



深圳市尚远科技有限公司

Shenzhen Sunnyway Technology Co.Ltd.

Antenna SPEC

Customer: WANLIDA		Project Name:	
Working Band: WIFI 2.4/5.8			
Mainboard Version:			
Sunnyway BOM			
SPEC-Type	Model Name		Antenna Type
WIFI0 Antenna	SZ24168IB77-4		PFC

Change history			
Preparation/change date	change content	Changed by	version
2024.07.18	First edition	Xu Wei	A

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ITEM

1 TEST FIXTURE

2 MATCHING CIRCUIT

3 S11 TEST

3.0 S11 test method

3.1 S11 parameter

3.2 Efficiency&Gain

4 CHAMBER TEST DATA

4.0 test equipment

4.1 active data

5 GROUND HANDLING

6 MASS PRODUCTION ANTENNA SPEC

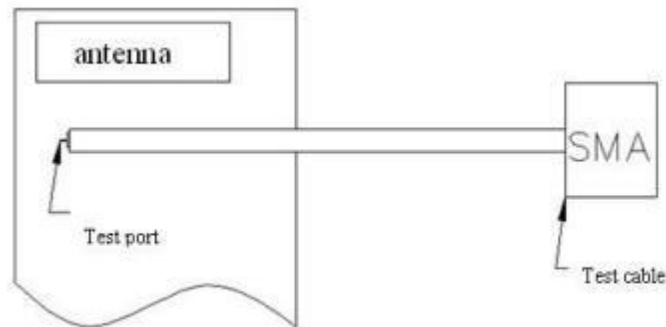
7 Structural drawings

8 Environmental testing report

1. TEST FIXTURE

Purpose: To test antenna passive parameters as accurately as possible.

methods: the fixture is to use a 50 ohm coaxial cable, one end is connected to the pad after the antenna's matching circuit (the front of the antenna switch) , and the other end is connected to the SMA connector.



2. MATCHING CIRCUIT

Antenna matching did not modify

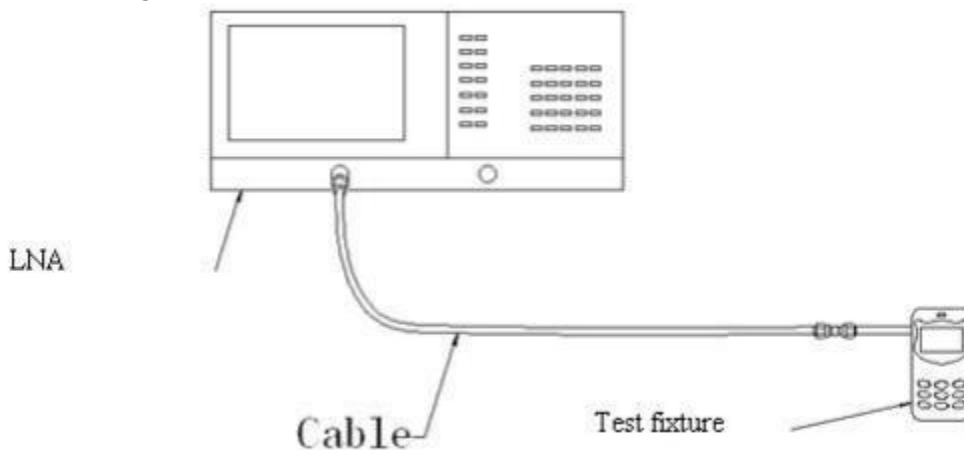
3. S11 test

3.0 S11 test method instructions

Test equipment: LNA (Agilent E5071B)

Test method: With a 50 ohm CABLE ,CABLE export from instrument testing port , After the calibration with calibration Key, connected to the SMA connector , Records the return loss and VSWR of the related frequency points.

Test schematic diagram is as follows:

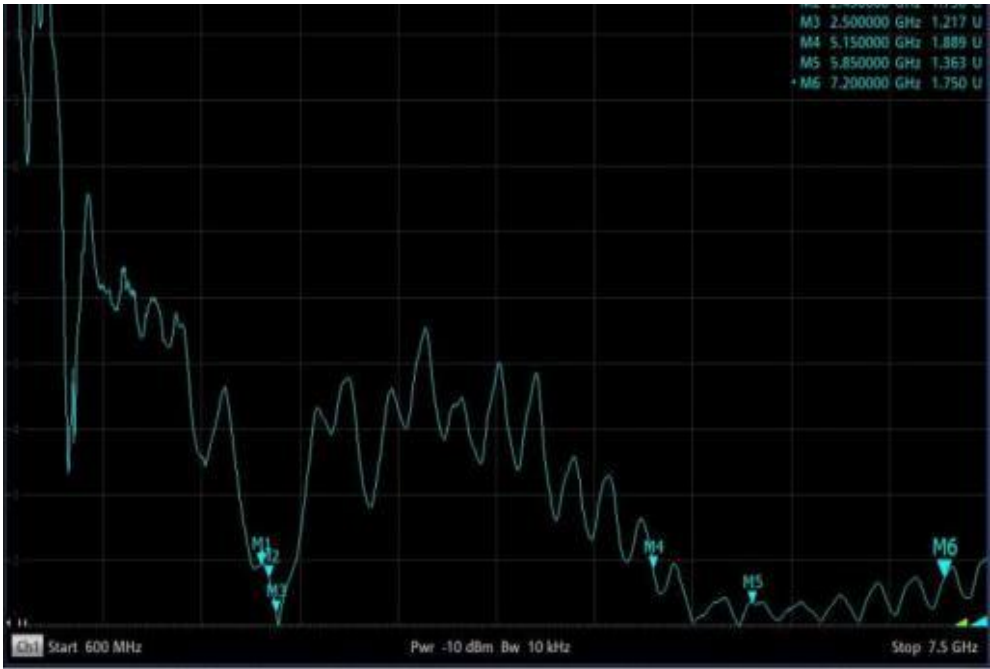


Test schematic diagram

3.1 S11 parameter

WIFI ANT VSWR

频率 (Freq.) MHz	2400	2450	2500	5150	5850	7200
驻波比 VSWR	1.9	1.7	1.2	1.8	1.3	1.7



4. CHAMBER TEST DATA

4.0Test equipment

Test system: chamber

Test environment: the temperature of22 °C + 3 °C, humidity of50% plus or minus 15%

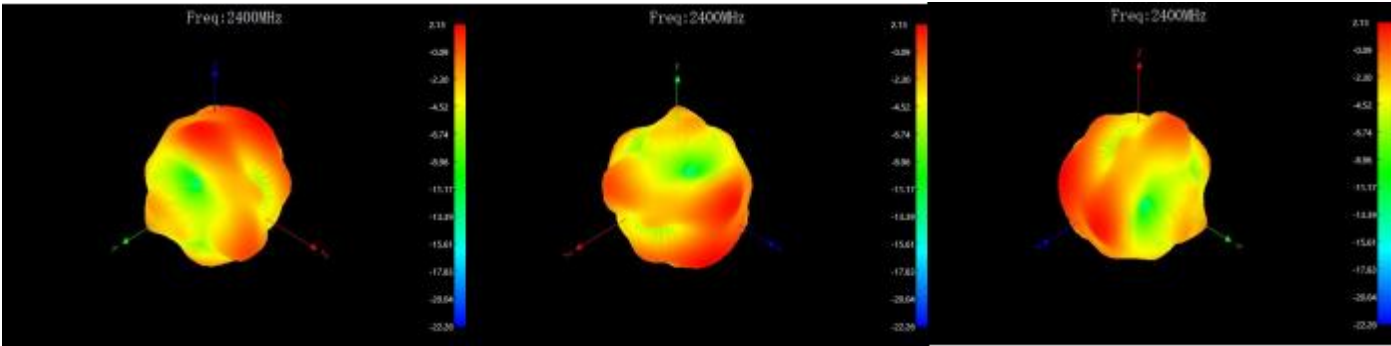
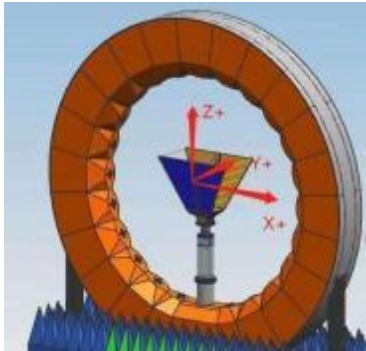
Test equipment: to test passive status , use Agilent 8960 Agilent E5071B to test active status, use CMW500

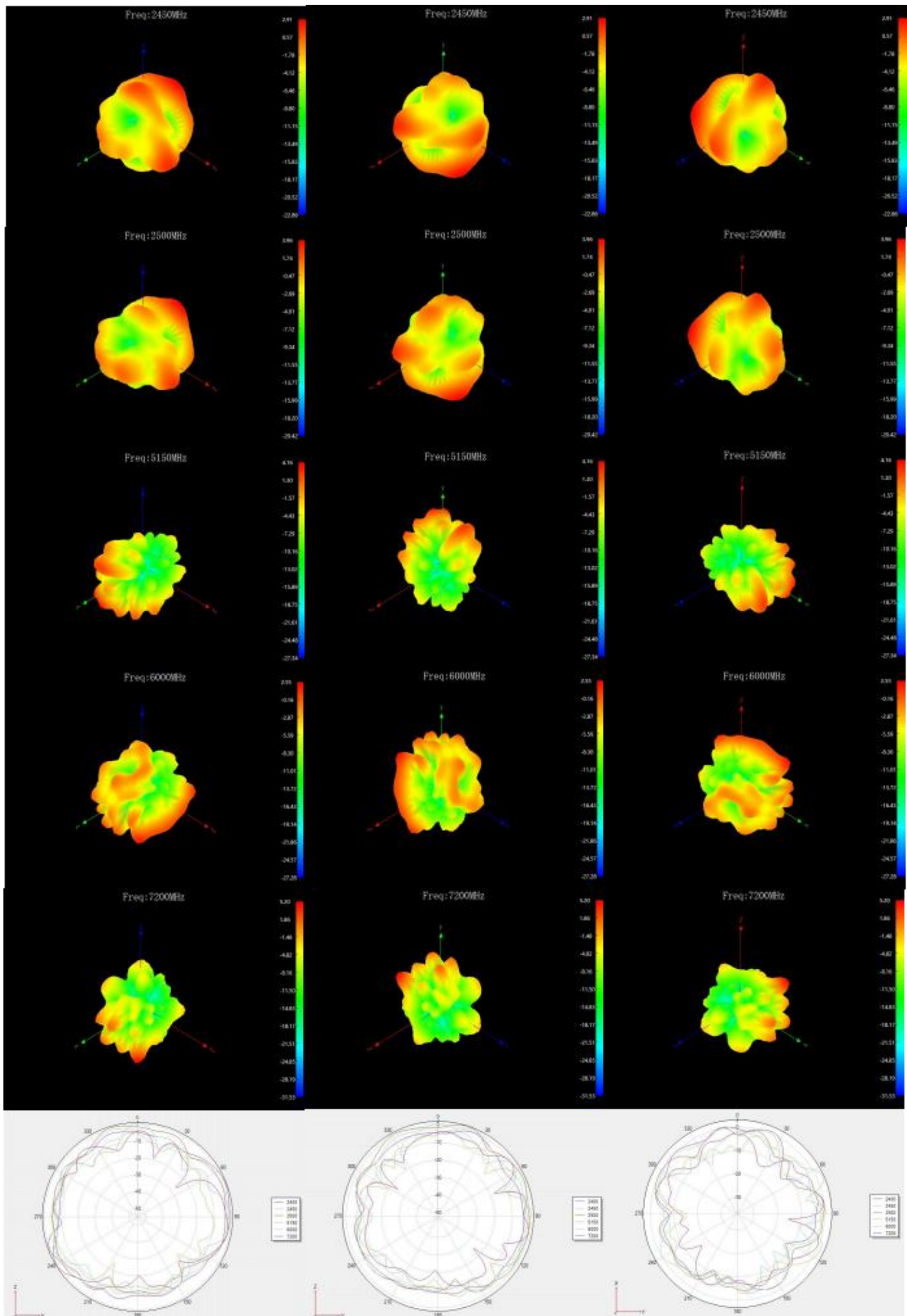
Test data

Test data

2400	45.19	2.13	5900	32.81	3.17
2410	44.57	2.05	5950	32.66	2.62
2420	45.6	2.36	6000	33.04	2.55
2430	45.6	2.41	6050	33.81	2.72
2440	46.45	2.65	6100	32.36	2.75
2450	45.75	2.91	6150	33.73	3
2460	47.47	3.29	6200	33.57	3.29
2470	45.05	3.46	6250	34.51	4.12
2480	46.84	3.72	6300	32.51	4.41
2490	48.08	3.9	6350	33.27	5.17
2500	48.2	3.96	6400	33.96	5.47
			6450	32.43	5.27
5150	34.11	4.16	6500	32.96	5.39
5200	35.83	4.46	6550	32.21	5.47
5250	34.51	4.38	6600	32.96	5.49
5300	33.91	3.99	6650	32.43	5.31
5350	32.61	3.09	6700	30.9	4.76
5400	33.84	3.75	6750	31.05	4.34
5450	34.65	4.7	6800	30.97	3.98
5500	34.51	5.3	6850	31.77	4.26
5550	34.92	5.51	6900	29.85	4.34
5600	35.48	5.69	6950	27.99	4.34
5650	33.04	5.63	7000	29.58	4.84
5700	32.51	4.96	7050	29.38	4.82
5750	32.43	4.02	7100	31.48	5.08
5800	33.04	3.72	7150	29.99	4.83
5850	32.51	3.39	7200	31.12	5.2

Field diagram





5. Ground handling

Measurement	Band	Channel	合路	WiFi 0
TRP	WIFI_B (11M)	1	14.61	10.75
TRP		6	14.71	10.52
TRP		11	13.32	9.81
TIS(EIRP)		11	-84.85	-82.45
TIS(EIRP)		1	-84.39	-82.87
TIS(EIRP)		6	-83.24	-81.74
TRP	WIFI_G (54M)	1	14.36	11.21
TRP		6	14.69	11.06
TRP		11	14.85	10.79
TIS(EIRP)		11	-70.74	-70.56
TIS(EIRP)		1	-70.41	-69.75
TIS(EIRP)		6	-70.3	-69.28
TRP	WIFI_N_ISM (65M)	1	14.58	11.24
TRP		6	14.36	10.18
TRP		11	13.87	9.64
TIS(EIRP)		11	-69.29	-67.58
TIS(EIRP)		1	-68.85	-67.41
TIS(EIRP)		6	-69.36	-68.27
TRP	WIFI_A (54M)	36	15.14	13.15
TRP		149	15.58	13.61
TRP		165	15.32	13.27
TIS(EIRP)		165	-76.14	-72.15
TIS(EIRP)		36	-75.74	-72.32
TIS(EIRP)		149	-75.21	-71.4
TRP	WIFI_N_UNII (65M)	36	15.25	11.96
TRP		149	14.35	12.06
TRP		165	14.85	11.65
TIS(EIRP)		165	-72.33	-70.14
TIS(EIRP)		36	-71.51	-69.25
TIS(EIRP)		149	-71.28	-69.9

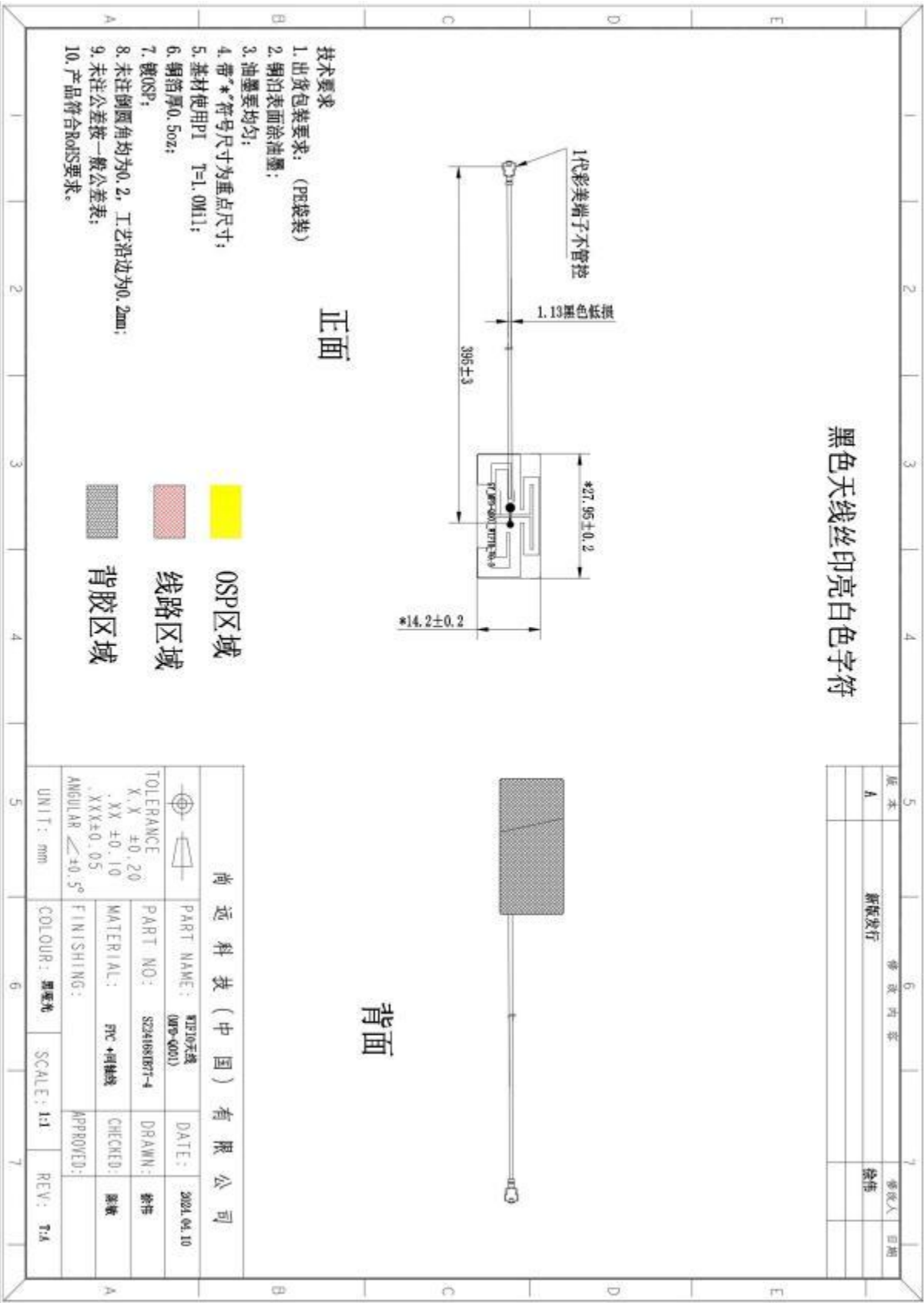
6. Mass production antenna Spec

During Mass production, to test VSWR as production test standard

According to the difference of the project itself, the following specification:

频率 (MHz)	量产标准
2400--2500	VSWR (MP performance) < VSWR(Verify performance) ± 0.5
5150--5850	VSWR (MP performance) < VSWR(Verify performance) ± 0.5

7. Structural drawings



8. Environmental testing report



Sunnyway Technology (China) Co., Ltd.
Antenna Environment Test Report

Customer Name: WANLIDA entry name: MPD-Q001 sunnyway NO: SZ241681B77-4

Number of samples: 5PCS Test time: 2024/7/18

Test time	测试项目Test items	测试条件和要求Test conditions and requirements	测试设备Test equipment	测试结果test result					
2023.10.10 - 2023.10.11	low temperature storage	Store in a incubator (-40℃±5) for 24 hours, and then let it dry at room temperature for 2 hours before testing. The electrical performance (VSWR) and structural appearance	Standard temperature and humidity		1	2	3	4	5
					-40℃	-40℃	-40℃	-40℃	-40℃
				RF	OK	OK	OK	OK	OK
2023.10.10 - 2023.10.11	高温存储 high temperature	Store in a temperature box (80℃±5) for 24 hours, and then let it dry at room temperature for 2 hours before testing. The electrical performance (VSWR) and structural appearance	Standard temperature and humidity	外观	OK	OK	OK	OK	OK
					1	2	3	4	5
					+85℃	+85℃	+85℃	+85℃	+85℃
2023.10.10 - 2023.10.11	高温存储 high temperature	Store in a temperature box (80℃±5) for 24 hours, and then let it dry at room temperature for 2 hours before testing. The electrical performance (VSWR) and structural appearance	Standard temperature and humidity	RF	OK	OK	OK	OK	OK
				外观	OK	OK	OK	OK	OK
					1	2	3	4	5
2023.10.11 - 2023.10.12	Constant temperature and humidity	The temperature is 60℃±5, the humidity is 90%-95% RH, and after 24 hours, it is required that the structure is undamaged and the electrical performance remains unchanged.	Standard temperature and humidity		60℃/95%	60℃/95%	60℃/95%	60℃/95%	60℃/95%
				RF	OK	OK	OK	OK	OK
				外观	OK	OK	OK	OK	OK
2023.10.13 - 2023.10.14	耐盐雾实验 Salt spray resistan	NaCl solution with salt spray concentration of 5%, spray the antenna for 24 hours continuously at 35℃, then remove it for cleaning and dry it. The surface of the antenna should be free	Salt mist machine		1	2	3	4	5
					35℃/5%	35℃/5%	35℃/5%	35℃/5%	35℃/5%
				RF	OK	OK	OK	OK	OK
				外观	OK	OK	OK	OK	OK

审核 to examine: 林长青 确认 confirm: 陈小平 测试 test: 韦月丽

