

Acknowledgment number: 20250509-001

Second recognition

Acknowledgement

(THINKCAR) Product code: 10008126

(THINKCAR) Product Name: THINKSCAN_HD

(THINKCAR) Specifications: 10008126 THINKSCAN_HD Wifi antenna, dual-band, Y9S motherboard, ROHS

(Supplier) Product material number: KC.IA.00615

(Supplier) Product Name/Model: KC.IA.00615

(Vendor) Company name: THINKSCAN_HD Wifi antenna dual-band Y9S motherboard ROHS

Catalogue

I. Product engineering drawing	4
II. Material List (BOM)	4
III. Process flow chart.....	5
IV. Technical quality standards6.....	6
V. Appearance Inspection Report	6
VI. Dimension Inspection Report	6
VII. Function (Reliability) Test Report	7
VIII. Environmental Protection Test Report	7
IX. Packaging Specifications	7
X. Others (certification materials).....	9

II: Product Material List (BOM)

Order number	Name of material	Specifications and models	Unit	Dosage	Remarks
1	FPC	Black ink white L*W*T=18.3*19*0.25 MM, oxidation resistant treatment, ROHS	PCS	1	Forming requires a die
2	cable	RF1.13 coaxial cable, black wire, 50 Ω, tin coated copper wire ROHS	rice	0.07	
3	terminal	One terminal, 50 Ω, gold plated 1U, connected to 1.13 wire, ROHS	PCS	1	Salt spray 48H
4					

3: Process flow chart

Order number	Process name	critical activity	Process description	Number of employees	Use of equipment	Hours worked
1	Cut the line, punch the end, test	yes	According to drawings and other data, debug and set the parameters of the full automatic machine, install, cable and terminal raw materials on the machine	1	Fully automatic cable forming machine	
2	Visual inspection of semi-finished cables	deny	Use the CCT test line to check whether there is any abnormality in the tinned end of the cable	1	CCT	
3	weld FPC	yes	Use an iron wire to weld the cable to the FPC antenna	1	Lothier	
4	test	yes	Use the network analyzer to test the antenna voltage and VSWR	1	E5071B network analyzer	
5	Complete visual inspection	yes	Check whether the appearance is dirty, stained, tin slag, damage	1	visual	

			and other defects			
6	pack	deny	Packaging the product according to packaging specifications	1	Seal machine, counting scale	

IV: Technical quality standards:

Experimental projects	Reference standards and experimental conditions	Judgment basis	Number of samples/defective quantity (PCS)	Test/verification equipment
salt spray test	GB/T 2423.18-2000 Test Kb The test specimen was placed in the salt spray test chamber and sprayed with salt water with concentration of (5±1)%, temperature of 35°C ±1°C and deposition rate of (1-2) ml/50mm ² *h. After 48 hours, the appearance was checked.	No rust phenomenon, mechanical and electrical properties meet the specification range.	5/0	Salt spray laboratory
high-temperature storage	GB/T 2423.2-2001 trial B Environmental conditions: +85±3°C for 48H After the experiment, the test was carried out after 24 hours at room temperature.	The surface coating should be free from peeling, cracking, wrinkling and separation; Non-metallic structural parts do not occur permanent deformation, cracking, delamination, etc.; No jam or disengagement of mobile components; The electrical performance index meets the technical specification requirements	5/0	Temperature and humidity control Ring test chamber
Low temperature storage	GB/T 2423.1-2001 trial A Environmental conditions: -40±3°C for 48H After the experiment, the test was carried out after 24 hours at room temperature.	The surface coating should be free from peeling, cracking, wrinkling and separation; Non-metallic structural parts do not occur permanent deformation, cracking, delamination, etc.; No jam or disengagement of mobile components; The electrical performance index meets the technical specification requirements	5/0	Temperature and humidity control Ring test chamber
Terminal and cable holding force	Validation conditions: The joint and the wire are fixed at both ends on the pull-out machine fixture, and the pull-out force is zero. Validation method: Pull out manually at a uniform speed until the IPEX joint and the wire fall off the product	>10N	5/0	Tensile test machine
FPC pad and cable retention force	Validation conditions: The FPC is torn open and the back adhesive is attached to the fixture. The cable is fixed with a tension meter; the tension meter is reset to zero Validation method: Pull the cable with a tension gauge perpendicular to the FPC until the pad falls off	>5 N	5/0	Digital display push-pull force meter

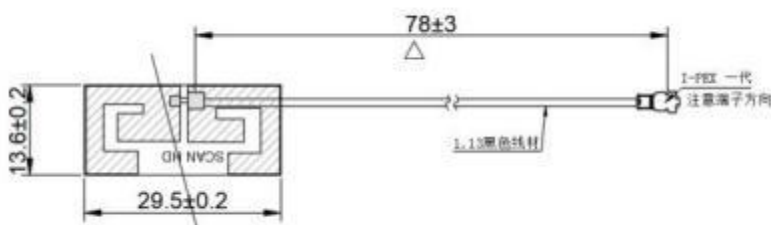
Electrical performance test	<p>Test condition 1: The network analyzer is set up, the parameters are set, the antenna terminal is inserted into the port, and both hands are 5CM away</p> <p>Test condition 2: The antenna is loaded into the installation and put into the microwave laboratory</p> <p>Verification method 1: Observe the screen of the network analyzer. If it shows PASS, OK; otherwise, if it shows FAIL, it is defective</p> <p>Verification method 2: the efficiency of the whole machine is greater than or equal to 40%</p>	<p>$VSWR \leq 2$</p> <p>Antenna efficiency $\geq 40\%$</p>	5/0	Network analyzer/microwave dark room
-----------------------------	--	--	-----	--------------------------------------

V: Appearance inspection report

order number	inspecting item	verify mode	procedure description	By the standards	result	judge
1	Scratches, dirt and stains	visual	Visual inspection to see if there are scratches, dirt and other defects	No visible scratches Injury, dirt	OK	OK
2	be out of shape	visual	Compare the sample with the issued sample to check whether the terminal cup is deformed	No visible deformation	OK	OK

VI: Size inspection report

dimensional check report

Date: 2025.05.07	Material number: KC.IA.00620	Quantity: 5PCS	Number: 20250507-001		
blueprint :					
					
dimensioning	13.6±0.2	29.5±0.2	78±3	1.13±0.1	
1#	13.62	29.53	77.69	1.09	
2#	13.64	29.56	78.52	1.11	
3#	13.63	29.52	77.93	1.10	
4#	13.62	29.54	78.86	1.10	

5#	13.61	29.53	78.93	1.11	
bear fruit	OK	OK	OK	OK	

VII: Function (Reliability) Test

Report 7.1

Salt spray test report form		
No.: 20250509-001 Customer: THINKCAR Date: May 9, 2025		
Product Name: TVCI	Number of tests: 5 (PCS)	Number of tests: 5 (PCS)
Material number: KC.IA.00615	Surface treatment: Terminal: Gold plating	
Type: IPEX generation terminals	Others: FCB antenna	
Test time: 9:00 on May 7, 2025 to 9:00 on May 7, 2025		
Total: 48 hours of continuous saline spray test		
Test conditions		
	Test standards	Actual test quality
Concentration of salt water solution	5%±0.1	5%±0.1
PH of salt water solution	6.5-7.2	7.1
Air compression force	1.0±0.001Kgf/c m ²	1.0±0.001Kgf/c m ²
Spray volume	1.0-2.0ml/80cm/H	1.2ml/80cm/H
Laboratory relative humidity	85%	More than 85%
test temperature	35±1°C	35±1°C
Pressure vessel temperature	47±1°C	47±1°C
Salinity and temperature	35±1°C	35±1°C
requirement :	1. No oxidation and green phenomenon on the surface of the terminal, and electrical energy is OK	
	2. Electrical performance OK (tested according to the requirements of finished product)	
The final decision is:	qualified	

Note: After 48 hours of continuous saline spray test, no oxidation and green phenomenon occurred on the terminal surface, and the electrical performance test was OK.

Test person: Liu Guanyinsheng Review: Li Dewen
Guanyinsheng Review: Li Dewen

Test person: Liu


7.2

High and low temperature test report							
date :	May 9, 2025			Report number: 20250509-002			
Lineage	/	Send for testing unit	PDR work order	tare	/	product odd numbers	/
Product material number	KC.IA.00615	product name	THINKSCAN_HD	size of product	FCB+ terminal wire antenna	experiment quantity	5pcs
test items	hot test						
Test conditions and methods	project	Test time: 48H					standard ask
	Temperature test criteria:	1. Limit temperature setting: low temperature is $(-40\pm 2)^{\circ}\text{C}$, high temperature is $(85\pm 2)^{\circ}\text{C}$. 2. High-low temperature conversion time: $<3\text{min}$. 3. Limit temperature holding time: 1h. 4. Cycle times: 24 cycles, a total of 48h					yes
Determination criteria: After 48H high and low temperature cycle-40~85°C test, the product is naturally cooled to room temperature: 1. Appearance: observe whether there is cracking in the product Deformation and shedding. 2. Electrical properties: The test voltage standing wave ratio of the network analyzer is normal							
measuring and test instruments				Appearance result: no cracking, deformation and peeling			
				Electrical results:	VSWR: < 2		




test result	After 48H high and low temperature cycle-40~85°C test, after natural cooling to room temperature: no cracking, deformation phenomenon, electrical measurement try OK		
Outcome assessment	OK		
remarks			
Approved: Li Dewen	Audit: Kevin.zhang	Lab technician: Zeng Lingyan	

7.3

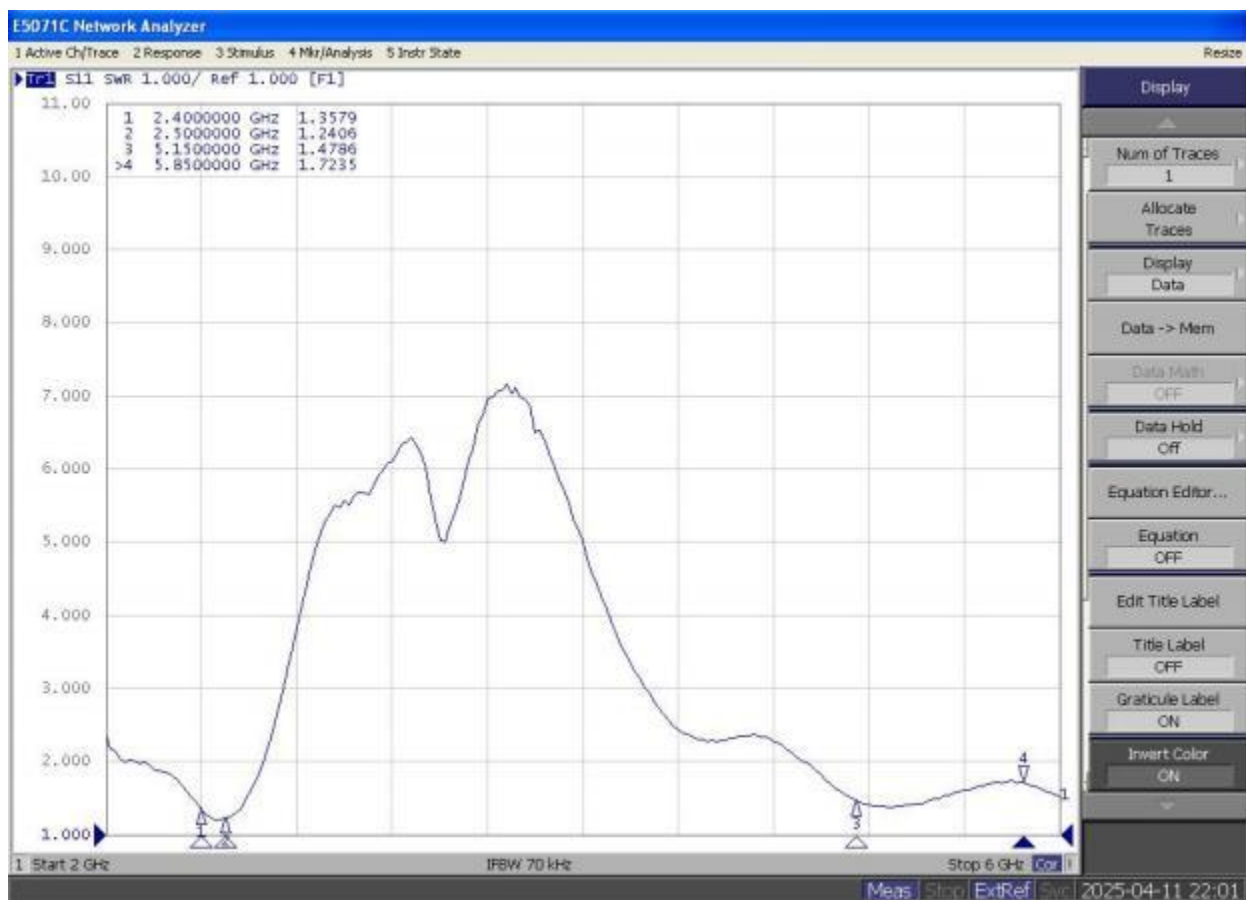
Terminal pull-off test report				
Date: 2025.05.09		Material number: KC.IA.00615	Report number: 20250509-003	
Lineage	/	Customer: THINKCAR Technology	Generate a production order number	/
product name	THINKSCAN_HD	Specification: FPC connected to the first generation terminal wire	Number of experiments	2pcs
Test conditions and method	project	Connector pull-off force test		Standard s matter ask
	Storage temperature test specimen standard :	Test conditions: Fix the connector and cable at both ends of the tensioner and pull until the connector falls off		yes
	/			N/A
				N/A
				N/A
Test serial number	Test requirements	test result		judge
1	The tensile force is greater than 10N	>10N		OK
test pattern :				
interpretation of result	The result of tensile test is>10N, which meets the requirement			

7.4

Welding pad pull-off test report				
Date: 2025.05.09		Material number: KC.IA.00615		Report number: 20250514-001
Lineage	/	Customer: THINKCAR Technology	Generate a production order number	/
product name	THINKSCAN_HD	Specification: FPC connected to the first generation terminal wire	Number of experiments	2pcs
Test conditions and method	project	Welding pad pull-off test		Standard requirements
	Storage temperature test specimen standard :	Test conditions: The cable is pulled vertically to the FPC by a tension gauge until the pad falls off		yes
	/			N/A
				N/A
				N/A
Test serial number	Test requirements		test result	judge
1	The tensile force is greater than 5N		>7.39N	OK
<div>test pattern :</div> <div></div>				
interpretation of result	The result of tensile test is >5N, which meets the requirement			

7.5 Voltage standing wave ratio VSWR:

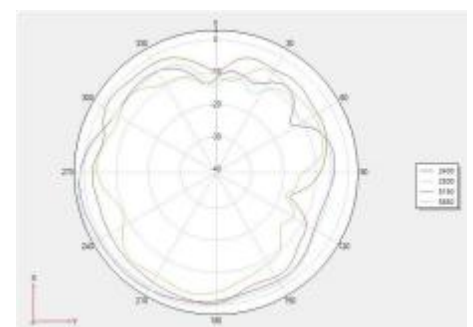
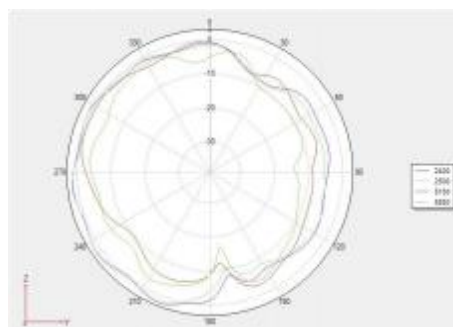
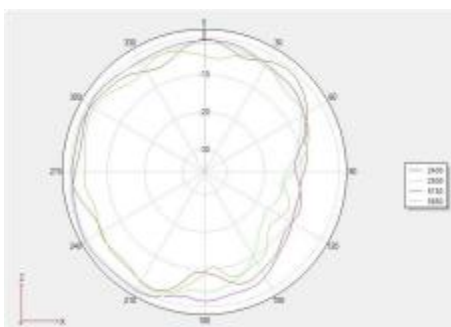
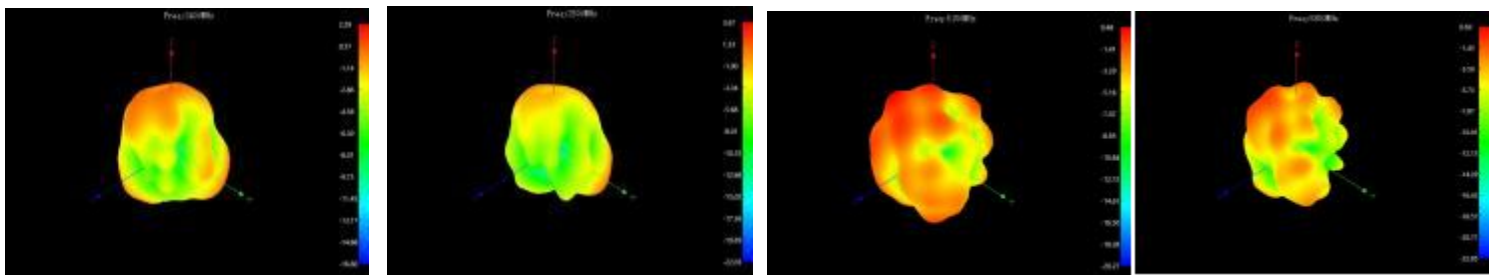
frequency (MHZ)	2400	2500	5150	5850
VSWR	1.35	1.24	1.47	1.72



7.6 Efficiency@Gain:

Frequency/MHz	MaxGain/dBi	Efficiency / %	Frequency/MHz	MaxGain/dBi	Efficiency / %
2400	2.29	63.28	5150	0.48	46.24
2410	1.68	63.83	5200	0.51	48.64
2420	1.96	67.45	5250	0.84	49.66
2430	1.97	70.61	5300	0.81	51.4
2440	2.4	68.23	5350	0.83	54.08
2450	1.8	67.26	5400	1.42	49.43
2460	2.77	67.09	5450	0.68	51.76
2470	2.3	65.52	5500	0.7	49.2
2480	2.87	67.81	5550	0.98	50.58
2490	2.57	67.16	5600	0.84	48.42
2500	3.67	66.46	5650	1.18	47.1
			5700	0.88	46.24
			5750	0.7	48.85
			5800	0.79	48.27
			5850	0.69	49.99

7.7 3D@2D radiation direction:




Viii. Environmental protection test report

ROHS20				
name	Take apart the section	report number	term of validity	Whether it meets the requirements
RF1.13 line	inner conductor	A2240376995101001C	June 26,2025	accord with
	insulation	NGBPC24007471212	December 16,2025	accord with
	outer conductor	A2240376995101001C	June 26,2025	accord with
	sheath	NGBPC24007471212	December 16,2025	accord with
Generation terminals	Body C5210	CANEC24029407215	December 25,2025	accord with
	Cored PBT	ETR24705722	July 29,2025	accord with
	cladding material	A2240410234101001E	July 10,2025	accord with
FPC	gum	SHAEC24027480902	November 28,2025	accord with
	base material	A2250072829101006E	February 13,2026	accord with
	printing ink	ETR24600712	June 4, 2025	accord with
	lettering	ETR24902229M01	September 12,2025	accord with
	surface preparation OSP	SZXEC24003056002	September 24,2025	accord with

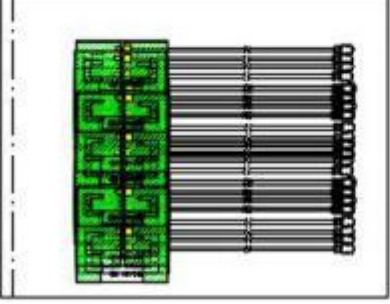
9: Packaging specifications

星卡科技
SHENZHEN THINKCAR ELECTRONICS TECHNOLOGY CO., LTD.
4000100 / 深圳前海星卡科技电子有限公司 星卡科技 4000100
TEL: 4000 2440 3007


Revision: A/0
Engineering Change Description: NGT
Date: 2025.03.12
Drawn: Dev In



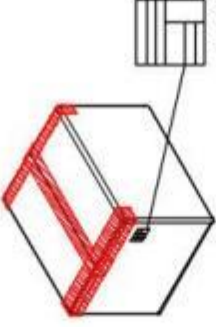
1. 成品1PCS



2. 将200PCS装入PE袋内，并封口



3. 将适量产品装入外箱中，如有空隙需填充珍珠棉固定
注意：总重量不超过10KG/箱



4. 封箱后并贴上标签，数量待定

注意：总重量不超过10KG/箱

NO.	DESCRIPTION	QTY	UNIT	REMARKS	APPROVALS	DATE
4	外包装标签 外包装标签	1	PCS			
3	RF. 22.00.0004 LxVxH=320*260*220mm, K-K 土黄色, 蓝色印字, ROHS	1	PCS			
2	RF. 20.00.0003 PE袋-L*W*H=200*150*0.06mm, PE, 透明, 窄端封口, ROHS	1	PCS			
1	KC-IA.00615 1THINKSCAN HD VIFI天线 双频 V9S主板用 ROHS	1	PCS			

TOXU 同林技术

PART NO: KC-IA.00615

TITLE: 包规

Scale: 1:1

DATE: 2024.11.12 REV: 20

DESIGN: CAD/19-07-003 ENG: THE CUSTOMER DRAWING