



Specification For Approval

Customer: Zhejiang Dahua Technology Co., Ltd.

Supplier: GaoKe Ant Co., Ltd

Customer P/N: 1.2.20.01.10433

Production Name: WIFI Internal Antenna

Production Number: GKZS-WIFI-AD3213-RF1.13I-60B

Supplier Signature		
Engineer	Checked by	Approved by
Huang Yuming	Xie Qianju	Yang Jingsong
21-FeB-2022	21-FeB-2022	21-FeB-2022

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

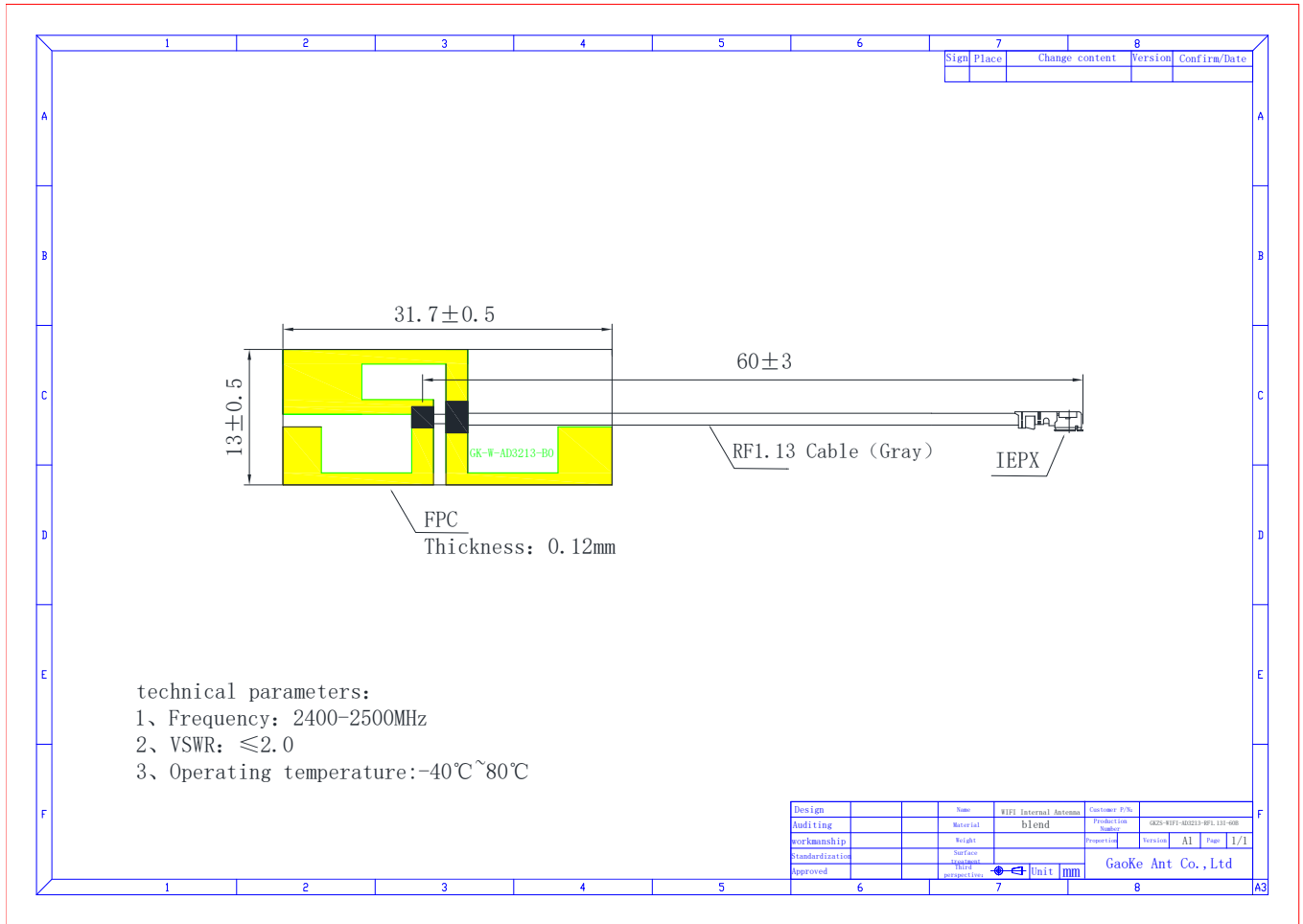
Fax: 020-87080731

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

Gaoke Ant Co., Ltd.

Description Record			
Version	Content Revised	Modifier	Date
A/0	Initial new	Xie Qianju	21-FeB-2022

1、Product structure drawing (mm)



2、Product picture



3、Antenna technical parameters

Manufacturer's internal model	GKZS-WIFI-AD3213-RF1.13I-60B
Type	WIFI
Frequency	2400-2500MHz
Form	Passive built-in antenna (FPC)
Polarization	Linear polarization
V.S.W.R	≤ 2.0
Efficiency	45.8% (average) 50.28% (peak)
Gain	2.23dBi (average) 2.81dBi (peak)
Connector type	IPEX
Antenna size	31.7x13x0.12mm
Feeder type and size	RF1.13 Cable (Gray) Length 60mm
Operating temperature	-40°C~80°C
Characteristic impedance	50 Ω
Salt spray test	24H
Weight	$\leq 5g$

4、Specifications of RF1.13 wire

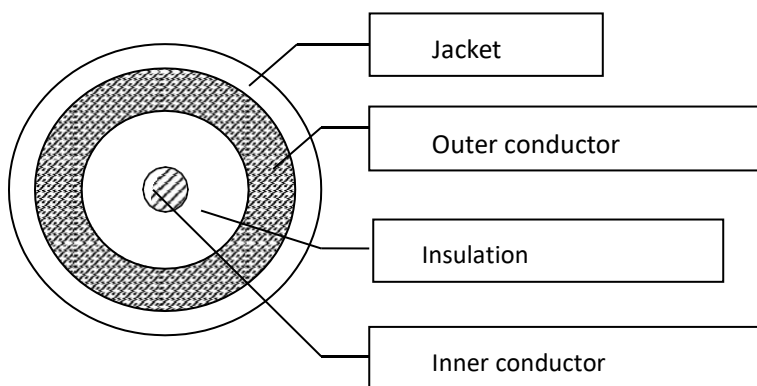
1. Product Description

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
Outer conductor	Material	/	Tinned copper wire
	Form	/	Weave
	Density	%	93% 26 Mesh; 64 Coding 4*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)

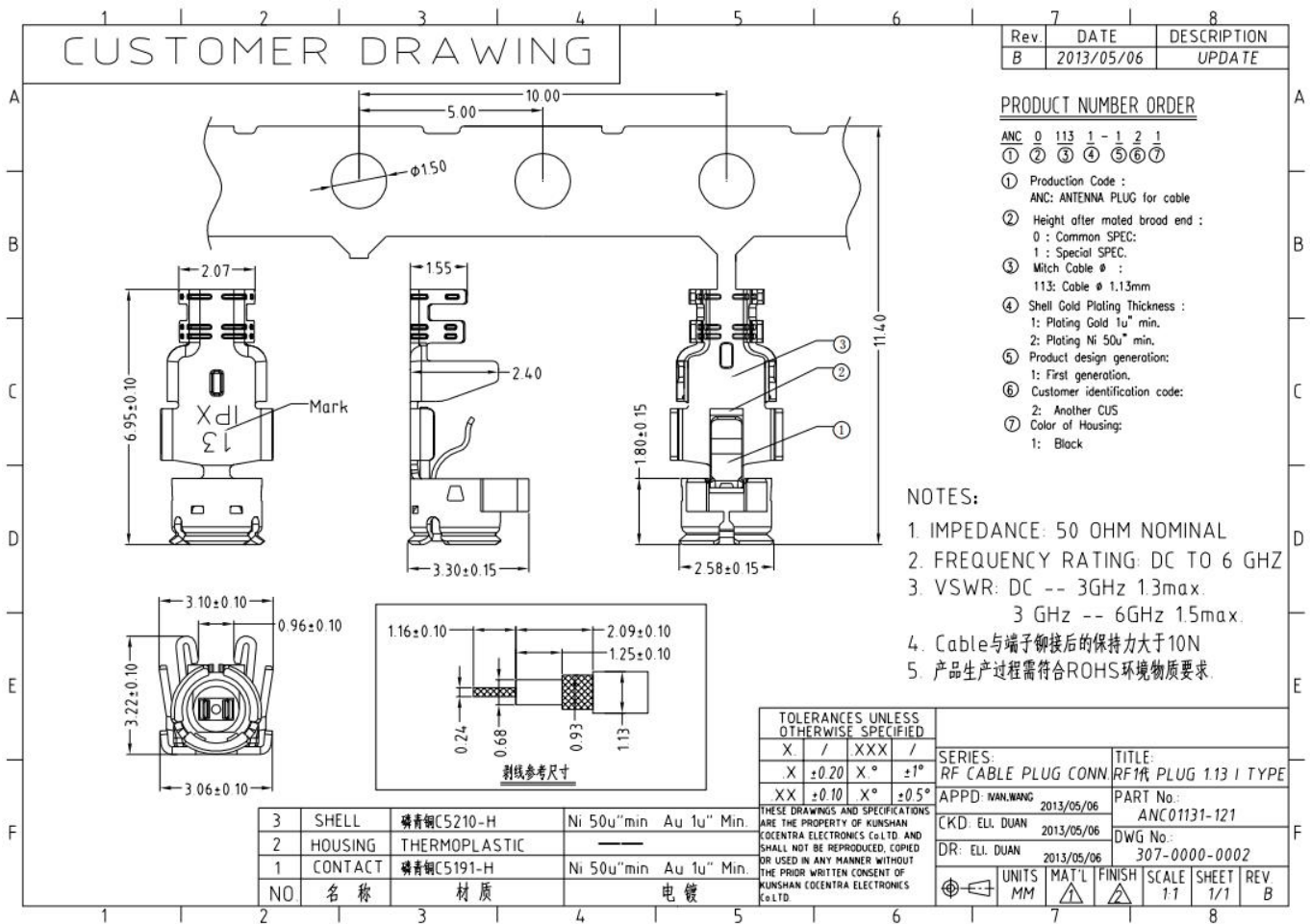
1.The cable properties

1.1 Electrical properties

test project	Standard value		Note
Rated temperature / voltage	-55°C ~ +200°C / 30V		/
Insulation resistance	3000M Ω . Km		Resistance tester
Conductor resistance	482 Ω /Km 20°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°C)
		Elongation	200% MIN*75% (168HRS*232°C)
Jacket	Unaged	Tensile Strength	2500 PSI MIN. (1.76Kg/mm ²)
		Elongation	200% MIN
	Aged	Tensile Strength	2500 PSI*75% (168HRS*232°C)
		Elongation	200% MIN*75% (168HRS*232°C)

characteristic impedance	50±2 Ω		Analysis of network analyzer The TRK tester
Capacitance	96±3 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	
VSWR	0. 3—3GHz	≤1. 35	
	3—6GHz	≤1. 45	

5、IPEX (generation) Specifications

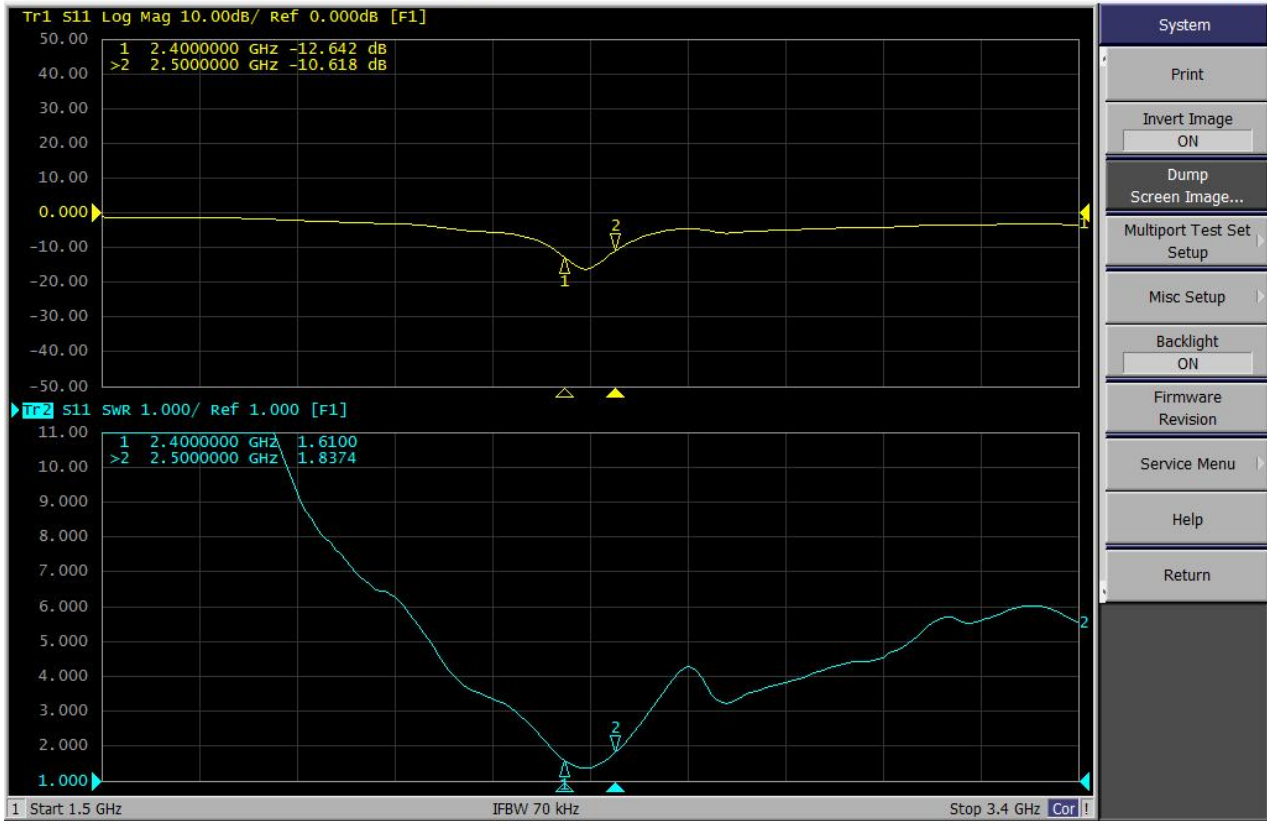


6、Antenna performance test (with prototype test)

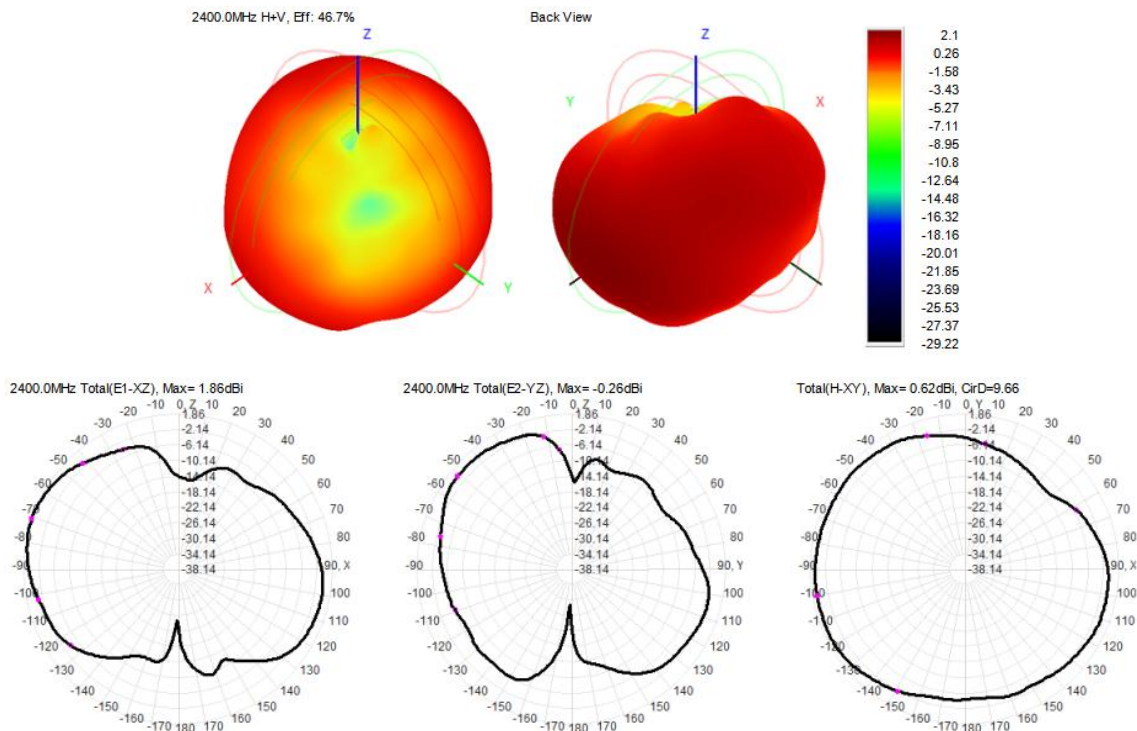
6.1、Return loss & V.S.W.R

E5071C Network Analyzer

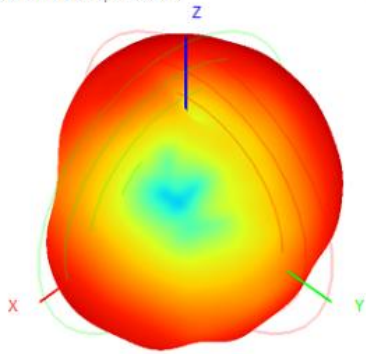
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State



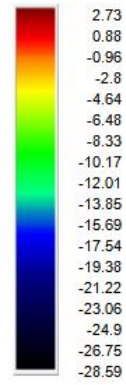
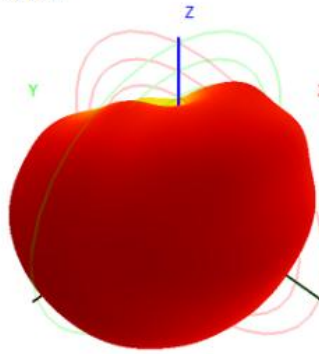
6.2、Direction map (2D&3D map)



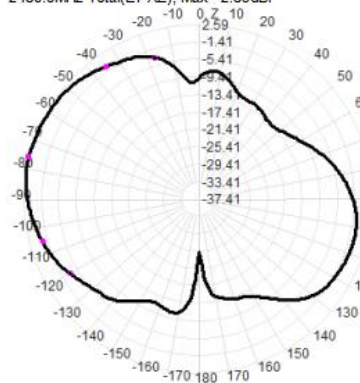
2450.0MHz H+V, Eff: 50.1%



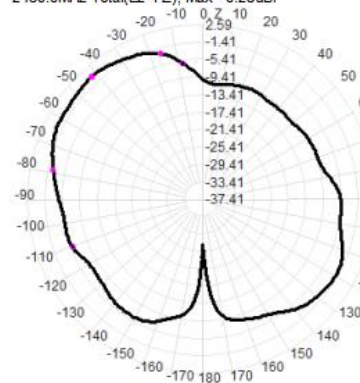
Back View



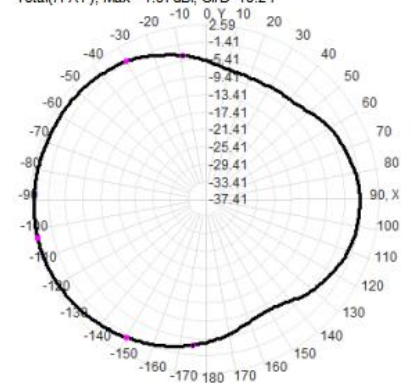
2450.0MHz Total(E1-XZ), Max= 2.59dBi



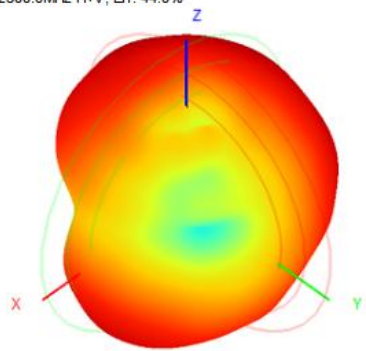
2450.0MHz Total(E2-YZ), Max= 0.25dBi



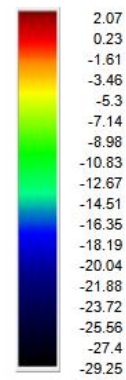
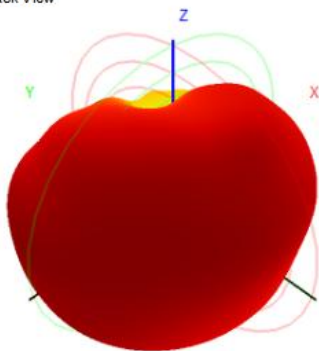
Total(H-XY), Max= 1.97dBi, CirD=10.24



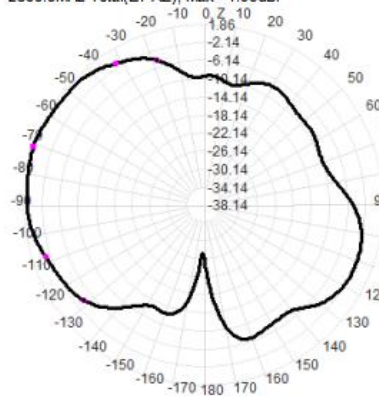
2500.0MHz H+V, Eff: 44.0%



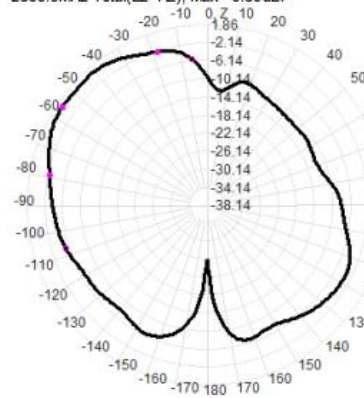
Back View



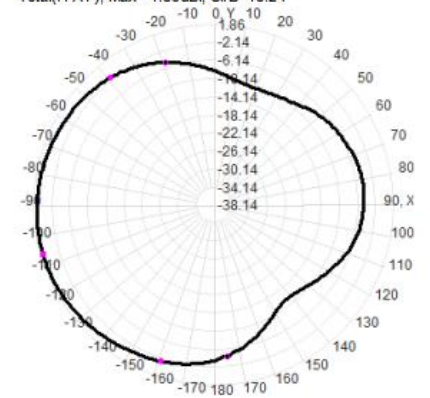
2500.0MHz Total(E1-XZ), Max= 1.86dBi



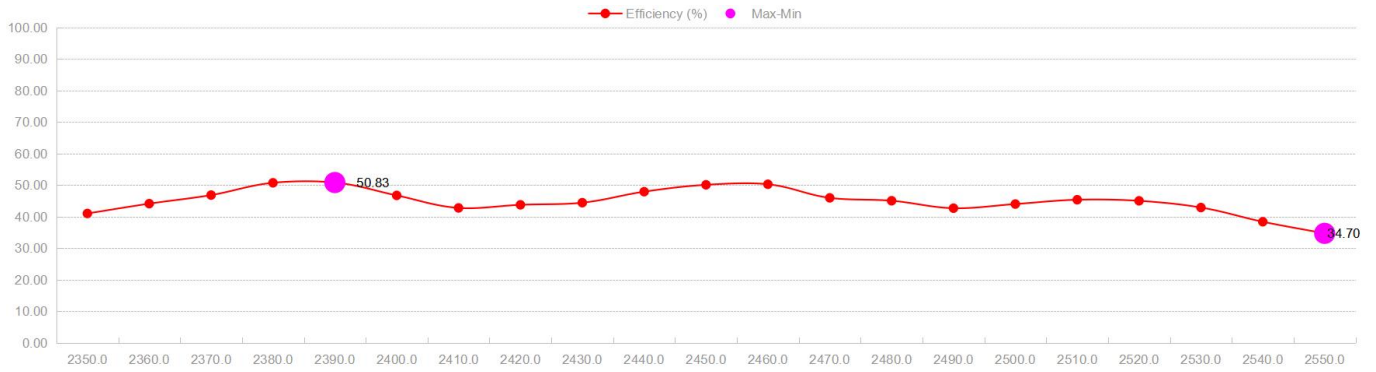
2500.0MHz Total(E2-YZ), Max= 0.59dBi



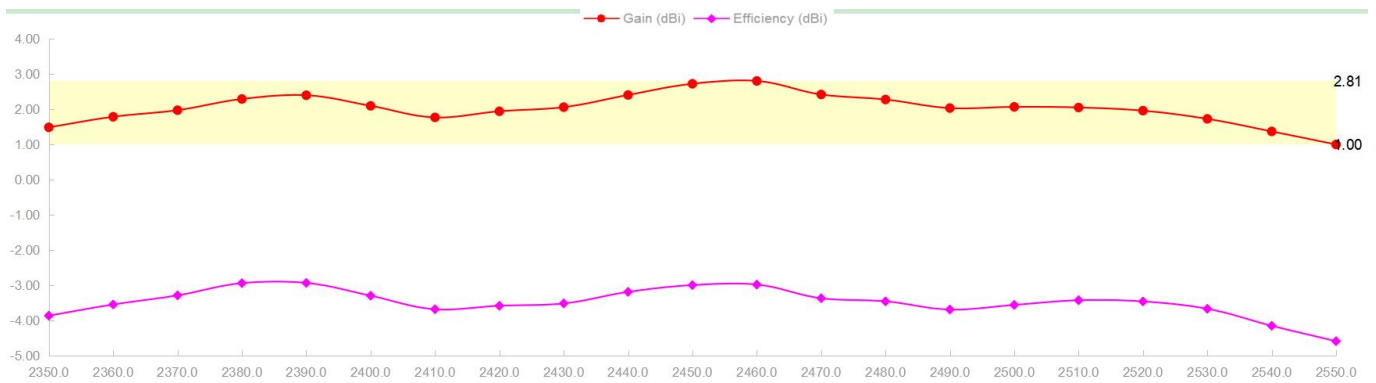
Total(H-XY), Max= 1.30dBi, CirD=13.24



6.3、Efficiency graph



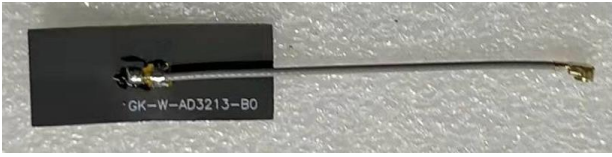
6.4、Gain curve graph



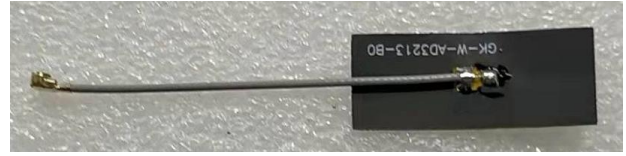
Reliability Test Report

client's name:	Zhejiang Dahua Technology Co., Ltd.	customer number:	/	
product name:	WIFI Internal Antenna	Product number	GKZS-WIFI-AD3213-RF1.13I-60B	
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:

Xie Qianju/16-Jan-2022

Review/Date:

Yang Jingsong/17-Jan-2022

Note: