31	1.37	1.43	1.30	1.40	1.24	1.01	1.02	1.08	0.94
Directivity (dBi)	5.80	5.87	5.87	5.76	5.62	5.45	5.39	5.37	5.41	5.39	5.34
Efficiency (dB)	-4.53	-4.57	-4.50	-4.32	-4.31	-4.06	-4.15	-4.36	-4.39	-4.31	-4.40
Efficiency (%)	35.20	34.90	35.50	36.90	37.00	39.30	38.50	36.60	36.40	37.10	36.30
Gain (dBi)	1.27	1.31	1.37	1.43	1.30	1.40	1.24	1.01	1.02	1.08	0.94
NHPRP \pm Pi/4 (dBm)	-4.85	-4.90	-4.84	-4.68	-4.68	-4.43	-4.52	-4.72	-4.74	-4.66	-4.77
NHPRP \pm Pi/6 (dBm)	-5.24	-5.30	-5.25	-5.08	-5.08	-4.82	-4.90	-5.09	-5.10	-5.00	-5.10
NHPRP \pm Pi/8 (dBm)	-5.64	-5.70	-5.65	-5.49	-5.48	-5.21	-5.27	-5.45	-5.44	-5.33	-5.42
Upper Hem. PRP (dBm)	-6.18	-6.20	-6.12	-5.92	-5.86	-5.59	-5.69	-5.94	-5.99	-5.93	-6.03
Lower Hem. PRP (dBm)	-9.54	-9.61	-9.56	-9.45	-9.54	-9.32	-9.40	-9.53	-9.48	-9.36	-9.45
Upper Hem. PRP (%)	24.09	23.99	24.43	25.60	25.93	27.60	27.00	25.48	25.17	25.50	24.94
Lower Hem. PRP (%)	11.12	10.94	11.06	11.35	11.11	11.70	11.49	11.15	11.27	11.60	11.35



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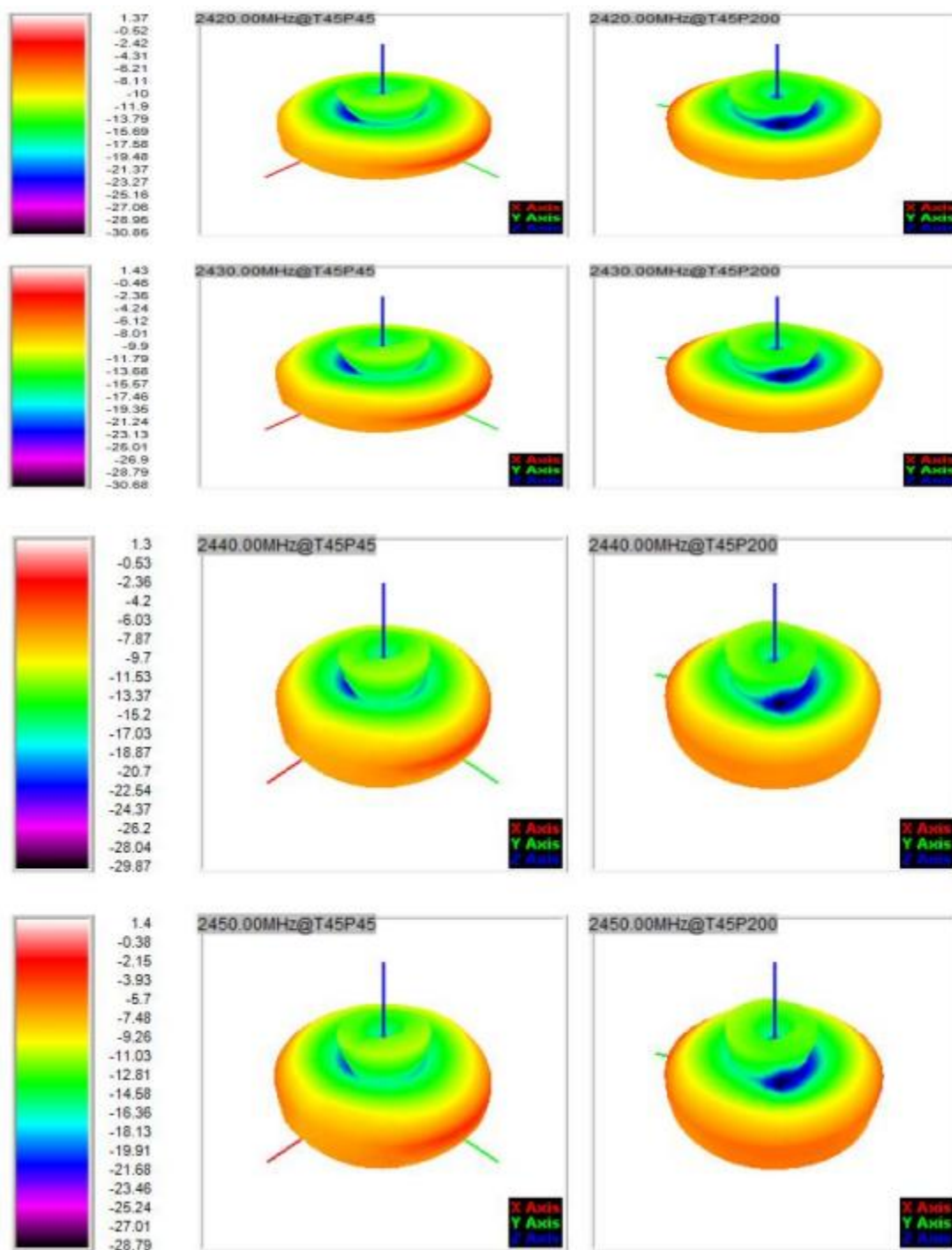
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78th Floor, No. 2, Lane 5, Xindiwei South Road, Yongtuo,
Chang'an Town, Dongguan City, Guangdong Province telephone:
13058053185

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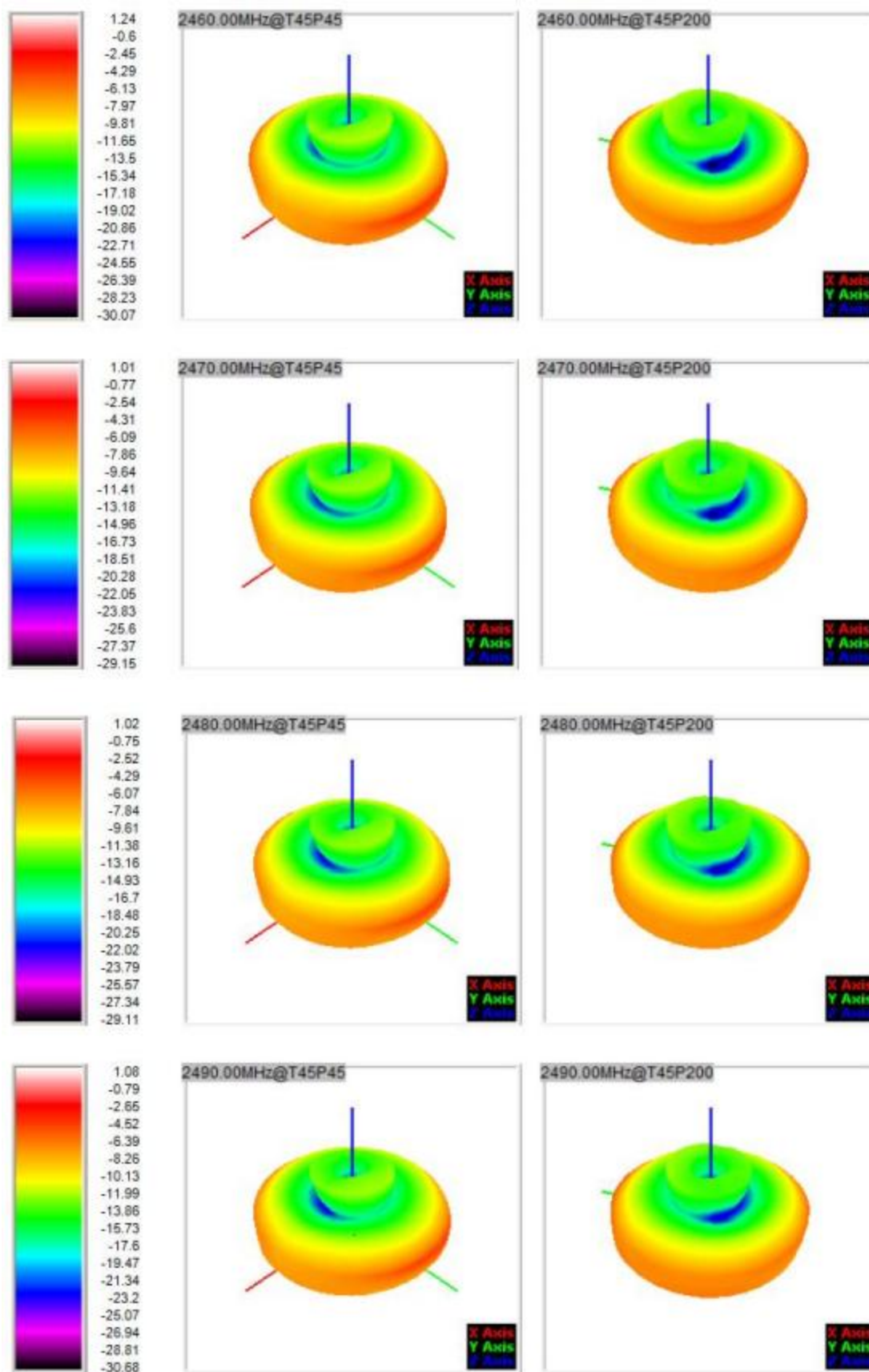
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8th Floor, No. 2, Lane 5, Xindiwei South Road, Yongtuo,
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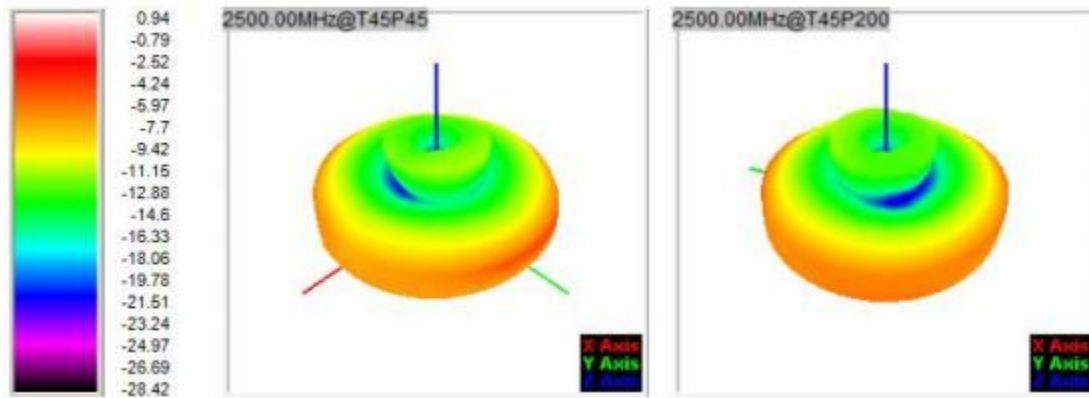
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98th Floor, No. 2, Lane 5, Xindiwei South Road, Yongtuo,
Chang'an Town, Dongguan City, Guangdong Province telephone:
13058053185

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