acknowledgement

APPROVAL

Version: A1

Customer: Shenzhen Honghaofeng Electronic Technology Co., LTD

Name and specification DESCRIPTION:	**2.4G built-in copper tube antenna L100 mm**
material No PART NO.:	3000.28.0904101
Customer data number CUS PART NO.:	
date D A T E:	2023-8-10

Sample signature:

engineering ENGINEERING DEPARTMENT	QA Q C DEPARTMENT	vocational work SALES DEPARTMENT

Customer's signature:

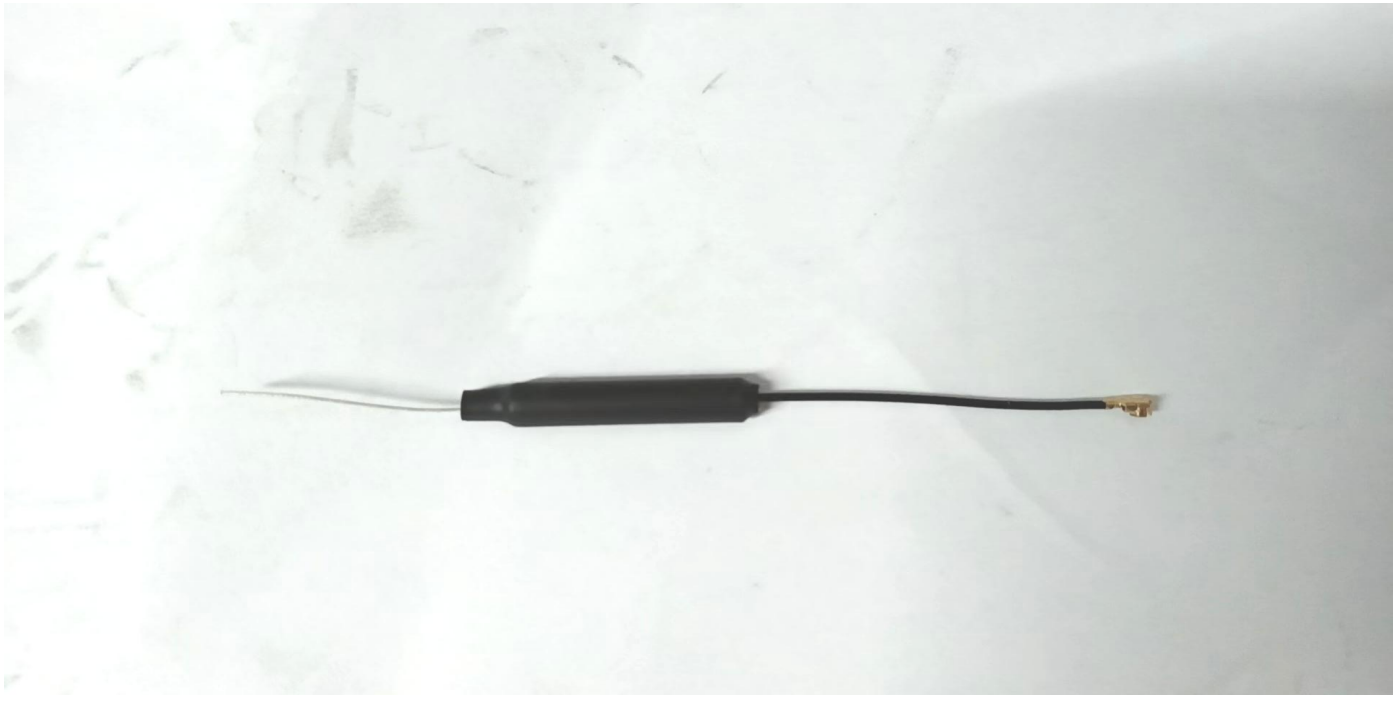
engineering ENGINEERING DEPARTMENT	QA Q C DEPARTMENT	purchase PURCHASING DEPARTMENT

※ Customer confirmation of sample approval column:

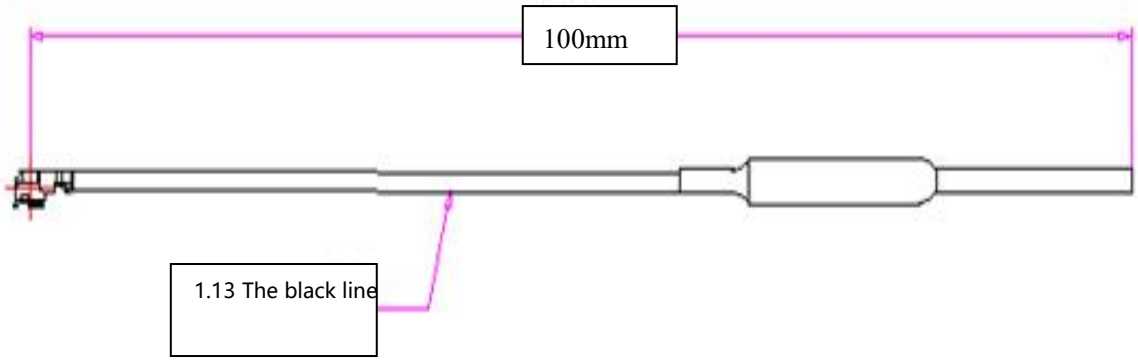
Electrical technical parameters

Electrical performance indicators		Electrical Specifications	
frequency range	2400-2500MHZ	Frequency Range	2400-2500MHZ
voltage standing-wave ratio	⩽2.0	VSWR	⩽2.0
gain	2DBI	GAIN	2DBI
input impedence	50 Ω	Input Impedance	50 Ω
Mechanical indicators		Mechanical Specifications	
Wire color	black	CABLE Color	BLACK
Interface form	IPEX	Input connector	IPEX
working temper-ature	-40℃~+85℃	Working Temperature	-40℃~+85℃
Working humidity	20~80%	Working Humidity	20~80%

product picture：



Schematic diagram:



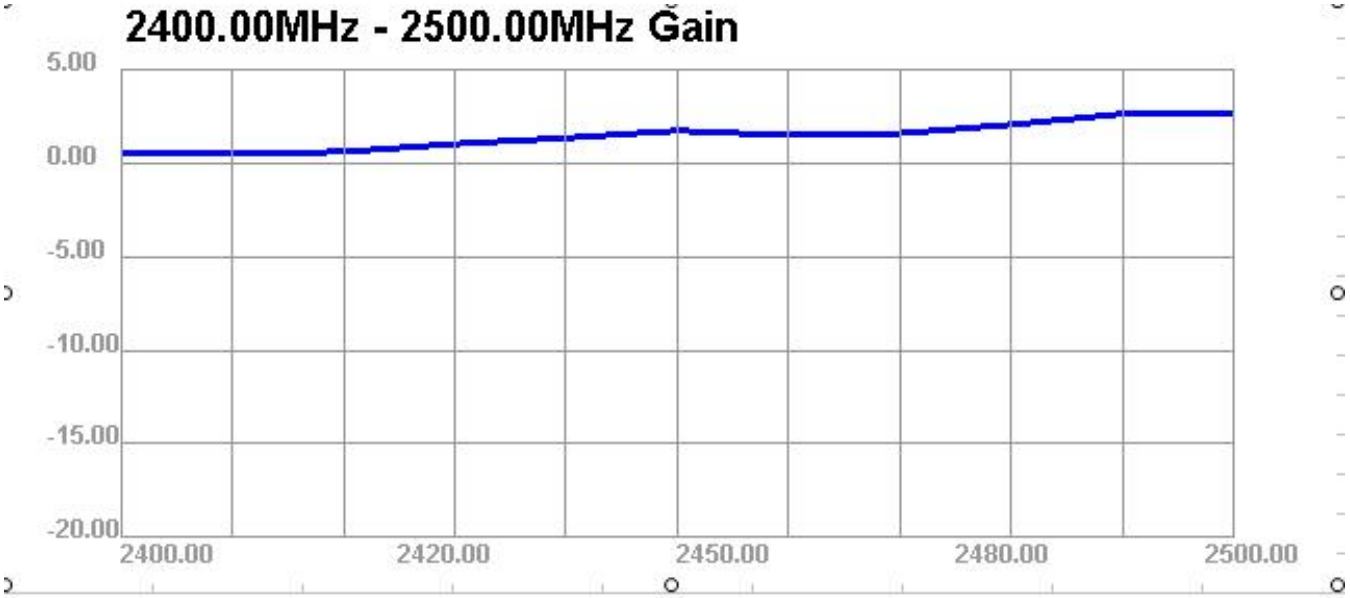
Environmental Performance Test:

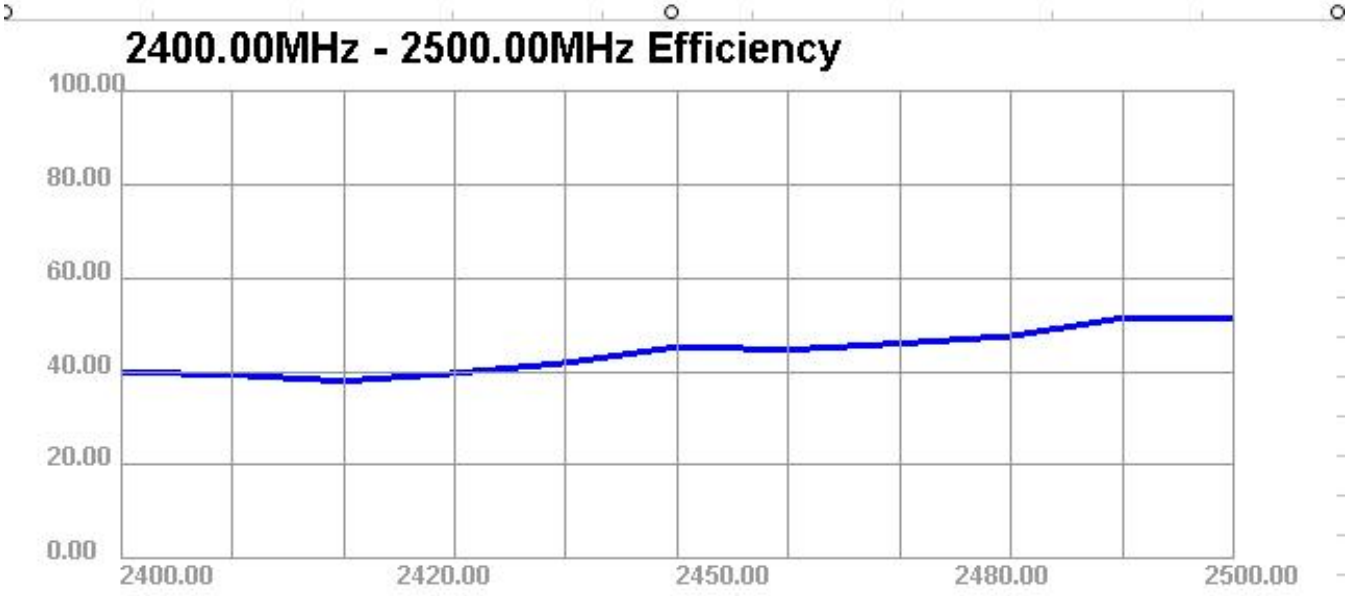
project	test condition	specifications
Storage environment	Test temperature, humidity and air pressure as follows in the absence of specified conditions: 1. The temperature is-30℃ ~ +80℃ 2.Relative humidity is 45%-85% 3.The air pressure is 86 kpa-106kpa	Electrical and mechanical properties are normal
thermocycling	Five cycles were performed between 70℃ and 40℃, followed by 1-2H under normal conditions to check the appearance quality.	The dimensions shall meet the requirements and shall be satisfactory for mechanical and electrical properties
Resistant to constant damp heat test	Relative humidity 95±3%, test temperature: 40 ℃. After 2H action, the electrical properties of the specimen are measured within 5min after the specimen is taken out. The specimen is checked for appearance quality under normal conditions for 1-2H	The dimensions shall meet the requirements and shall be satisfactory for mechanical and electrical properties
vibration test		Electrical and mechanical pr-

	Vibration frequency range: 10-55Hz, displacement amplitude: 0.35mm, acceleration amplitude: 50.0M/S, frequency sweep cycle: 30 times	operties are normal
fall-down test	Fall 1M high along the mutually perpendicular axis direction three times	Electrical and mechanical properties are normal

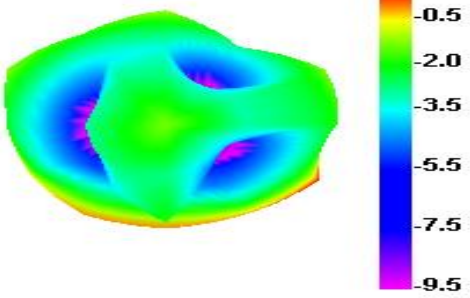
Sample test:

Passive Test For WIFI												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	39.9	-3.99	0.52	-1.63	16.108	23.797	0.52	-13.42	4.51	60	43.91	43.89
2410	39.32	-4.05	0.51	-1.64	15.992	23.328	0.51	-13.61	4.56	60	44.05	43.95
2420	37.97	-4.21	0.6	-1.55	15.669	22.298	0.6	-14.15	4.8	150	43.94	43.81
2430	39.67	-4.01	1.01	-1.14	16.61	23.065	1.01	-15.14	5.03	120	44.07	43.87
2440	41.87	-3.78	1.33	-0.82	17.871	24.001	1.33	-16.2	5.12	120	44.39	44.15
2450	45.28	-3.44	1.72	-0.43	19.717	25.565	1.72	-15.97	5.16	120	44.63	44.34
2460	44.68	-3.5	1.47	-0.68	19.873	24.811	1.47	-16.74	4.97	120	44.63	44.43
2470	46.01	-3.37	1.57	-0.58	20.954	25.061	1.57	-17.79	4.95	120	44.56	44.29
2480	47.58	-3.23	2.05	-0.1	22.246	25.334	2.05	-19.85	5.27	60	44.67	44.37
2490	51.46	-2.89	2.62	0.47	24.645	26.814	2.62	-20.28	5.5	0	44.7	44.46
2500	51.32	-2.9	2.69	0.54	25.073	26.244	2.69	-22.69	5.59	0	44.59	44.18

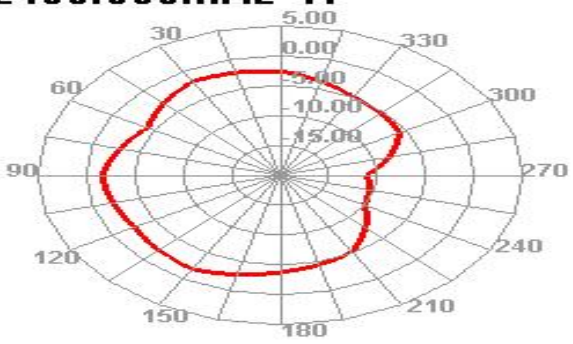




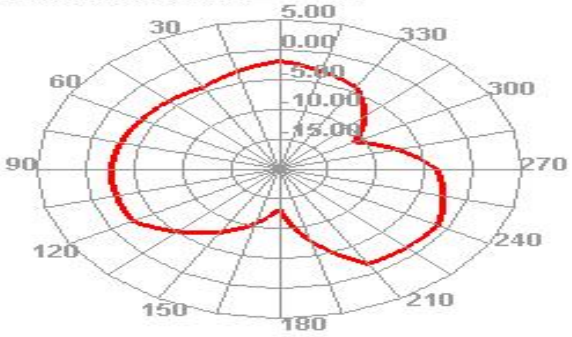
2400.000MHz



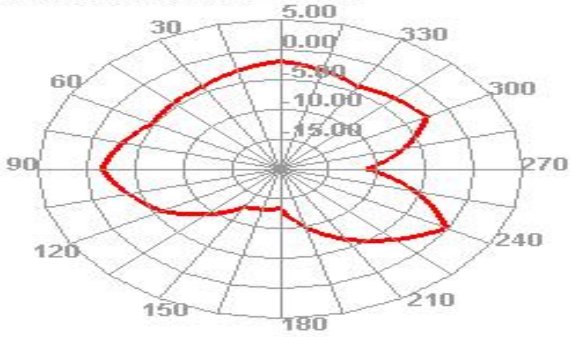
2400.000MHz H



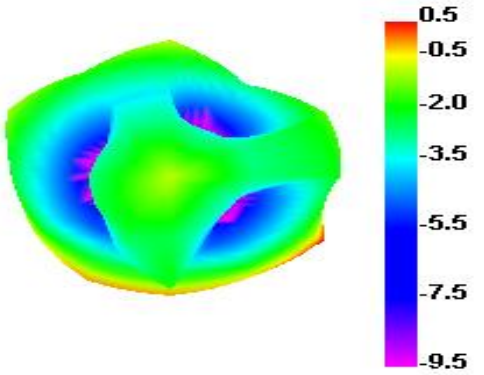
2400.000MHz E1



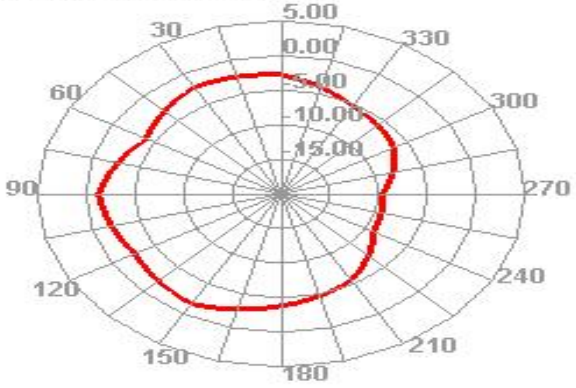
2400.000MHz E2



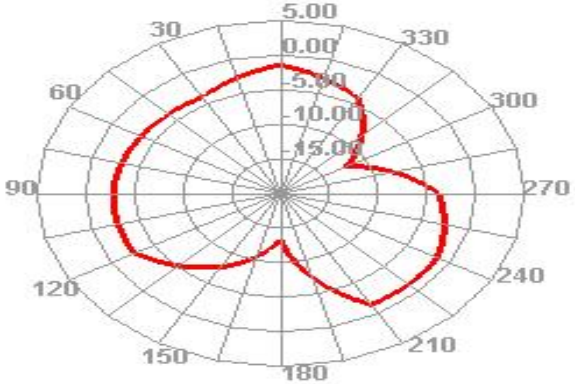
2410.000MHz



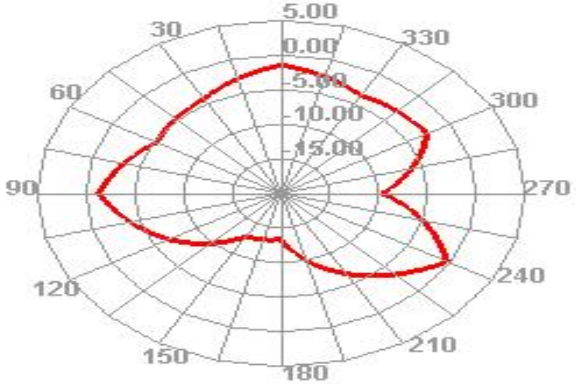
2410.000MHz H



2410.000MHz E1



2410.000MHz E2



Environmental performance test (EPT):

ITEM	TEST CONDITION	TEST RESULT
The storage environment	In the absence of the specified circumstances test temperature, humidity, air pressure is as follows: 1 temperature is -30 ℃ ~ +80 ℃ 2 relative humidity for 45%-85% The 3 pressure is 86 kpa-106kpa	Electrical and mechanical properties of normal
Thermocycling ;	5 cycles between 70 ℃ and 40 ℃, then under normal conditions 1-2H, appearance quality inspection.	Dimensions should meet the requirements and shall satisfy In the mechanical, electrical properties
Resistance to damp heat Test	Relative humidity is 95 ± 3%, test temperature: 40 ℃. Continue after 2H, Test within the product after removing the 5 min determination of the electrical properties, in the normal sample Under 1-2H, the appearance of quality inspection	Dimensions should meet the requirements and shall satisfy In the mechanical, electrical properties
vibration test ;	Displacement amplitude of vibration frequency range: 10-55HZ, 0.35MM, the amplitude of acceleration: 50.0M/S, sweep cycle times: 30 times	Electrical and mechanical properties of normal
fall-down test ;	1M high altitude in accordance with the perpendicular axis free fall 3	Electrical and mechanical properties of normal