



Gaoke Ant Co., Ltd.

Specification For Approval

Customer: Zhejiang Dahua Technology Co., Ltd.

Supplier: GaoKe Ant Co., Ltd

Customer P/N: 1.2.20.01.10433

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

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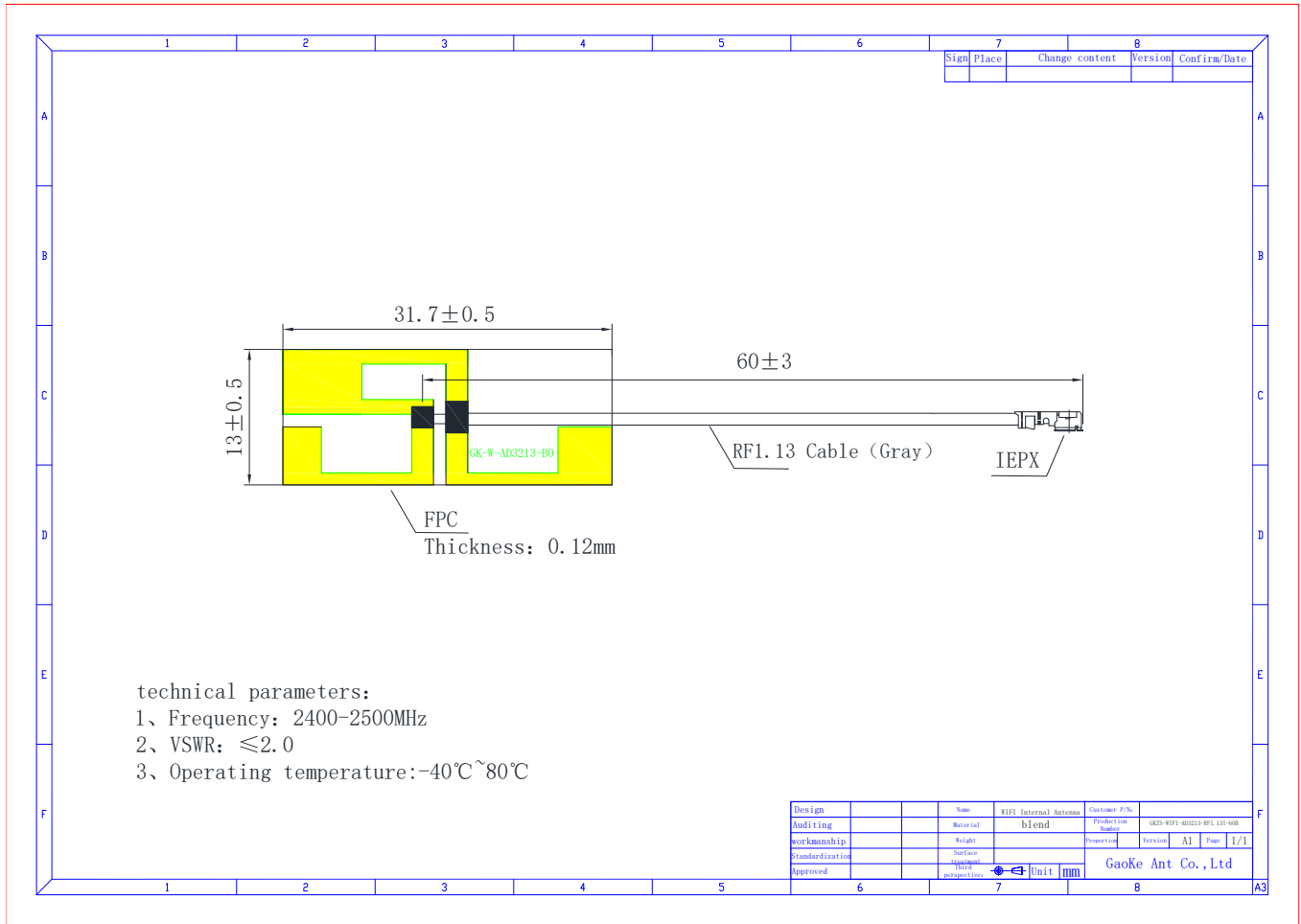
<http://www.gkzs.com.cn>



Gaoke Ant Co., Ltd.

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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℃~80℃
Characteristic impedance	50 Ω
Salt spray test	24H
Weight	$\leq 5g$

4、Specifications of RF1.13 wire

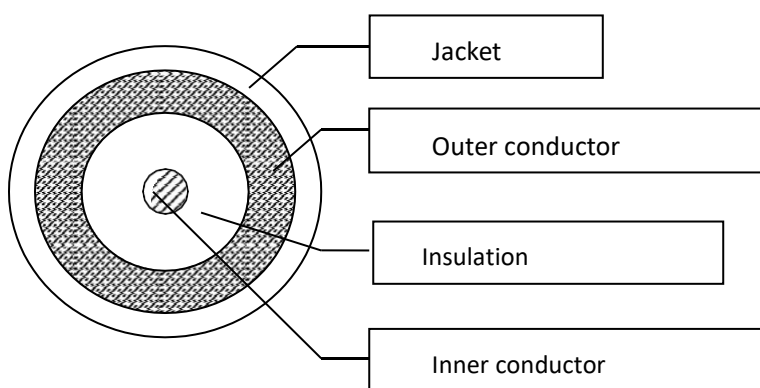
1.Product Description

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)

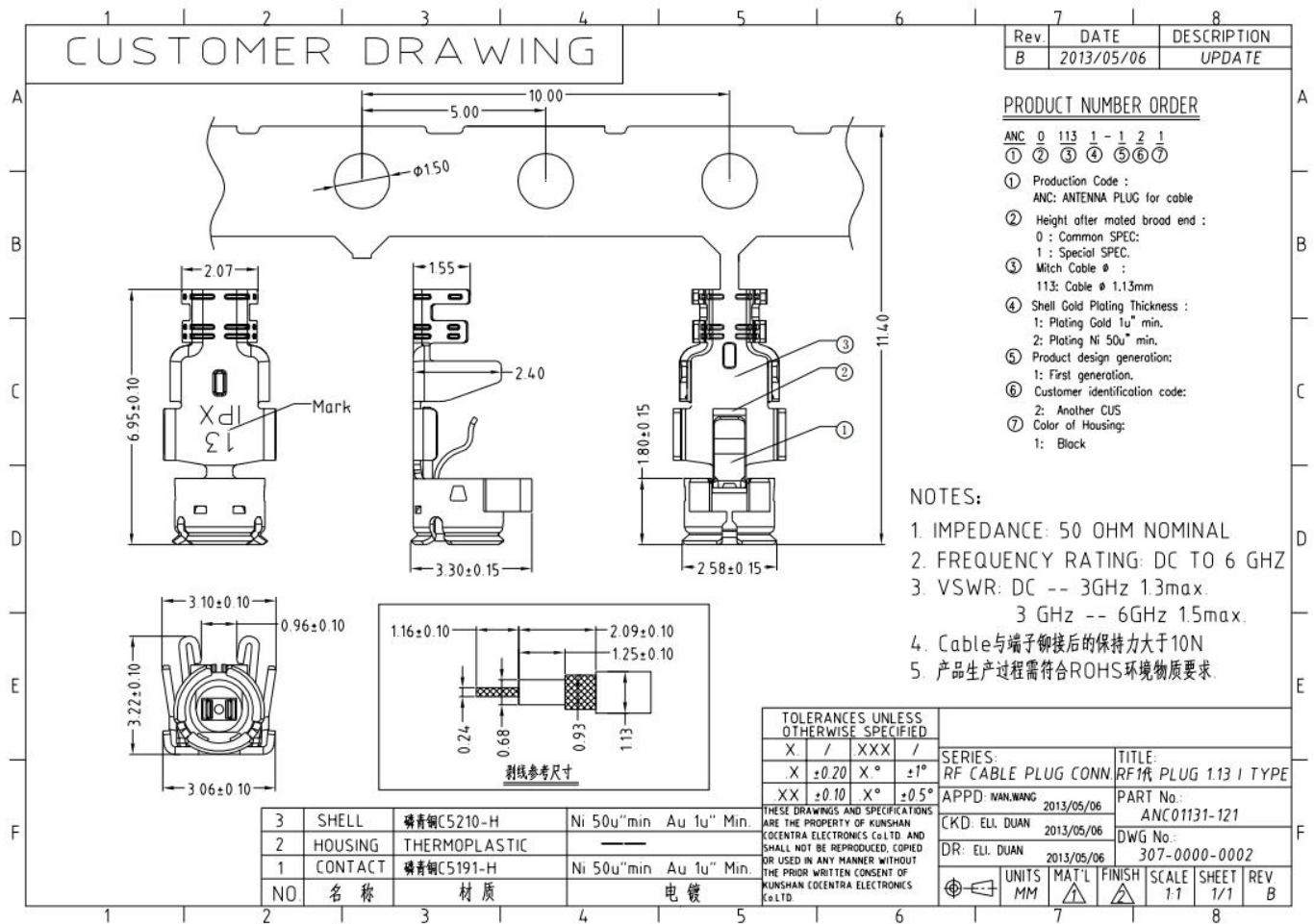
1.The cable properties

1.1 Electrical properties

test project	Standard value		Note
Rated temperature / voltage	$-55^{\circ}\text{C} \sim +200^{\circ}\text{C} / 30\text{V}$		/
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 $^{\circ}\text{C}$)

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

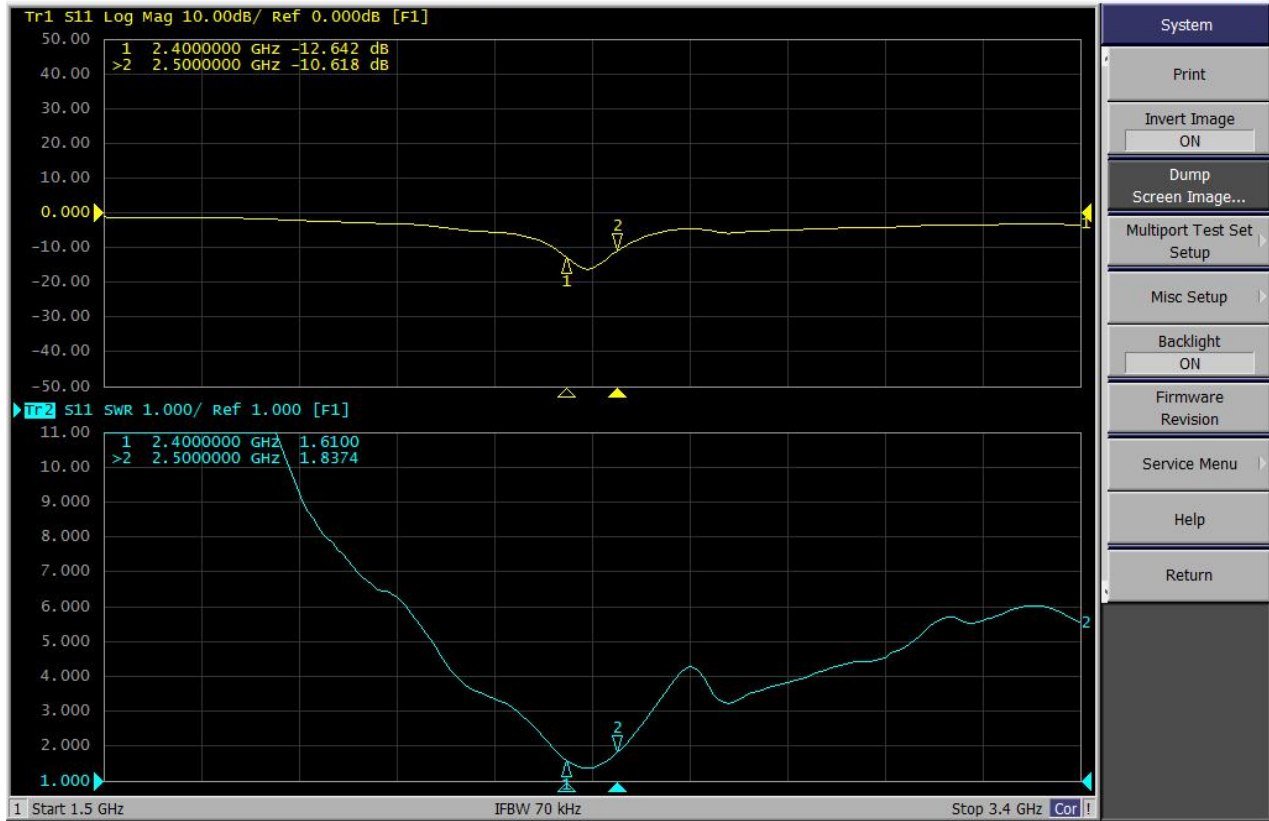


6、Antenna performance test (with prototype test)

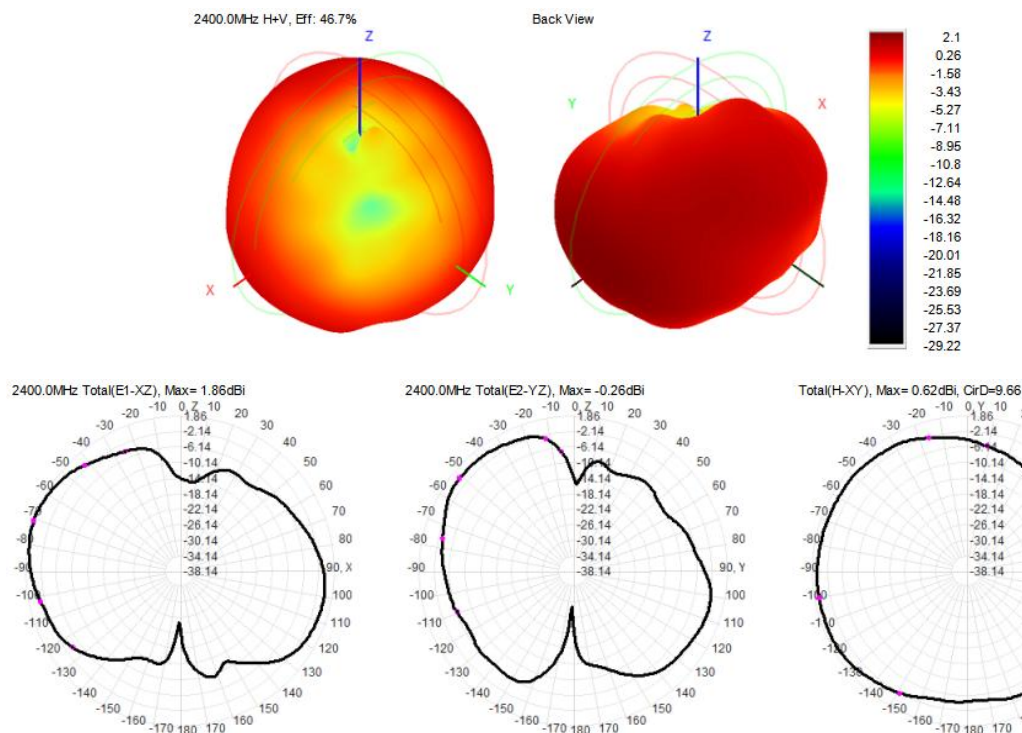
6.1、Return loss & V.S.W.R

E5071C Network Analyzer

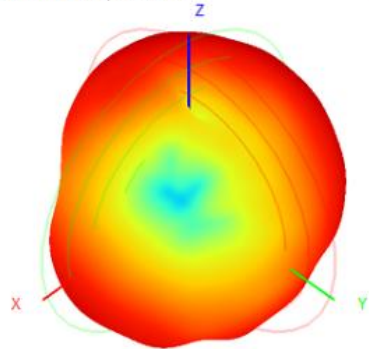
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State



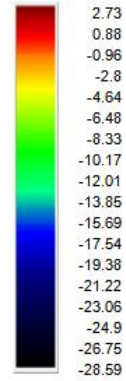
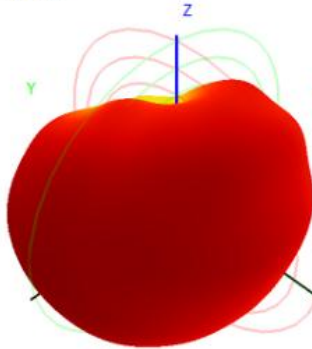
6.2、Direction map (2D&3D map)



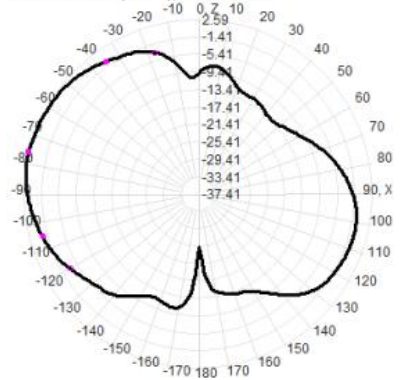
2450.0MHz H+V, Eff: 50.1%



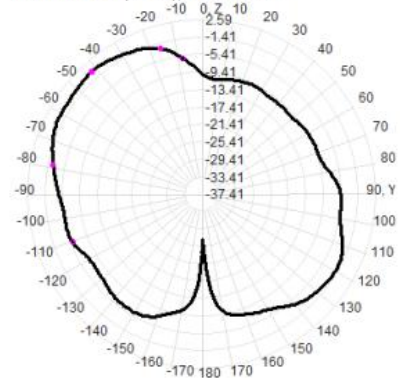
Back View



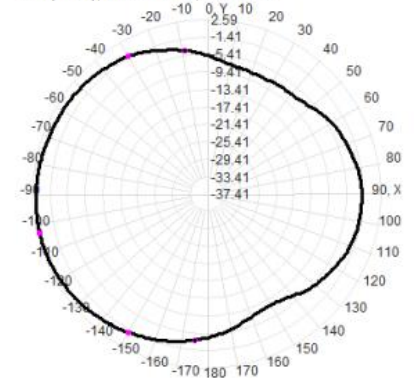
2450.0MHz Total(E1-XZ), Max= 2.59dBi



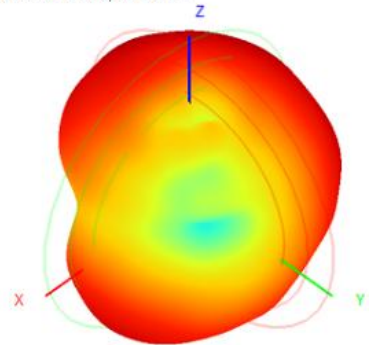
2450.0MHz Total(E2-YZ), Max= 0.25dBi



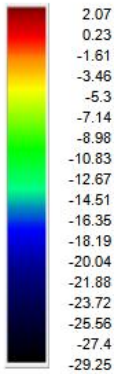
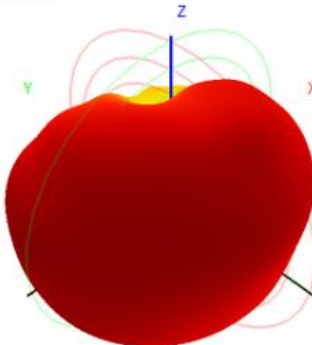
Total(H-XY), Max= 1.97dBi, CirD=10.24



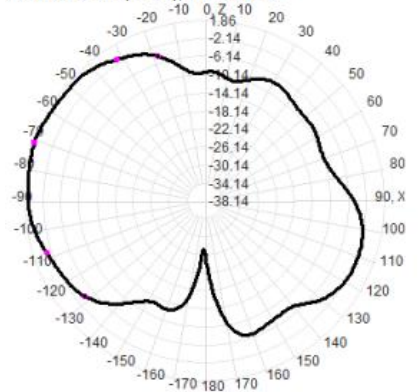
2500.0MHz H+V, Eff: 44.0%



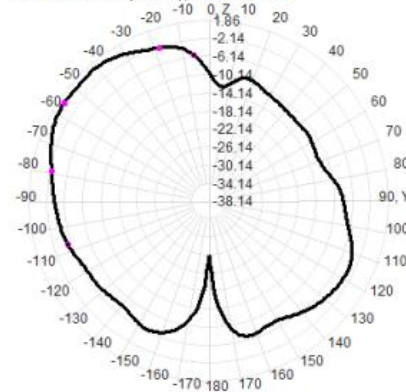
Back View



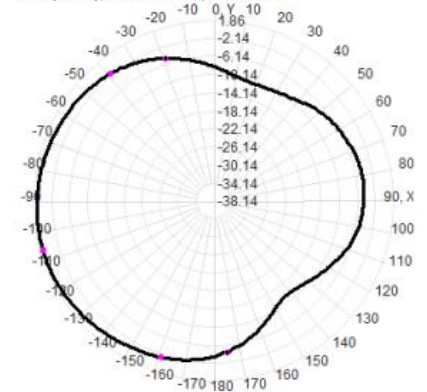
2500.0MHz Total(E1-XZ), Max= 1.86dBi



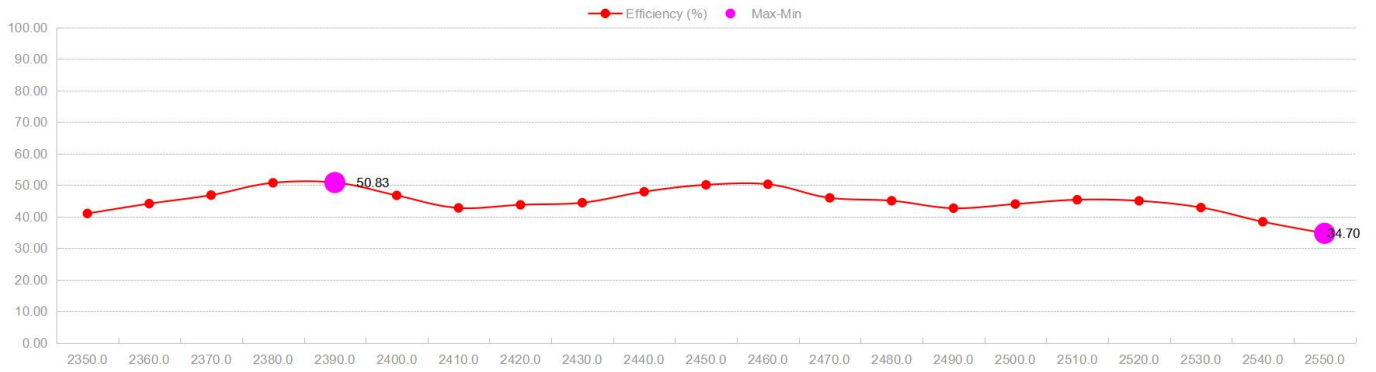
2500.0MHz Total(E2-YZ), Max= 0.59dBi



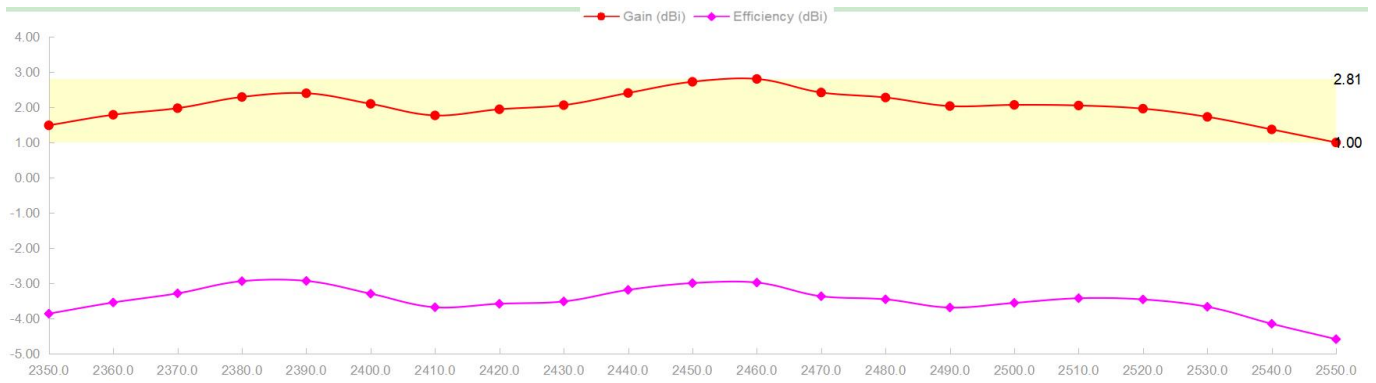
Total(H-XY), Max= 1.30dBi, CirD=13.24



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:			