

			文件编号:	
样品承认书 Sample acknowledgment				
Specification For Approval				
客户名称: Customer:		东莞市凌度电子科技有限公司 Dongguan Lingdu Electronics Technology Co., Ltd.		
供应商名称: Customer:		深圳市广源发电子有限公司 SHENZHEN GUANGYUANFA ELECTRONIC CO., LTD		
客户料号: Customer material number:		1124-0005040-006	供应商料号: Supplier material number:	D600-WIFI-V1.0 GYF 2023-01-06
产品描述: product description:		WiFi 天线 (D600) 同轴线长: 3 代端子 L=115mm, 线径: 0.81mm, ; 丝 印:D600-WIFI-V1.0 GYF 2023-01-06; 供应商: 广源发		配用机型: Equipped with models: D600
供应商承认(盖章): Supplier recognition (seal):			客户承认(盖章): Customer recognition (seal)	
制作: 郭绍森 fabrication:		结构: 结构:		
审核: examine and verify:		日期: 2023. 04. 23 date:		

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D600 天线 Antenna

1. 规格 specifications

1.1 电气规格 Electrical specifications

本报告主要提供 D600 天线各项电气和结构性能参数的测试状况。

This report mainly provides the testing status of the electrical and structural performance parameters of the D600 antenna

规格型号 specifications and models	广源发料号 Part Number
WiFi 天线 antenna	D600-WIFI-V1.0 GYF 2023-01-06

1.2 天线频率范围 Range of antenna frequency

下表是广源发设计和量产天线的电性能的指标.

The following table is the index of the electrical performance of Guangyuan Fa design and mass production antenna.

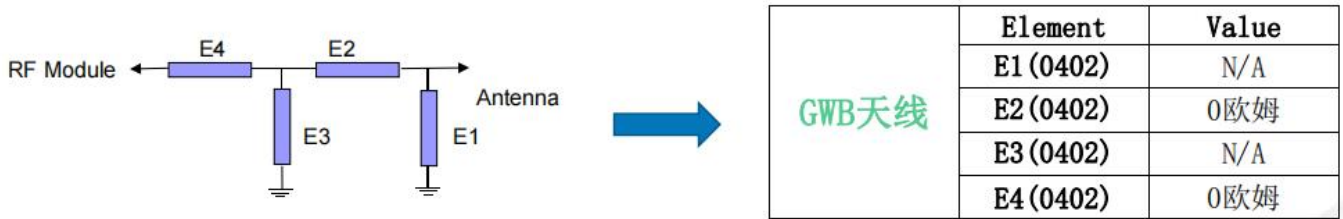
项目简介 Project commissioning

机型 type	D600			
天线类型 Antenna type	FPC			
频段及天线材质 Frequency band, antenna material	主天线 main antenna	频段 frequency range		材质 material quality
		2G	/	FPC
		3G	/	
		LTE	/	
	其他天线 Other antennas	分集	/	FPC
		WIFI	2.4G/5G	FPC
性能要求 Performance requirement	按客户要求执行 According to the customer's requirements			

2. 匹配电路图 Matching circuit diagrams

3.

天线匹配无更改 No changes to the antenna match



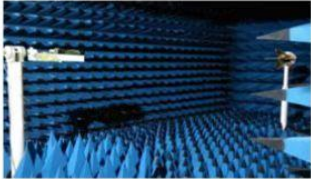
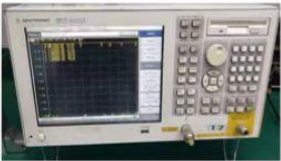
3. 结构形式 structural style

3.1 天线组成 Antenna composition

天线主要是由 软性线路印刷板+同轴线 组成。The antenna is mainly composed of soft line printing board + coaxial line.

4. 测试设备 testing facility

测试设备说明

			
24探头微波暗室	CMW500	7*4*3M ETS微波暗室	Agilent 8960
			
Agilent E5071B	高低温试验箱	MT8820C	HP8753ES
测试系统 ETS 暗室 24探头OTA暗室	测试环境 温度: 22℃±3℃ 湿度: 50%±15%	有源测试 支持2G/3G/4G 支持NB-IoT/CAT-M/BT/WIFI	无源测试 400MHz—6G

5 . VSWR 测试连接 VSWR test connection

5.1 测试连接: test connection

VSWR 测试装置依次连接为 The connections of the test units in sequence are: R&S ZVL 网络分析仪 network analyzer → 测试线 private wire → 测试治具 Test treatment gear.

6. 测试 test

6.1 测试的场地 Test site : 广源发微波暗室 Microwave dark room 。测试频率范围 Test frequency range 400MHz—6GHz, 静区范围 Range of static area 50cm 圆周, 反射率 小于 The reflectivity is less than -50 dB.

6.2 测试的仪表 Test instrument: Agilent5071B 、CMW500、Agilent8960 E5515C、标准喇叭天线 standard horn antenna 、24 探头 OTA 微波暗室测试系统 24 Probe OTA microwave dark chamber test system、打印机等 Printer et al

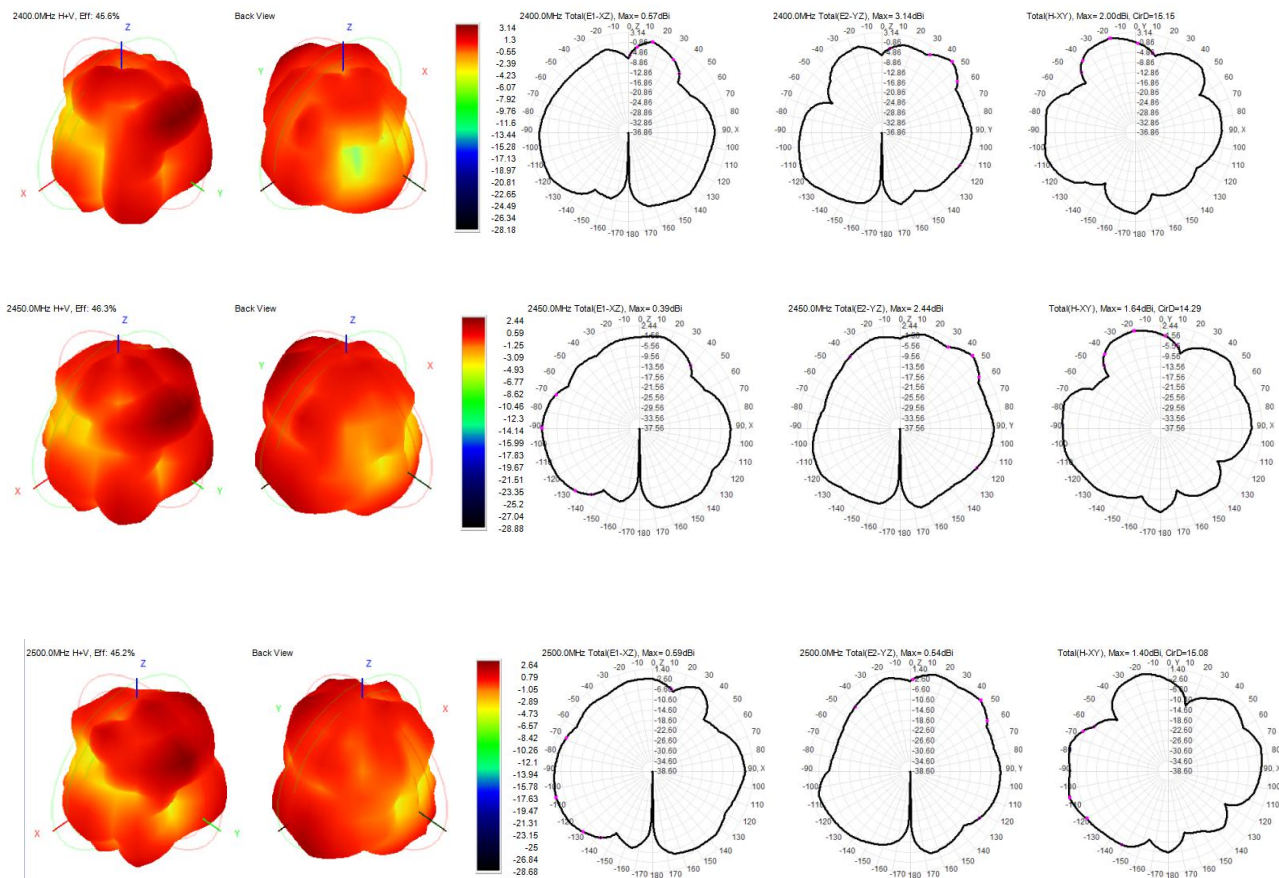
天线驻波 Antenna station wave



6.3 测试的数据: The data of the test

Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	3.14	3.05	2.79	2.61	2.44	2.44	2.36	2.56	2.76	2.91	2.64
Efficiency (%)	45.60	46.16	45.83	46.13	45.82	46.30	46.88	47.28	46.53	46.27	45.23

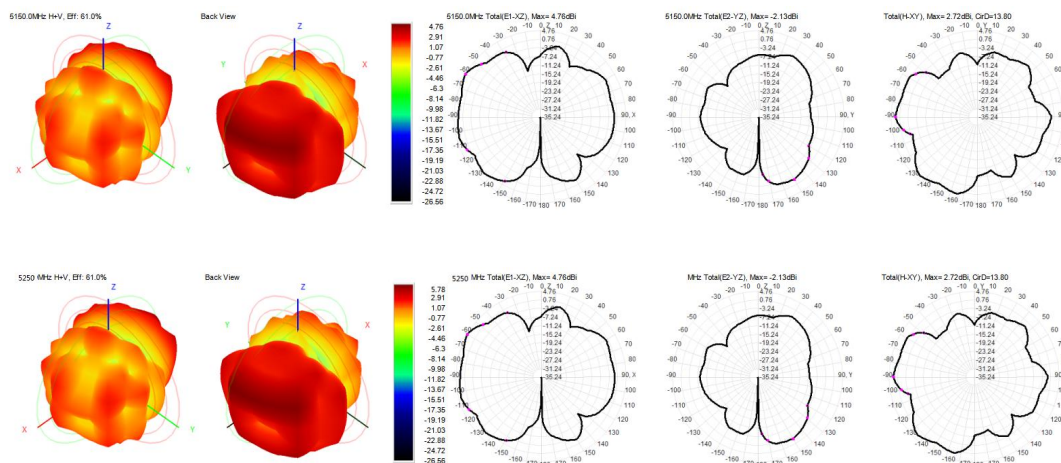
6.4 2D/3D 图

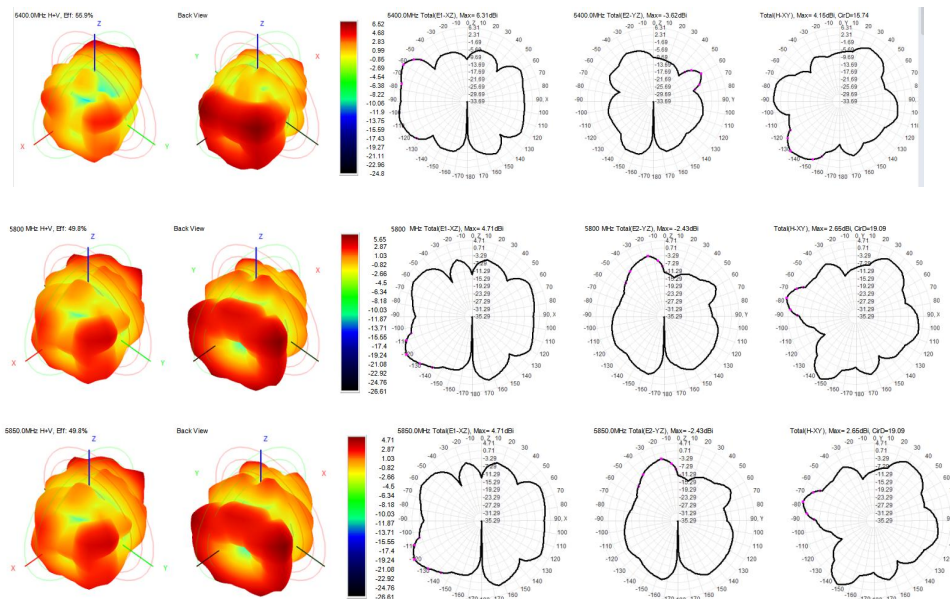


6.5 测试的数据: The data of the test

Frequency (MHz)	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Gain (dBi)	4.76	5.26	5.78	5.93	6.28	6.52	6.40	5.54	5.80	5.46	5.39	5.05	5.41	5.65	4.71
Efficiency (%)	61.00	58.14	58.00	51.07	54.61	55.87	57.29	49.87	58.20	56.19	57.96	57.35	56.25	52.62	49.76

6.6 2D/3D 图 picture



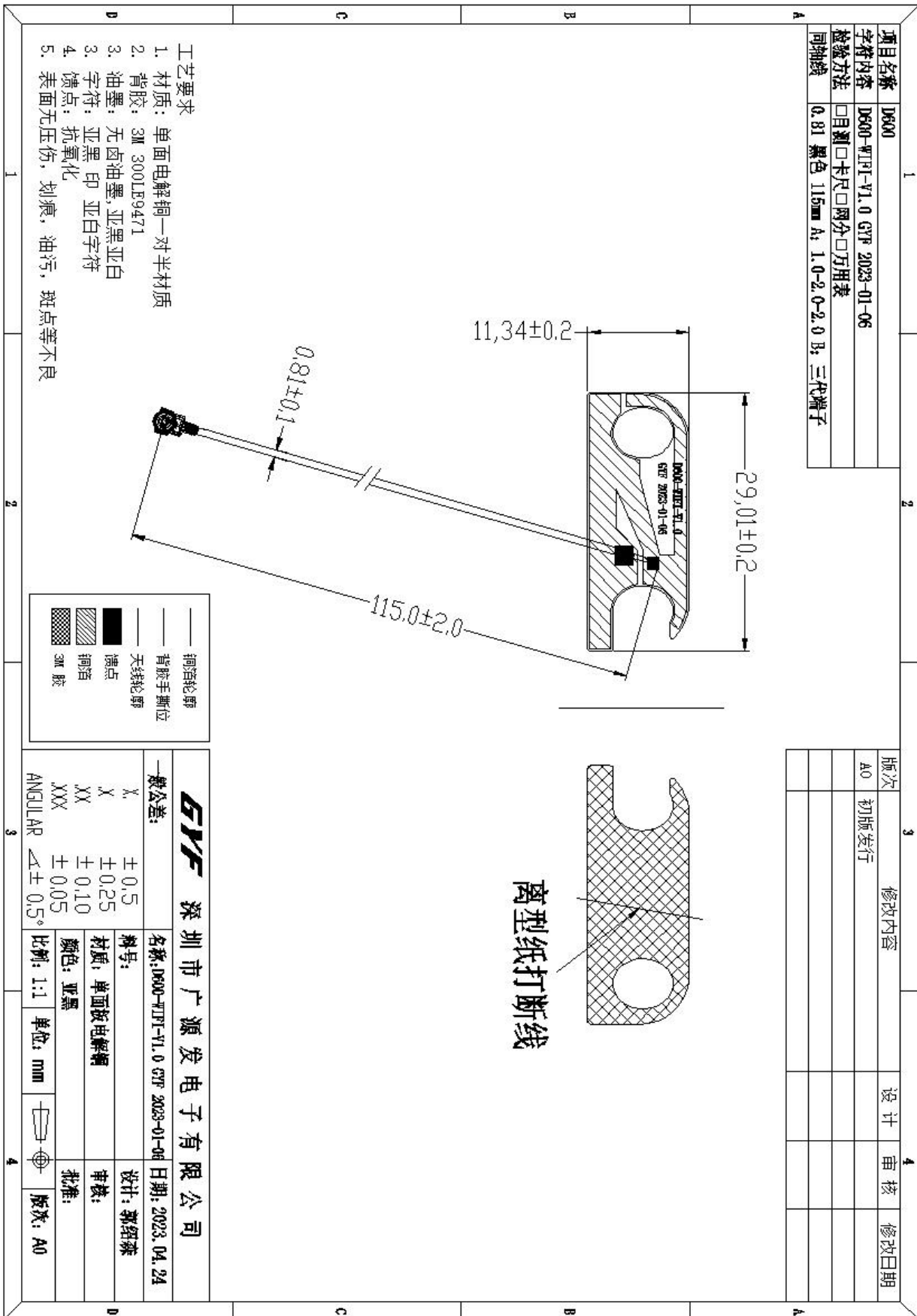


天线实测 Antenna measured: (5.8G)
测试手机 Test the mobile phone: oppo findx3
视频大小 Video size: 554M
下载时间 Download time: 79s
平均 average: 7M/s
办公室实测 Office measurement: 10M 无卡顿延迟

天线实测 Antenna measured: (2.4G)
测试手机 Test the mobile phone: oppo findx3
视频大小 Video size: 248M
下载时间 Download time: 63s
平均 average: 3.9M/s
办公室实测 Office measurement: 10M 无卡顿延迟

7. 图纸规格 Drawings specifications

7.1 图纸 drawing



7.2 样品尺寸检测 Sample size detection

项目名称 project name	D600		成品料号 Finished material number	D600-WIFI-V1.0 GYF 2023-01-06			日期 date	2023. 04. 23	
项次 Item times	规格 specif icatio ns	实测数据 Measured data					判定 decide	备注 remark	
		1	2	3	4	5			
1	11. 34	11. 35	11. 30	11. 29	11. 32	11. 38	OK		
2	29. 01	29. 09	29. 15	29. 09	29. 00	28. 98	OK		
3	115. 00	115. 0 9	115. 02	115. 10	115. 13	115. 04	OK		
4	0. 81	0. 82	0. 81	0. 78	0. 79	0. 80	OK		
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

7.3 物料清单 Bill Of Material

物料清单

Bill Of Material

项目名称 project name	D600	成品料号 Finished material number	D600-WIFI-V1.0 GYF 2023-01-06	日期 date	2023.04.23
物料清单 Bill Of Material	类别 classification	材质 material quality	规格 specifications	用量 use level	
1	fpc 天线 antenna	一对半 A pair of half	11.34*29.01mm	1	
3	同轴线 coaxial cable	铜 copper (Cu)	0.81 黑色 black115mm 三代端子 Three generations of terminal	1	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

8. 可靠性测试 reliability test

8.1 可靠性测试报告 Reliability test report

项目名称 project name	D600	成品料号 Finished material number	D600-WIFI-V1.0 GYF 2023-01-06	日期 date	2023. 04. 23
测试数量 Test the number	15pcs	开始时间 start time	1 月 10 日 09:15	完成时间 finish time	1 月 12 日 11:25

测试项目 test item	测试标准 testing standard	测试 数量 test quantity	测试结果 test result	备注 remarks
盐雾腐蚀测试 Salt mist corrosion test	(1) 试验温度: 盐水试验 35℃±2℃; 压力桶 47℃±1℃ Test temperature: 35℃±2℃; 47℃±1℃ (2) 试验条件/方法: 盐水浓度 5%以上, 溶液 PH 值: 6.5~7.2, 空气压力: 1.0~1.2kg/c m², 测试时间依产品要求设置测试时间 Test conditions / method: saline concentration above 5%, solution PH value: 6.5~7.2, air pressure: 1.0~1.2kg/c m², test time, test time is set according to the product requirements (3) 测试完毕: 2 小时后观察产品表面表面氧化变色, 镀层脱落现象 After the test: 2 hours later, observe the oxidized discoloration of the product surface, and the coating falls off	5pcs	OK	测试时间 testing time 48H
低温测试 Low-temperature test	(1) 温度: -30℃ (-25℃---中试阶段) Temperature: -30℃ (-25℃ -- -pilot stage) (2) 测试时间: 20 小时/包装条件: 不包装 Test time: 20 hours / packaging condition: no packaging (3) 被测产品不开机置于高低温试验箱内, 调节箱内温度为 25℃湿度为 65%保温 1 小时后, 在 1 小时内降温至 -30℃, 湿度关闭, 保温 20 小时后, 升温 1 小时后至常温, 2 小时后进行性能测试。 外观和结构: 天线外观表面无缺陷, 并且天线不应有变形, 起翘和损坏, 并且性能正常, 驻波比不应超过产品标准规定的 10% The tested products shall not be started in the machine and placed in the high and low temperature test box. After the temperature in the adjustment box is 25℃ and the humidity is 65% for 1 hour, the temperature is cooled to -30℃ within 1 hour, and the humidity is closed. After 20 hours, the	5pcs	OK	测试时间 testing time 20H

	temperature is heated to room temperature after 1 hour, and the performance test shall be conducted after 2 hours. Appearance and structure: The exterior surface of the antenna is not defective, and the antenna shall not be deformed, warped and damaged, and the performance is normal, and the standing wave ratio shall not exceed 10% specified in the product standard			
高温测试 High-temperature test	(1) 温度: +70℃ (+65℃---中试阶段) 湿度 85% (80%---中试阶段) Temperature: + 70℃ (+ 65℃ -- -pilot stage) Humidity 85% (80% -- -pilot stage) (2) 测试时间: 20 小时/包装条件: 不包装 The tested products are not turned in the machine and placed in the high and low temperature test box. The temperature in the adjustment box is 25℃, the humidity is 65% insulation for 1 hour, the temperature rises to + 70℃ within 1 hour, the humidity is 85% insulation for 20 hours, the cooling temperature is 1 hour to the normal temperature after 1 hour, and the performance test is carried out after 2 hours. (3) 被测产品不开机置于高低温试验箱内,调节箱内温度为 25℃湿度为 65%保温 1 小时后, 在 1 小时内升温至 +70℃, 湿度 85%保温 20 小时后, 降温温 1 小时后至常温, 2 小时后进行性能测试。 外观和结构: 天线外观表面无缺陷, 并且天线不应有变形, 起翘和损坏, 并且性能正常, 驻波比不应超过产品标准规定的 10% The tested products are not turned up and placed in the high and low temperature test box. The temperature in the adjustment box is 25℃, the humidity is 65% insulation for 1 hour, the temperature rises to + 70℃ within 1 hour, the humidity is 85% insulation for 20 hours, the cooling temperature is 1 hour to the normal temperature after 1 hour, and the performance test is carried out after 2 hours. Appearance and structure: The exterior surface of the antenna is not defective, and the antenna should not be deformed, warped and damaged, and the performance is normal, and the standing wave ratio shall not exceed 10% specified in the product standard	5pcs	OK	

8.2 产品储存说明 Product storage instructions

1. 金手指导体裸露部分, 需经过表面镀层 (防锈) 处理, 如镀/化金、OSP、镀锡等, 储存环境需要避免腐蚀

性气体。

The exposed part of the gold finger conductor should be treated with surface coating (rust prevention), such as plating / gold plating, OSP, tin plating, etc., and the storage environment needs to avoid corrosive gas.

2. 天线温度需管控 21-38℃, , 湿度需管控 50-70%。温度过高会使得 3M 胶融化, 导致天线粘性变差。

The antenna temperature should be controlled by 21-38℃, and the humidity should be controlled by 50-70%. Too high the temperature will make the 3M glue melt, resulting in poor antenna viscosity.

3. 建议若初始粘接温度低于 10℃时, 不适于粘接, 因此时的胶粘剂太硬, 而无法牢固的粘接在物体上;但是, 如果已经粘接上了, 低温下的持粘力同样是令人满意的。

It is recommended that if the initial bonding temperature is lower than 10℃, it is not suitable for bonding, so the adhesive is too hard to firmly adhere to the object; however, if the bonding force at low temperature is also satisfactory.

4. 在 21℃和 50%相对湿度条件下, 原包装状态下自生产之日起保存期为 24 个月。

At 21℃ and 50% relative humidity, the original packaging state is stored for 24 months from the date of production.

9. 工作温度 working temperature

部件 component	温度 temperature
FPC 本体 noumenon	-50~280℃
3m 胶 glue(已粘贴至机器 Paste to machine)	-30-80℃

10. 天线图片 Antenna pictures

天线位置



WiFi天线