



Gaoke Ant Co., Ltd.

Specification For Approval

Customer: Zhejiang Dahua Technology Co., Ltd.

Supplier: GaoKe Ant Co., Ltd

Customer P/N: 1.2.20.01.10391

Production Name: WIFI Internal Antenna

Production Number: GKZS-WIFI-AC398-RF1.13I-82D

Supplier Signature		
Engineer	Checked by	Approved by
Yuming Hwang	Qianju Shieh	Jingsong Yang
16-Dec-2021	16-Dec-2021	16-Dec-2021

Customer Signature		
Engineer	Checked by	Approved by

Note: After the customer confirms the seal, please send this acknowledgement back to our company.

GaoKe Ant Co., Ltd

Address: No. 22, Guangcong South Road, Shengang, Conghua District, Guangzhou City, Guangdong Province, China

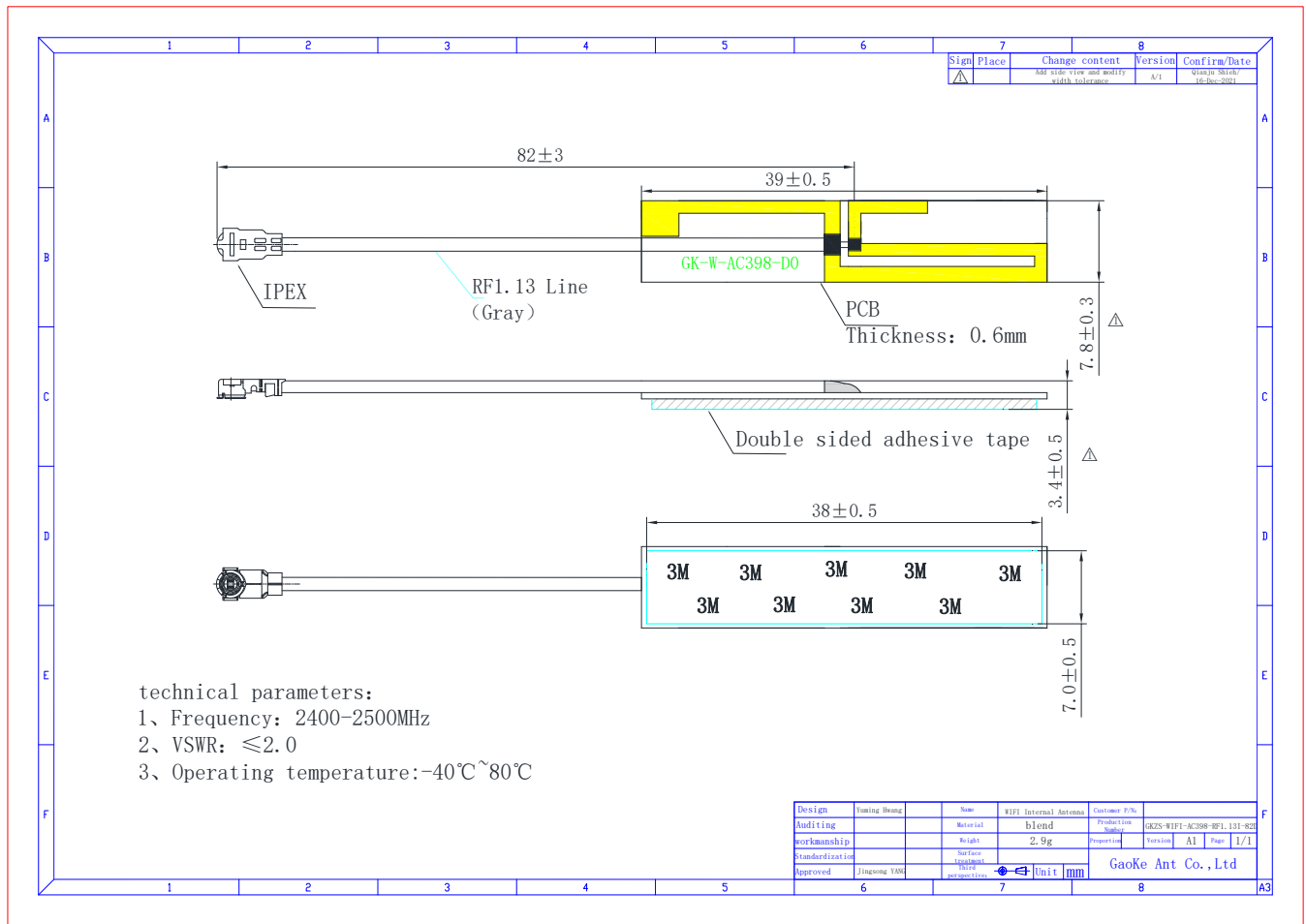
Tel: 020-87080630/87080639/87080632

Fax: 020-87080731

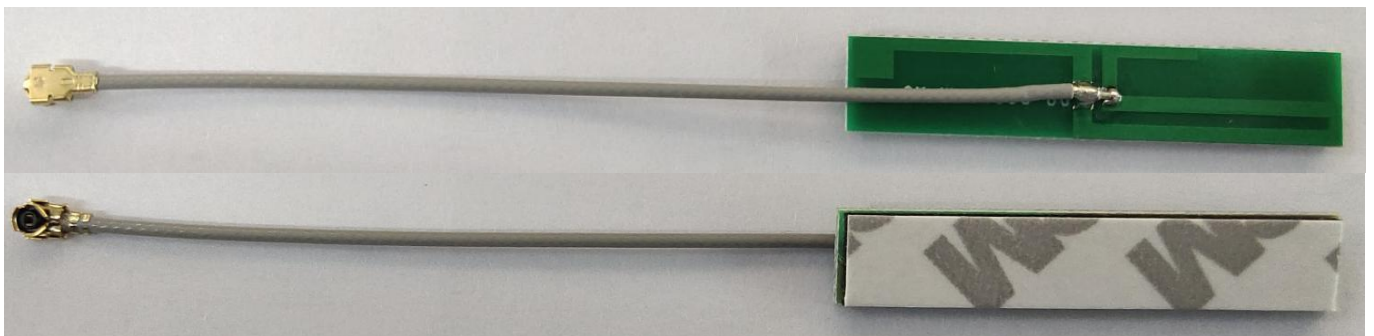
<http://www.gkzs.com.cn>

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1、Product structure drawing (mm)



2、Product physical map



3、Antenna technical parameters

Manufacturer's internal model	Ex: GKZS-WIFI-AC398-RF1.13I-82D
Type	Ex: WIFI
Frequency	Ex: 2400-2500MHz
Form	Ex: Passive built-in antenna (FPC)
Polarization	Ex: Linear polarization
VSWR	Ex: ≤ 2.0
Efficiency	Ex: 45.78% (average) 49.15% (peak)
Gain	Ex: 3.56dBi (average) 3.75dBi (peak)
Connector type	Ex: IPEX
Connector properties	Ex: female (generation)
Normal Axial Ratio	Ex: /
Active/Passive	Ex: passive
Antenna size	Ex: 39x7.8x3.4mm
Feeder type and size	Ex: RF1.13line (light grey) long82mm
Operating temperature	Ex: -40℃~80℃
Power Capacity	Ex: 33dBm
Characteristic impedance (R)	Ex: 50Ω
Salt spray level	Ex: 24H
Medium pressure	Ex: /
Contact resistance	Ex: /
Insulation resistance	Ex: /
Radiation direction	Ex: /
Weight	Ex: 0.9g
Remark	Ex:

4、Specifications of RF1.13 wire

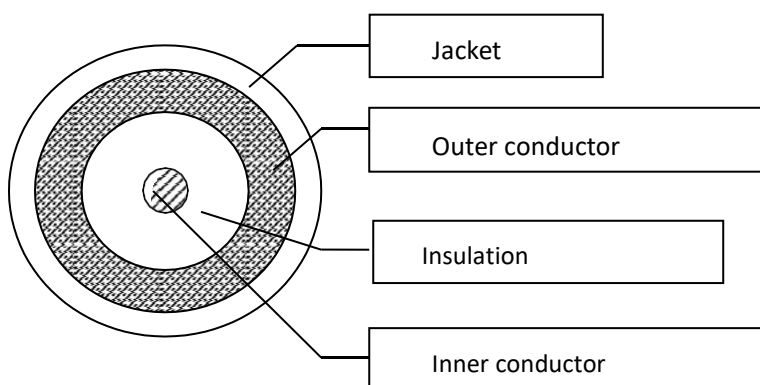
1. Product Description

1.1 This product is soft Teflon insulation series coaxial cable. Is suitable for the microwave equipment, wireless communication systems and equipment.

1.2 Product features : Excellent flexi-ability, good V.S.W.R, good shielding performance.

2. Cable with data and structure diagram:

2.1 Structure diagram



2.2 Specification of cable:

Item		NO	Materials and size
Inner conductor	Material	/	Silver plated copper wire
	Composition	mm	7/0.08±0.003
	OD	mm	Φ0.24
Insulation	Material	/	Teflon FEP (200 degrees of fluorinated ethylene propylene resin)
	Thickness	mm	0.21
	OD	mm	Φ0.68±0.03
	Color	/	transparent color
	Material	/	Tinned copper wire

Outer conductor	Form	/	Weave
	Density	%	93% 26 Mesh; 80 Coding 5*16/0.05mm
	OD	mm	$\Phi 0.88 \pm 0.05$
Jacket	Material	/	
			Teflon FEP (200 degrees of fluorinated ethylene propylene resin)
	Thickness	mm	0.125
	OD	mm	$\Phi 1.13 \pm 0.05$
	color of sheath	/	Gray or black (Can also be processed according to customer requirements)

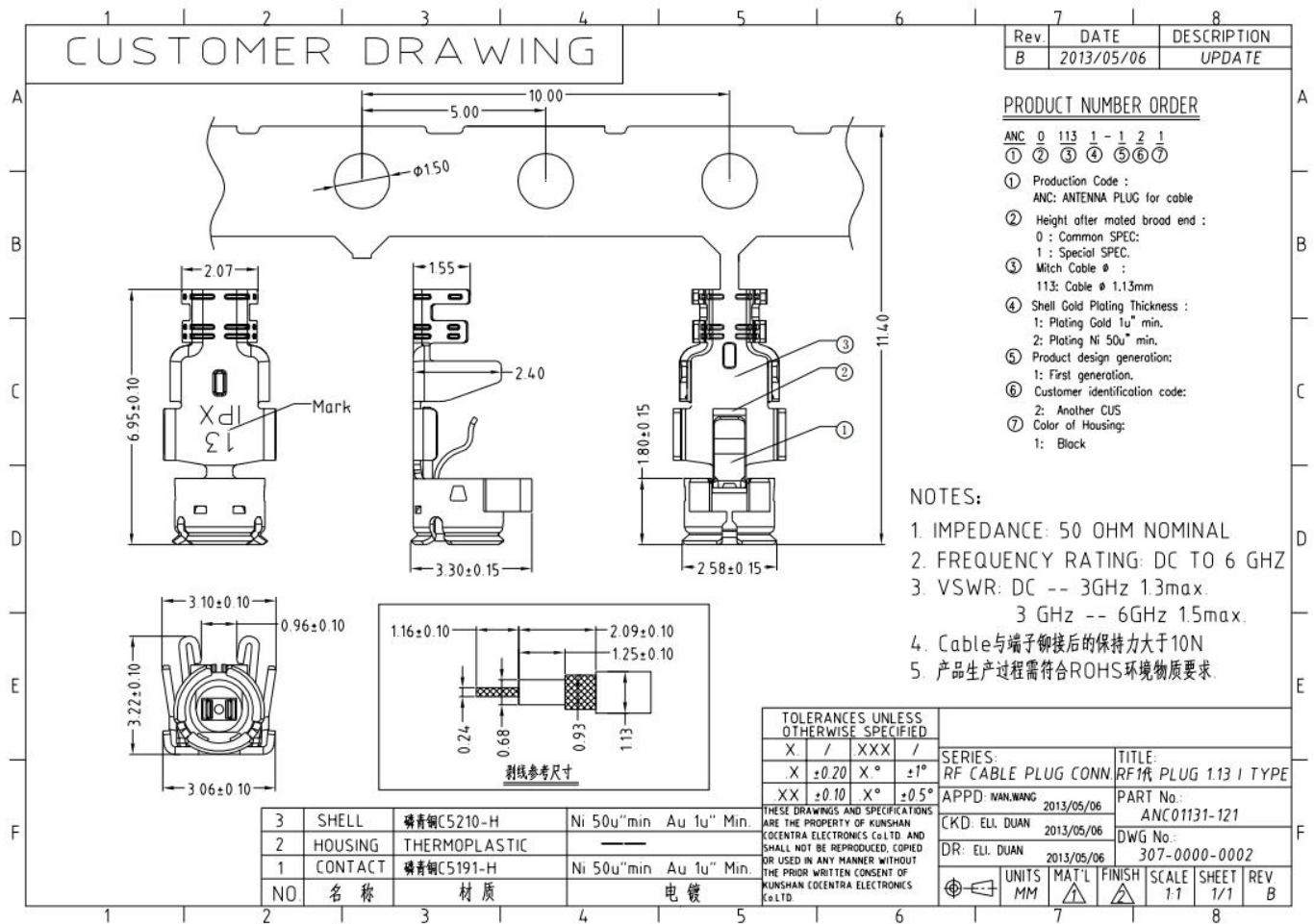
1.The cable properties

1.1 Electrical properties

test project	Standard value		Note
Rated temperature / voltage	$-55^{\circ}\text{C} \sim +200^{\circ}\text{C} / 30\text{V}$		/
Insulation resistance	3000M Ω . Km		Resistance tester
Conductor resistance	482 Ω /Km 20 $^{\circ}\text{C}$		/
Pressure	2KV		Withstand voltage tester
Insulation	Unaged	Tensile Strength	2500 PSI MIN. (1.76Kg/mm ²)
		Elongation	200% MIN
	Aged	Tensile Strength	2500 PSI*75% (168HRS*232 $^{\circ}\text{C}$)
		Elongation	200% MIN*75% (168HRS*232 $^{\circ}\text{C}$)
Jacket	Unaged	Tensile Strength	2500 PSI MIN. (1.76Kg/mm ²)
		Elongation	200% MIN
	Aged	Tensile Strength	2500 PSI*75% (168HRS*232 $^{\circ}\text{C}$)

		Elongation	200% MIN*75% (168HRS*232℃)
characteristic impedance	$50 \pm 2 \Omega$		Analysis of network analyzer The TRK tester
Capacitance	$96 \pm 3 \text{ PF/M}$		Digital capacitance meter
Velocity	69%		Analysis of network analyzer
Propagation Delay	4. 8ns/m		/
Shielding attenuation	100dB		/
Bending radius	<7mm		/
(UL) Flame retardant	passed		VW-1 provides material report
Attenuation(dB/m)	test frequency	Attenuation	Sea level to 20 DEG C test
	0. 1GHz	0. 42	
	0. 4GHz	0. 58	
	1GHz	2. 20	
	2GHz	3. 40	
	3GHz	4. 20	
	4GHz	4. 50	
	5GHz	5. 20	
	6GHz	5. 60	
VSWR	0. 3—3GHz	$\leq 1. 35$	
	3—6GHz	$\leq 1. 45$	

5、IPEX(generation)Specifications

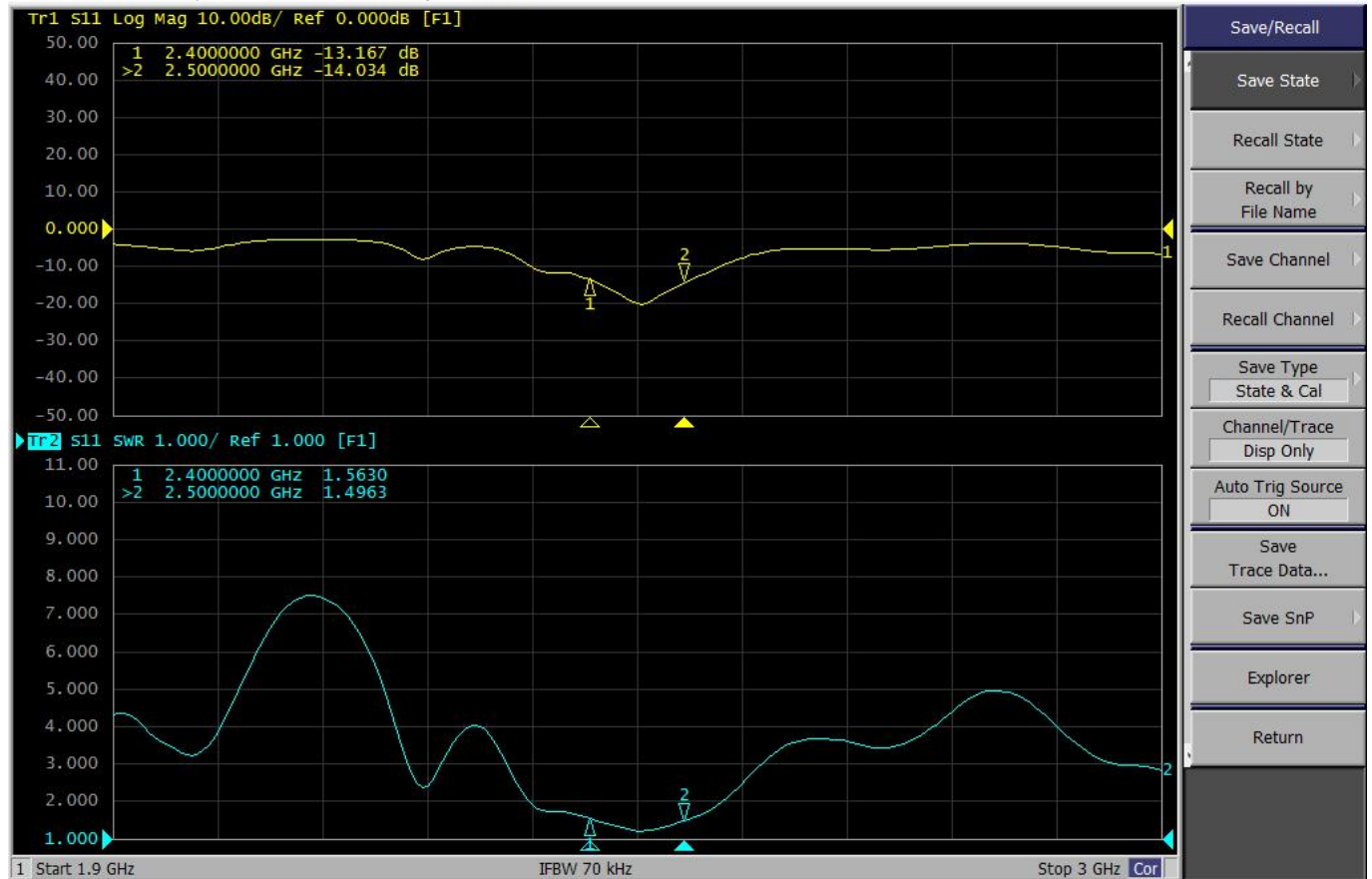


6、Antenna performance test (with prototype test)

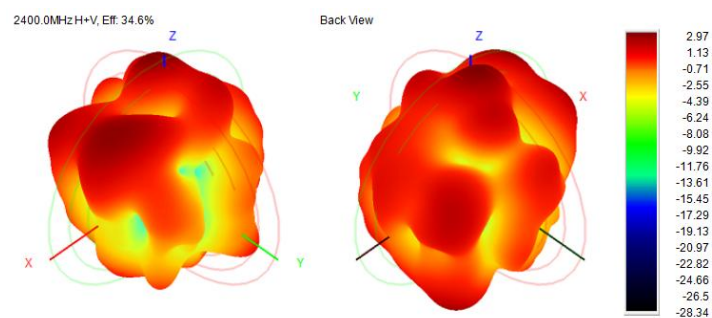
6.1、Return loss & standing wave ratio

E5071C Network Analyzer

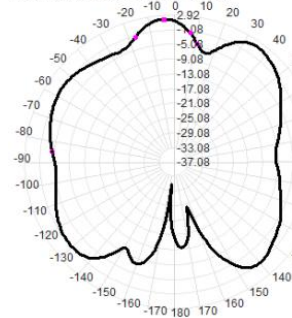
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State



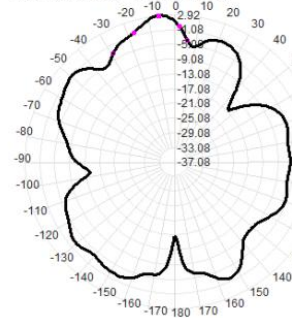
6.2、Direction map (2D&3D map)



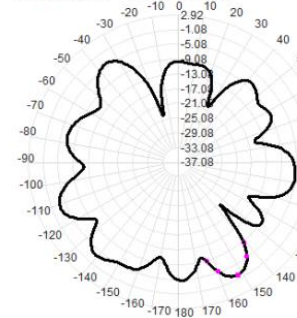
2400.0MHz Total(E1-XZ), Max= 1.77dBi



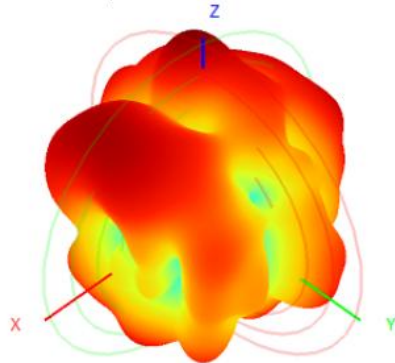
2400.0MHz Total(E2-YZ), Max= 2.92dBi



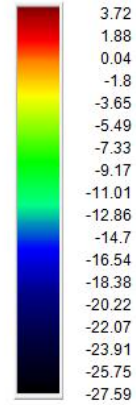
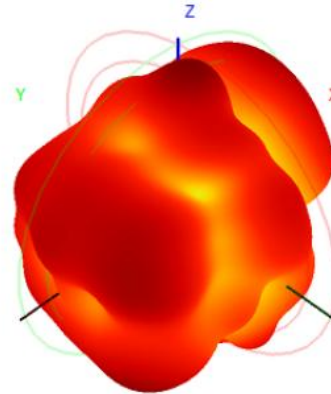
Total(H-XY), Max= -2.52dBi, CirD=21.40



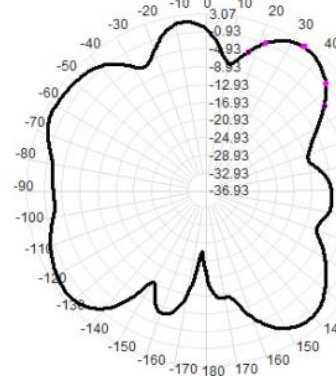
2450.0MHz H+V, Eff: 48.7%



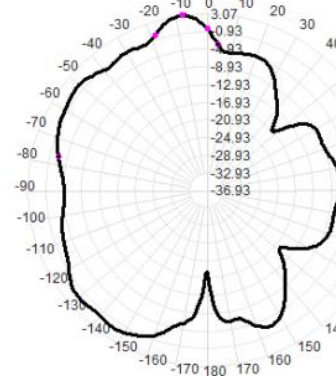
Back View



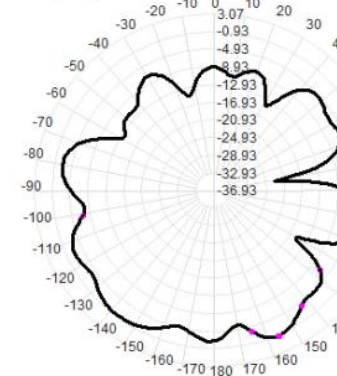
2450.0MHz Total(E1-XZ), Max= 2.28dBi



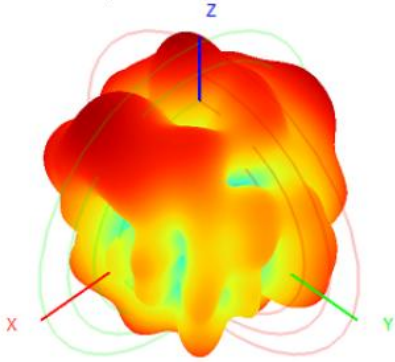
2450.0MHz Total(E2-YZ), Max= 3.07dBi



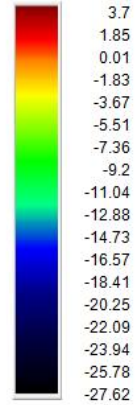
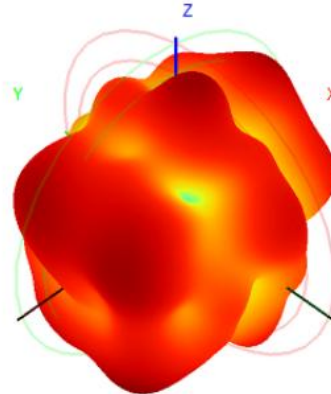
Total(H-XY), Max= -1.03dBi, CirD=22.05



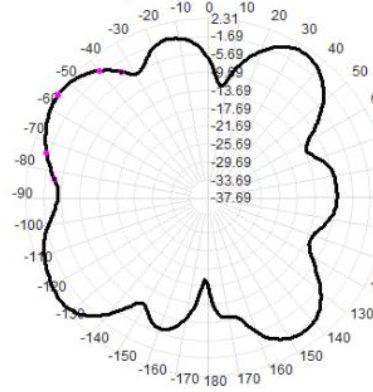
2500.0MHz H+V, Eff: 43.1%



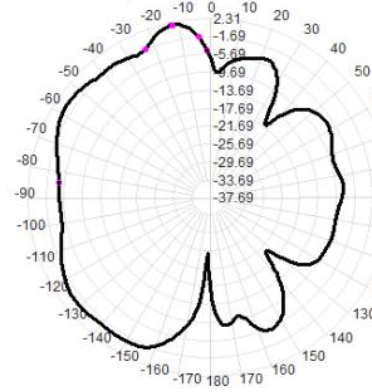
Back View



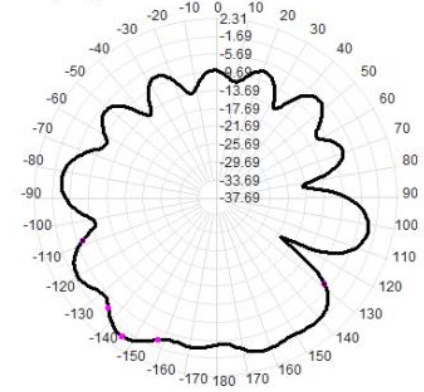
2500.0MHz Total(E1-XZ), Max= 2.31dBi



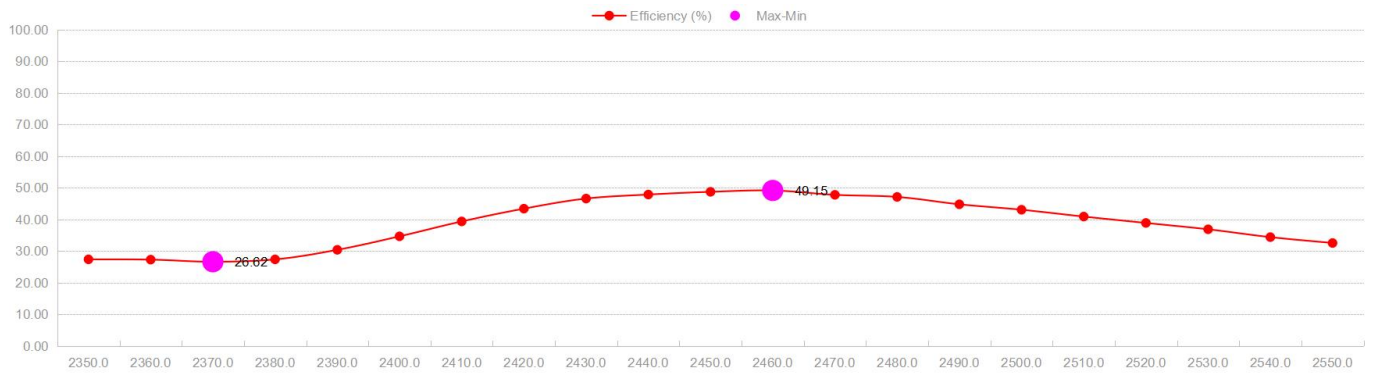
2500.0MHz Total(E2-YZ), Max= 1.65dBi



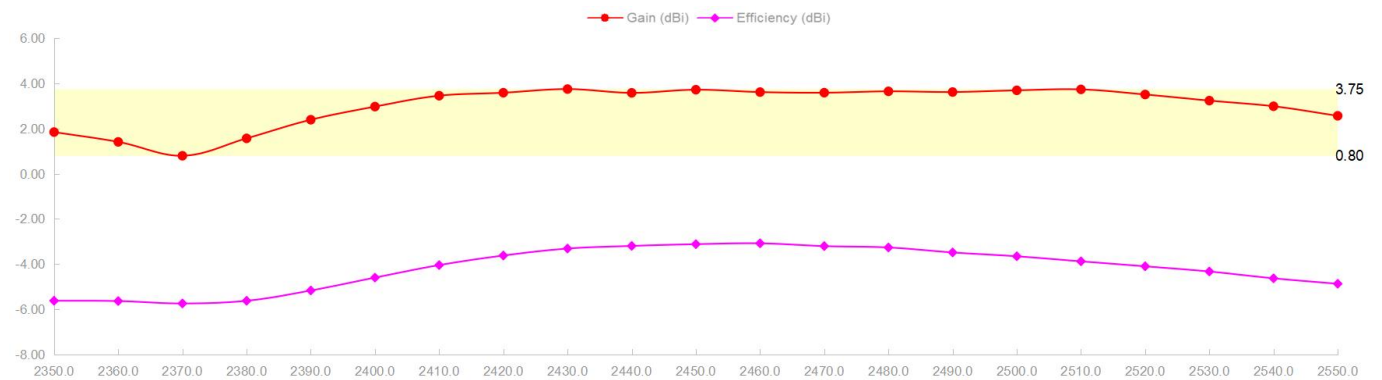
Total(H-XY), Max= -0.60dBi, CirD=20.52



6.3、Efficiency graph

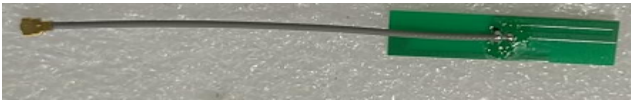


6.4、Gain curve graph



Reliability Test Report

client's name:	Zhejiang Dahua Technology Co., Ltd.	customer number:	/	
product name:	WIFI Internal Antenna	Product number	GKZS-WIFI-AC398-RF1.13I-82D	
Test items	Test Conditions	judgement standard	quantity	result
high temperature storage	12 hours in $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ environment;	All sizes meet the requirements; the appearance is free from deformation, degumming, rust, watermarks, etc.; the wires are not damaged, melted, bubbles, etc.; the performance is normal	1PCS	qualified
low temperature storage	12 hours in $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ environment;	All sizes meet the requirements; no deformation, degumming, rust, watermark, etc. in appearance; normal performance	1PCS	qualified
temperature cycle	1. Place in -20°C for 30 minutes, 25°C for 5 minutes, 70°C for 30 minutes, and 25°C for 5 minutes 2. Cycle times: 5 times;	All sizes meet the requirements; no deformation, degumming, rust, watermark, etc. in appearance; normal performance	1PCS	qualified
heat resistance	Place for 4 hours in a temperature of $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and a humidity of $93 \pm 2\%\text{RH}$;	All sizes meet the requirements; no deformation, degumming, rust, watermark, etc. in appearance; normal performance	1PCS	qualified
Salt spray test	Place in a closed environment with sodium chloride solution concentration of 5% (m^2), PH value of 6.5-7.2, temperature of $35^{\circ}\text{C} \pm 2^{\circ}\text{C}$, humidity $>85\%\text{RH}$ for 24 hours	The cable head has no oxidation, yellowing, greening, red rust, white rust, etc.; the performance is normal	1PCS	qualified

Product picture before sample:		Product map after sample:	
			
Test equipment:			
Compilation/Date:	Qianju Shieh/09-Oct-2021	Review/Date:	Jingsong Yang/09-Oct-2021
Note:			