			文件编号:
# 样品承认书			
## *Specification For Approval*			
客户名称: Customer:	东莞市凌度电子科技有限公司 **Dongguan Lingdu Electronic 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:	1124-0000500-001	供应商料号:	K06-WIFI-V1.0 GYF 2023-10-24
产品描述:	WiFi 天线（K06）FPC 材质： 一对半，黑色，3M9471 背胶； 同轴线长：一代端子 L=115mm,线径：1.13mm	配用机型:	K06
供应商承认(盖章):		客户承认(盖章):	
制作：郭绍森	结构：		
审核：	日期： 2024.01.26		

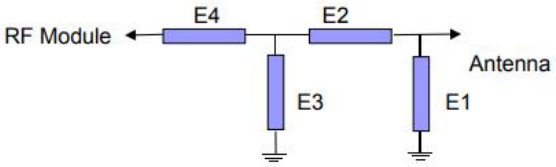
Catalogue

1.规格 specifications

1.1 电气规格 Electrical specifications

specification	GYF PNO.
2.4GHz FPC WiFi	K06-WIFI-V1.0 GYF 2023-10-24

2. 匹配电路图 Matching circuit diagram



	Element	Value
GWB天线	E1(0402)	N/A
	E2(0402)	0欧姆
	E3(0402)	N/A
	E4(0402)	0欧姆

3.结构形式 Structural form

3.1 天线组成 Antenna composition

The antenna is mainly composed of a flexible printed circuit board and coaxial lines.

4. 测试设备 Testing equipment

测试系统	测试环境	有源测试	无源测试
ETS 暗室 24探头OTA暗室	温度：22℃±3℃ 湿度：50%±15%	支持2G/3G/4G 支持NB-IoT/CAT-M/BT/WIFI	400MHz——6G

5 .VSWR 测试连接 VSWR test connection

5.1 测试连接：Test Connection:

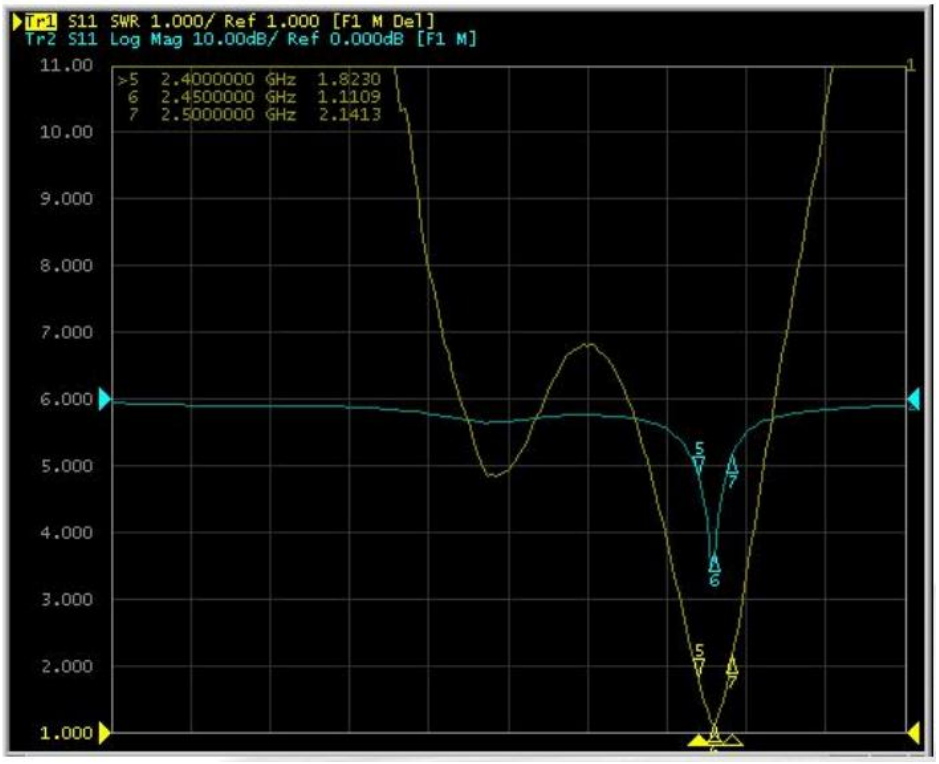
The VSWR testing device is sequentially connected as follows: R&S ZVL network analyzer → test line → test fixture

6.测试 test

6.1 Testing venue: Guangyuan Microwave darkroom. The testing frequency range is 400MHz to 6GHz, the quiet zone range is 50cm circumference, and the reflectivity is less than -50 dB.

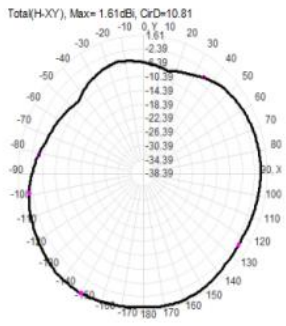
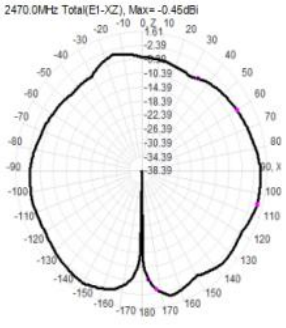
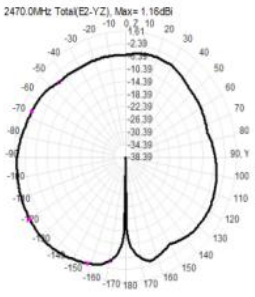
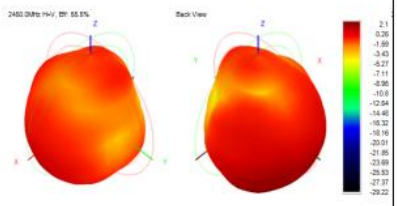
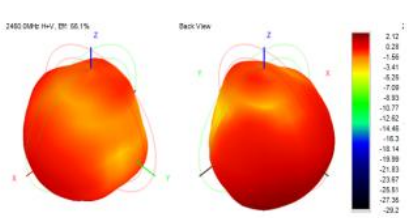
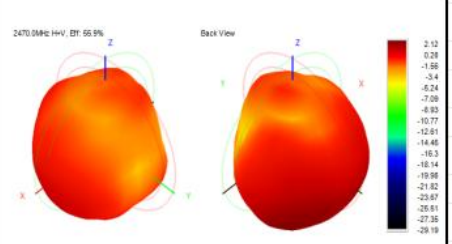
6.2 Testing instruments: Agilent5071B, CMW500, Agilent8960 E5515C, standard horn antenna, 24 probe OTA microwave darkroom testing system, printer, etc

6.3 Test data:



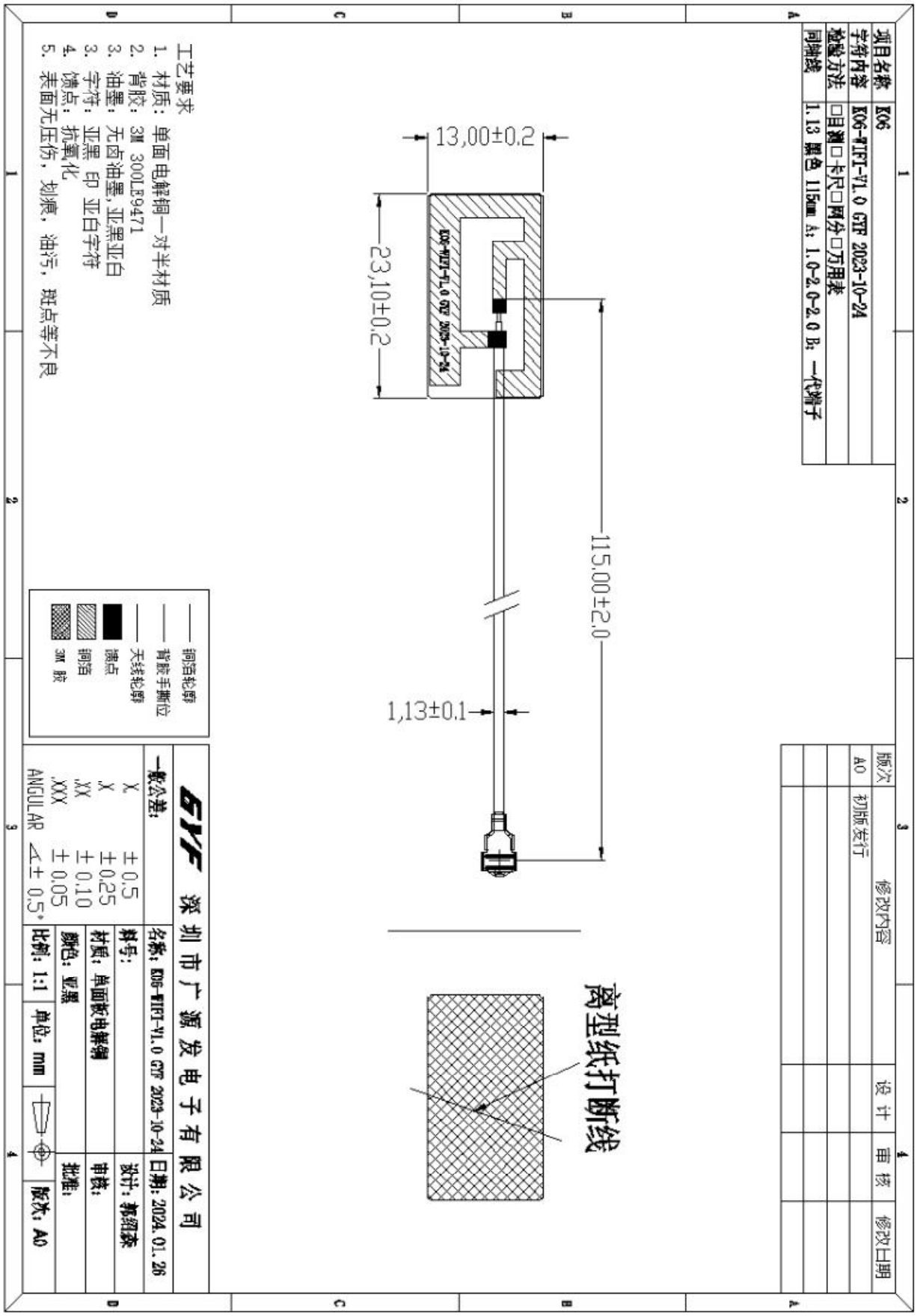
Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)
2400.0	-3.36	2.07	46.16
2410.0	-3.23	2.04	47.51
2420.0	-2.96	2.44	50.55
2430.0	-2.93	2.60	50.97
2440.0	-2.56	3.13	55.49
2450.0	-2.55	3.11	55.64
2460.0	-2.34	3.26	58.33
2470.0	-2.21	3.25	60.07
2480.0	-2.36	3.10	58.05
2490.0	-2.35	3.09	58.17
2500.0	-2.70	2.67	53.75

BAND	b			g			n		
CH	1	6	11	1	6	11	1	6	11
TRP(dBm)	19.49	19.58	20.06	18.75	19.24	19.32	18.10	19.10	19.24
TIS(dBm)	-85.91	-83.86	-84.97	-73.17	-73.63	-74.24	-70.51	-68.53	-68.82

2470MHz H-Plane	2470MHz E1	2470MHz E2
		
2450MHz 3D chart (0, 0, 0)	2460MHz 3D chart(0, 0, -90)	2470MHz 3D chart(90, -90, 0)
		

7.图纸规格 Drawing specifications

7.1 图纸 Drawings



7.2 样品尺寸检测 Sample size testing

Modle	K06		PN.	K06-WIFI-V1.0 GYF 2023-10-24		Date	2024.01.26	
NO.	Spec.(mm)	Test data(mm)					Result	remark
		1	2	3	4	5		
1	23.10	23.08	23.12	23.11	23.09	23.13	OK	
2	13.00	13.05	13.02	12.98	13.01	13.04	OK	
3	115.00	115.19	115.22	115.15	115.17	115.23	OK	
4	1.13	1.12	1.13	1.11	1.12	1.13	OK	
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								

7.3 物料清单 BOM

BOM

Modle	K06	PN.	K06-WIFI-V1.0 GYF 2023-10-24	DATE	2024.01.26
NO.	Name	material	Spec.		usage
1	fpc	一对半	23.10*13.00mm		1
2	coaxial line	Cu	1.13 black 115mm		1
3					
4					
5					
6					
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

Modle	K06	PN	K06-WIFI-V1.0 GYF 2023-10-24	Date	2024.01.26
Qty	15pcs				

Test items	Test standards	Qty	Result	Test time
Salt spray corrosion test	(1) Test temperature: Salt water test at 35 ℃± 2 ℃; Pressure bucket 47 ℃ ± 1 ℃ (2) Test conditions/methods: Salt water concentration above 5%, solution pH value: 6.5~7.2, air pressure: 1.0~1.2kg/c ㎡, test time set according to product requirements (3) Test completed: After 2 hours, observe the oxidation and discoloration of the surface of the product, as well as the appearance of the coating peeling off	5pcs	OK	48H
Low temperature testing	(1) Temperature: -30 ℃ (-25 ℃ - pilot stage) (2) Test time: 20 hours/Packaging condition: Unpacked (3) The tested product is not turned on and placed in a high and low temperature test box. The temperature inside the box is adjusted to 25 ℃ and the humidity is 65%. After insulation for 1 hour, it is cooled to -30 ℃ within 1 hour. The humidity is turned off, and after insulation for 20 hours, it is heated for 1 hour to room temperature. Performance testing is conducted after 2 hours. Appearance and structure: The antenna surface should have no defects, and there should be no deformation, warping, or	5pcs	OK	20H

	damage to the antenna. The performance should be normal, and the standing wave ratio should not exceed 10% of the product standard			
High temperature testing	(1) Temperature:+70 ℃ (+65 ℃ - pilot stage) Humidity: 85% (80% - pilot stage) (2) Test time: 20 hours/Packaging condition: Unpacked (3) The tested product is not turned on and placed in a high and low temperature test box. The temperature inside the box is adjusted to 25 ℃ and the humidity is 65%. After insulation for 1 hour, the temperature is raised to+70 ℃ and the humidity is 85%. After insulation for 20 hours, the temperature is lowered to room temperature for 1 hour. Performance testing is conducted after 2 hours. Appearance and structure: The antenna surface should have no defects, and there should be no deformation, warping, or damage to the antenna. The performance should be normal, and the standing wave ratio should not exceed 10% of the product standard	5pcs	OK	

8.2 产品储存说明 Product Storage Instructions

1. The exposed part of the gold finger conductor needs to undergo surface coating (anti rust) treatment, such as gold plating/plating, OSP, tin plating, etc. The storage environment needs to avoid corrosive gases.

2. The antenna temperature needs to be controlled at 21-38 ℃, and the humidity needs to be controlled at 50-70%. Excessive temperature can cause the 3M adhesive to melt, resulting in a decrease in antenna adhesion.

3. It is recommended that if the initial bonding temperature is below 10 ℃, it is not suitable for bonding, as the adhesive at this time is too hard to firmly adhere to the object; However, if it has already been bonded, the adhesive strength at low temperatures is also satisfactory.

4. Under conditions of 21 ℃ and 50% relative humidity, the original packaging state has a shelf life of 24 months from the date of production.

9.工作温度 Work temperature

Parts	Temperature
FPC body	-50~280℃

10.天线图片 Antenna image