

			Document Number:
<i>Specification For Approval</i>			
Company:	GCam Robot Co. , Limited		
Part Number:		Number:	GYF-Automatic AI Golf Camera-WIFI-V3.0
Description:	WIFI antenna	Models	Automatic AI Golf Camera
Supplier acknowledgement (stamp):		The customer acknowledges (stamps):	
Production: Huang Wangchun	Structure: Huang Wangchun		
Audit:	date: 2025-02-08		

(directory)

1. (Specifications)

- 1.1 (Electrical Specifications)
- 1.2 (Antenna frequency range)

2. Match the circuit diagram)

3. (Structural form)

- 3.1 (Antenna composition)

4. (Test the equipment)

5. (VSWR test connection)

- 5.1 (Test Connection)

6. Test

- 6.1 (Test Venue)
- 6.2 (Tested Instruments)
- 6.3 (Antenna VSWR test)
- 6.4 (Antenna test data)
- 6.5 (Active antenna test data)

7. (Drawing Specifications)

- 7.1 (Drawings)
- 7.2 (Sample size testing)
- 7.3 (Bill of Material)

8. (Reliability test)

- 8.1 (Reliability test report)
- 8.2 (Product Storage Instructions)

1. (specification)

1.1 (Electrical Specifications)

(This report mainly provides the test status of various electrical and structural performance parameters of AW11antenna.)

Specifications and models	Guangyuanfa material numbe
FPC antenna	GYF-Automatic AI Golf Camera-WIFI-V3.0

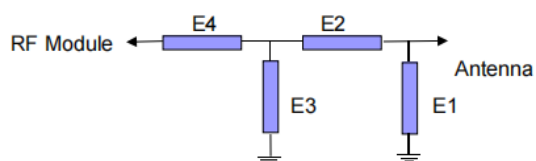
1.2 (Antenna frequency range)

(The following table is the index of the electrical performance of the antenna designed and mass-produced by Guangyuanfa)

Models	Automatic AI Golf Camera			
Antenna type	FPC			
Frequency band and antenna material	MAIN	Band		Material
		2G	/	FPC
		3G	/	
		LTE		
	Other antennas	WIFI	2400-2500/5150-5850MHz	FPC
Performance requirements	Execute according to customer requirements			

2. (Matching circuit diagram)

There are no changes to the antenna matching



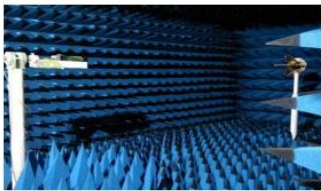
WIFI	Element	Value
	E1 (0402)	N/A
	E2 (0402)	0 Ω
	E3 (0402)	N/A
	E4 (0402)	0 Ω

3. (Structural form)

3.1 (Antenna composition The antenna is mainly composed of a flexible circuit printed board.)

4. (Test the equipment)

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 700MHz——6G

5. (VSWR test connection)

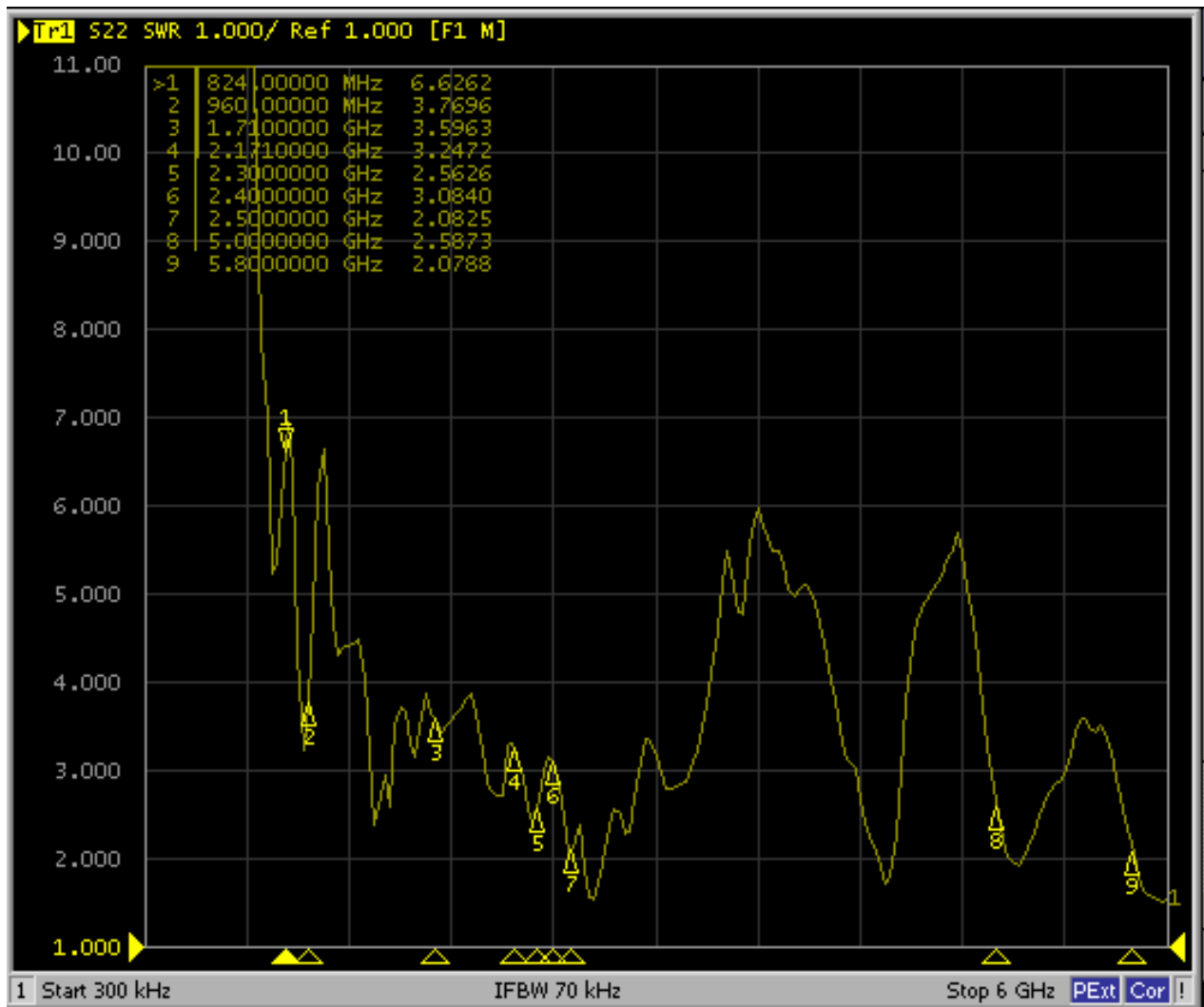
5.1 Test Connections: The VSWR test setups are connected in turn as follows:R&S ZVL Network Analyzer--Test line--Test fixtures.

6. (Test)

(6.1 Test site: Guangyuanfa microwave anechoic chamber. The test frequency range is 400MHz-6GHz, the quiet zone range is 50cm circumferential circle, and the reflectivity Less than -50 dB.

6.2 Instruments tested: Agilent5071B, CMW500, Agilent8960 E5515C, standard horn antenna, 24-probe OTA microwave chamber test system, printer, etc)

6.3 (The antenna VSWR test)

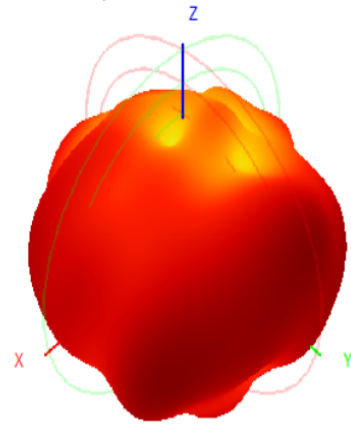


6.4 (Antenna test data)

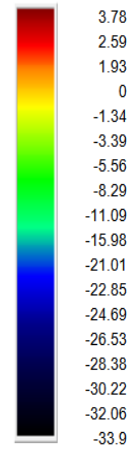
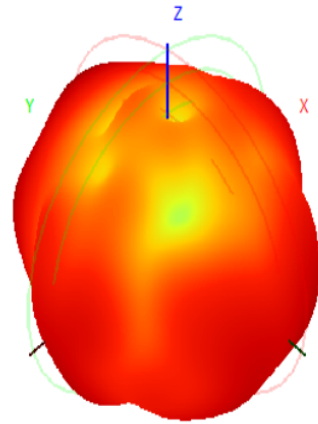
Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)
2400.0	-3.76	1.88	42.04
2410.0	-3.59	1.93	43.72
2420.0	-3.47	1.92	44.95
2430.0	-3.49	1.87	44.81
2440.0	-3.21	2.17	47.79
2450.0	-2.95	2.59	50.74
2460.0	-2.59	3.08	55.11
2470.0	-2.41	3.40	57.39
2480.0	-2.35	3.64	58.16
2490.0	-2.55	3.69	55.59
2500.0	-2.74	3.78	53.16

Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)
5150.0	-7.49	0.48	17.80
5200.0	-6.99	0.11	19.99
5250.0	-6.44	0.82	22.72
5300.0	-6.27	1.36	23.59
5350.0	-6.35	0.16	23.16
5400.0	-6.27	0.29	23.63
5450.0	-5.77	0.57	26.46
5500.0	-5.37	1.61	29.01
5550.0	-5.23	1.48	30.02
5600.0	-4.64	1.34	34.37
5650.0	-4.74	1.35	33.59
5700.0	-4.75	2.11	33.52
5750.0	-4.97	2.49	31.85
5800.0	-5.26	1.47	29.79
5850.0	-6.01	0.12	25.07

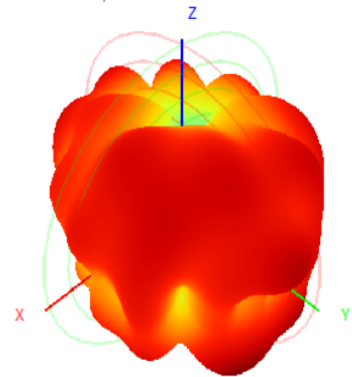
2500.0MHz H+V, Eff. 21.4%



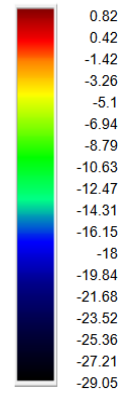
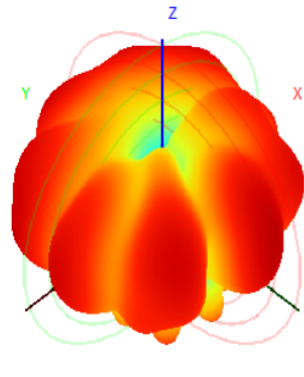
Back View



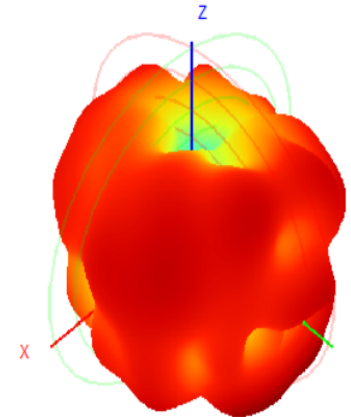
5250.0MHz H+V, Eff. 36.6%



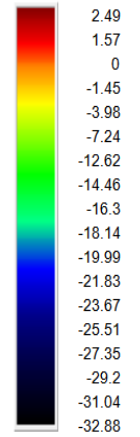
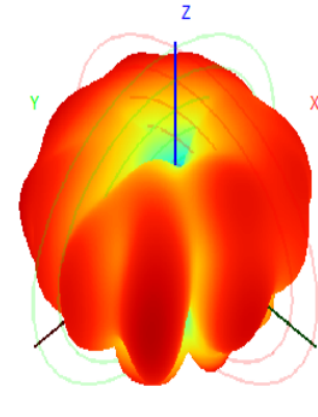
Back View

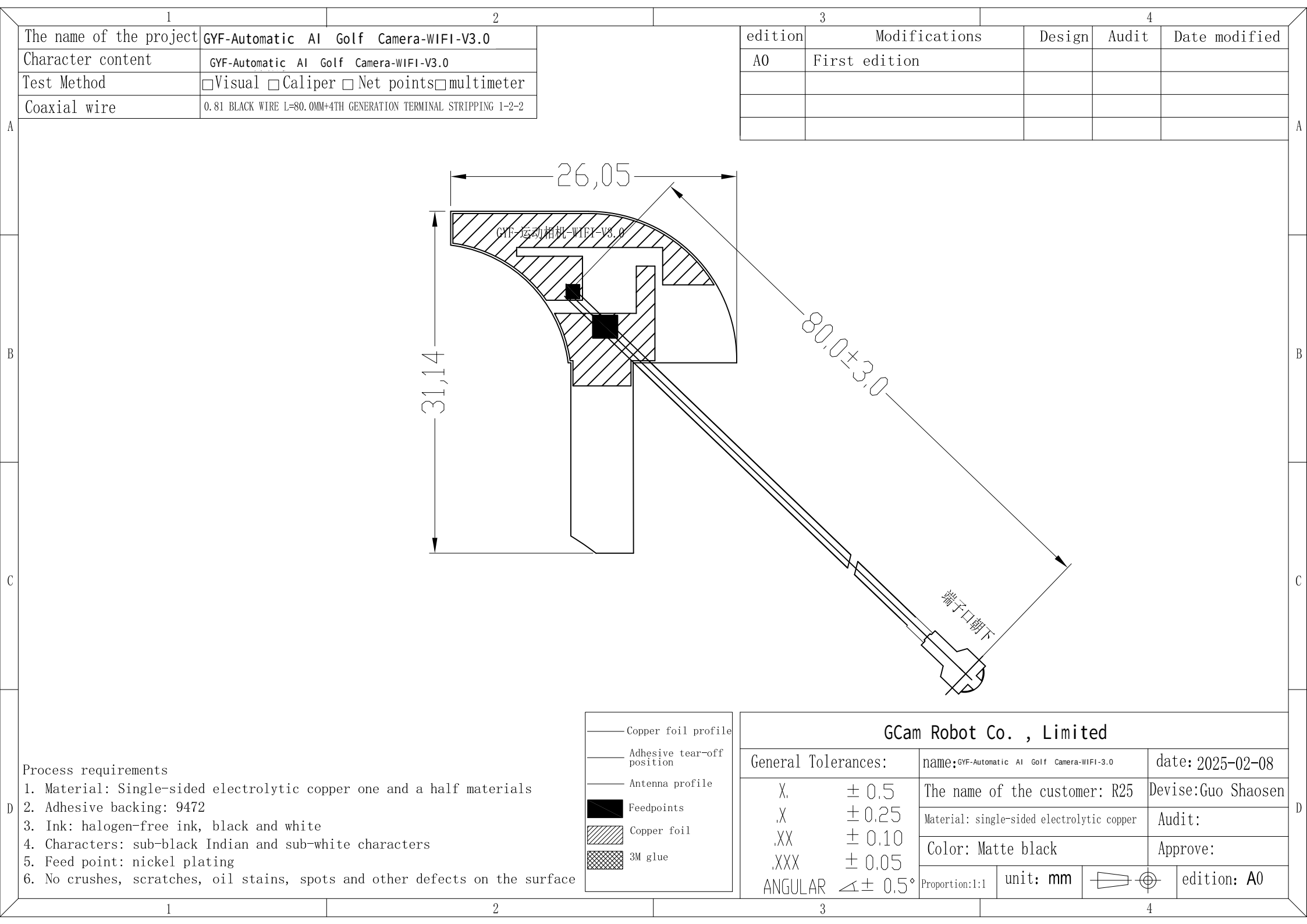


5750.0MHz H+V, Eff. 16.9%



Back View





7.2 Sample size inspection)

Name	Automatic AI Golf Camera		Part number	YF-Automatic AI Golf Camera-WIFI-V3.0			date	2025-02-08	
Item	specification	Measured data					decide	remark	
		1	2	3	4	5			
1	26.05	26.05	26.05	26.05	26.05	26.05	OK		
2	31.14	31.14	31.14	31.14	31.14	31.14	OK		
3	0.81	0.80	0.81	0.79	0.80	0.81	OK		
4	80	80	80	80	80	80	OK		

7.3 物料清单 (Bill of Materials)

Bill of Materials

Name	Automatic AI Golf Camera	Part number	GYF-Automatic AI Golf Camera-WIFI-V3.0	date	2025-02-08
Bill of Materials	category	Material	specification	Dosage	
1	FPC	FPC	24.05*31.14mm	1	
2				1	

8.(Reliability testing)

8.1 (Reliability test report)

Name	Automatic AI Golf Camera	Part number	GYF-Automatic AI Golf Camera-WIFI-V3.0	date	2025-02-08
Number of tests	15pcs	Time	2月06日 09:15	Completion time	2月08日 11:25

Test items	Test Standards	Test PCS	Test results	remark
Salt spray corrosion test	(1) Test temperature: 35° C $\pm$ 2° C for salt water test; Pressure drum 47° C $\pm$ 1° C (2) Test conditions/methods: brine concentration more than 5%, solution PH value: 6.5~7.2, air pressure: 1.0~1.2kg/cm ² , test time according to product requirements (3) After the test: after 2 hours, observe the oxidation and discoloration of the surface of the product, and the appearance of the coating falling off	5pcs	OK	Test time 24H
Low temperature test	(1) Temperature: -30° C (-25° C --- pilot stage) (2) Test time: 20 hours / Packing condition: not packed (3) The tested product is not turned on and placed in the high and low temperature test chamber, the temperature in the chamber is adjusted to 25 ° C, the humidity is 65%, and the temperature is kept warm for 1 hour, and the temperature is cooled to -30 ° C within 1 hour, the humidity is turned off, the heat is kept for 20 hours, the temperature is raised for 1 hour to normal temperature, and the performance test is carried out after 2 hours. Appearance and structure: The surface of the antenna appearance is free of defects, and the antenna should not be deformed, warped and damaged, and the performance is normal, and the VSWR ratio should not exceed 10% specified in the product standard	5pcs	OK	Test time 20H
High temperature test	(1) Temperature: +70° C (+65° C ---pilot stage) Humidity 85% (80% --- pilot stage) (2) Test time: 20 hours / Packing condition: not packed (3) The tested product is placed in the high and low temperature test chamber without booting, the temperature in the chamber is adjusted to 25 ° C, the humidity is 65%, and the temperature is kept warm for 1 hour, the temperature is raised to +70 ° C within 1 hour, the humidity is 85%, the temperature is kept warm for 20 hours, the cooling temperature is 1 hour to normal temperature, and the performance test is carried out after 2 hours. Appearance and structure: The surface of the antenna appearance is free of defects, and the antenna should not be deformed, warped and damaged, and the performance is normal, and the VSWR ratio should not exceed 10% specified in the product standard	5pcs	OK	

8.2 (Product Storage Instructions)

1. (1. The exposed part of the gold hand guide body needs to be treated with surface plating (anti-rust), such as gold plating/chemical plating, OSP, tin plating, etc., and the storage environment needs to avoid corrosive gases.
2. The antenna temperature should be controlled at 21-38° C, and the humidity should be controlled by 50-70%. Excessive temperature can cause the 3M adhesive to melt, resulting in poor antenna viscosity.
3. It is recommended that if the initial bonding temperature is lower than 10° C, it is not suitable for bonding, so the adhesive is too hard to bond firmly to the object; However, if it has been bonded, the adhesion at low temperatures is also satisfactory.
4. Shelf life is 24 months from the date of manufacture in the original packaging at 21° C and 50% relative humidity.)

(Antenna location)