SPECIFICATION

Customer Name: Shenzhen Zhongsoft win Technology Co., LTD

Product Model: P4

Customer P/N :

XINHENGYANG P/N: CP.21.0000130 / CP.21.0000130

NZ.01.0000182 / NZ.01.0000183

SPECIFFCATIONS: 4G+WIFI2.4GHZ-5.8GHZ+BT

Production date: 2024-11-12

Sample Version: R1

XINHENGYANG		
FICTION	DQE	R&D
Customer		
PUR	QC	R&D

Manufacturer: Shenzhen Xinhengyang Technology Co., LTD

Address: 1 / F, Building B, Aerospace micromotor Building, No.7 Langshan No.2 Road, Xili Street, Nanshan District, Shenzhen

Tel: 0755-83600916 Email: xinhengyang1116@163.com

Network address: https://www.xhy-2008.com

Number	Effective date	Change record
R1	2024-11-12	Initial release

1、The basic parameters

A. Electrical Characteristics	
Frequency	**2400MHZ-2500MHZ** **5150MHZ-5850MHZ**
VSWR	**WIFI-MAIN：<4.0 WIFI-DIV：<5.0**
Avg Efficiency	**WIFI-MAIN：>38% WIFI-DIV：>30%**
Impedance	**50 ± 25 Ohm**
Polarization	**Linear**
Peak Gain	**WIFI-MAIN： 2400MHZ: 1.96dBi 5850MHZ: 4.99dBi** **WIFI-DIV： 2400MHZ: -0.19dBi 5850MHZ: 3.24dBi**
B. Material & Mechanical Characteristics	
Material of Radiator	**FPC+Steel sheet black**
Cable Type	**Generation 4**
Connector Type	**Φ0.81 WIFI-MAIN：L=120MM black** **WIFI-DIV：L=110MM gray**
Dimension	**/**
C. Environmental	
Operation Temperature	**- 20 ˚C ~ + 60 ˚C**
Storage Temperature	**- 30 ˚C ~ + 70 ˚C**

2、Electrical Specification

Those specifications were specially defined for P4 model.

3、VSWR

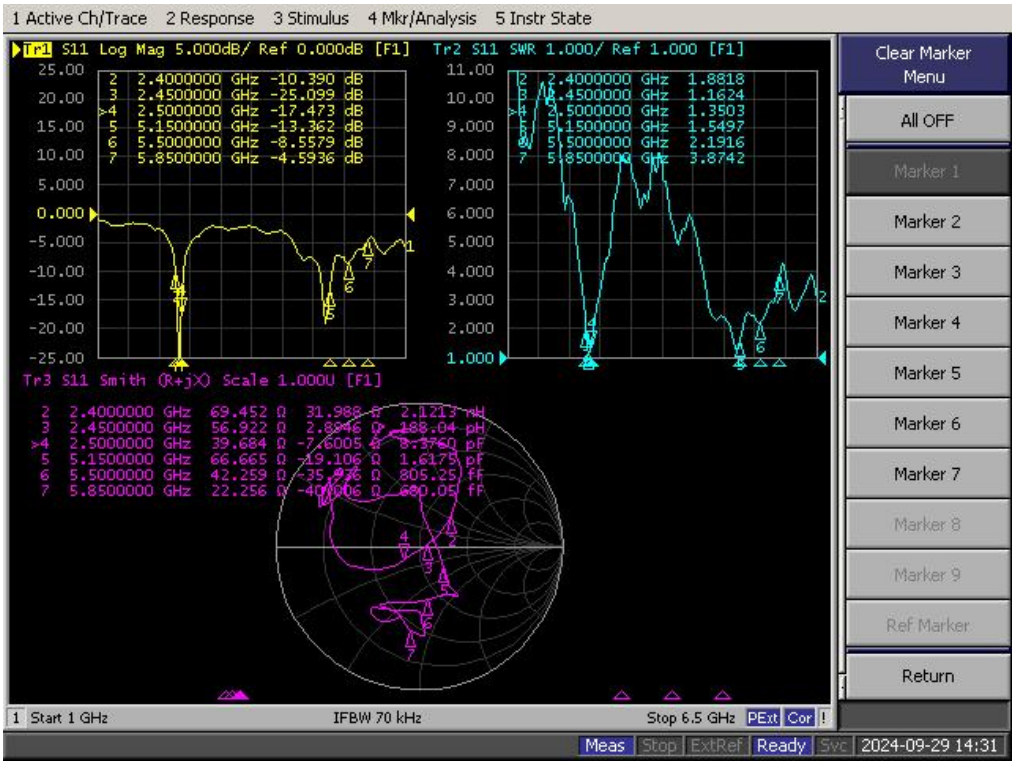
1 Measuring Method

1.A 50 Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR

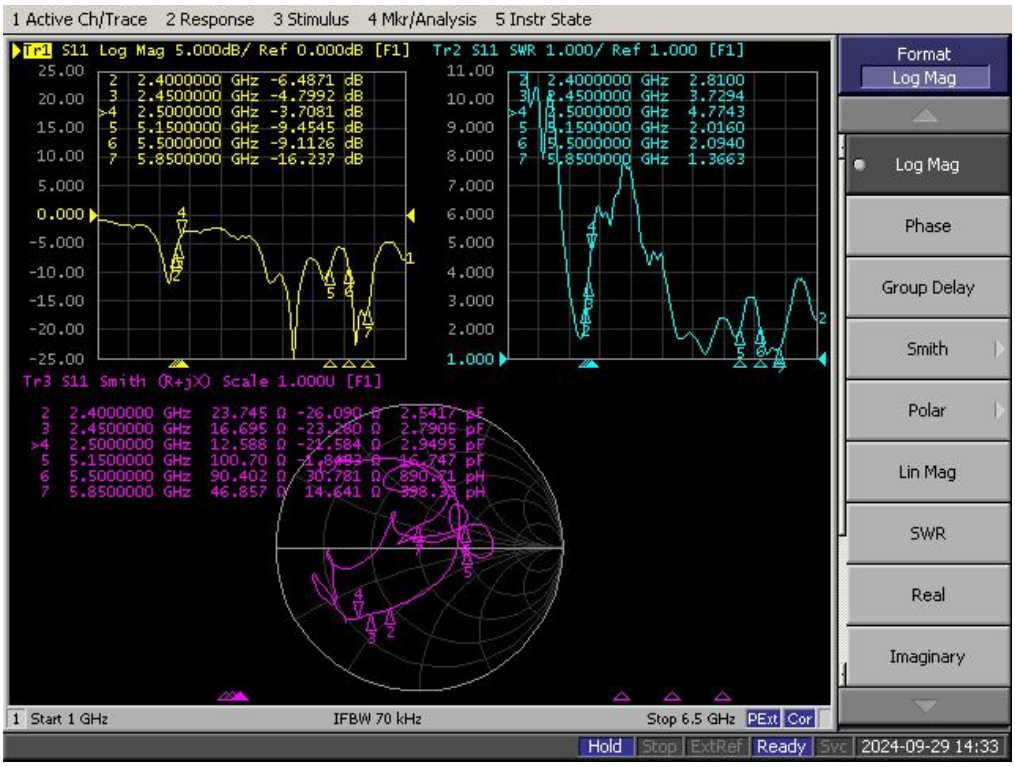
2.Keeping this jig away from metal at least 20cm

2 Measurement frequency points and VSWR value

WIFI-MAIN



WIFI-DIV


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S11 Log Mag 5.000dB/ Ref 0.000dB [F1]
2 2.4000000 GHz -6.4871 dB
3 2.4500000 GHz -4.7992 dB
>4 2.5000000 GHz -3.7081 dB
5 5.1500000 GHz -9.4545 dB
6 5.5000000 GHz -9.1126 dB
7 5.8500000 GHz -16.237 dB
Tr2 S11 SWR 1.000/ Ref 1.000 [F1]
2 2.4000000 GHz 2.8100
3 2.4500000 GHz 3.7294
>4 2.5000000 GHz 4.7743
5 5.1500000 GHz 2.0160
6 5.5000000 GHz 2.0940
7 5.8500000 GHz 1.3663
Tr3 S11 Smith (R+jX) Scale 1.000U [F1]
2 2.4000000 GHz 23.745 Ω -26.090 Ω 2.5417 pF
3 2.4500000 GHz 16.695 Ω -23.280 Ω 2.7905 pF
>4 2.5000000 GHz 12.588 Ω -21.584 Ω 2.9495 pF
5 5.1500000 GHz 100.70 Ω 1.8493 Ω 16.747 pF
6 5.5000000 GHz 90.402 Ω 30.781 Ω 890.31 pH
7 5.8500000 GHz 46.857 Ω 14.641 Ω 398.39 pH
Format
Log Mag
Log Mag
Phase
Group Delay
Smith
Polar
Lin Mag
SWR
Real
Imaginary
1 Start 1 GHz
IFBW 70 kHz
Stop 6.5 GHz
PExt
Cor
Hold
Stop
ExtRef
Ready
Svc
2024-09-29 14:33

4、 Anechoic chamber

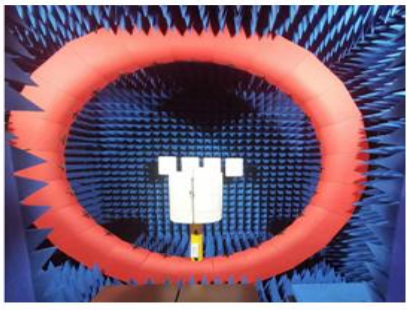
Introduction:

Microwave darkroom and no reflection chamber, absorbing short wave darkroom dark room. Microwave darkroom by electromagnetic shielding room, filtering and isolation, grounding device, the ventilation duct, indoor distribution system, monitoring system, ceiling wave material part. It is based on the wave absorbing material as the lining of the shield room, it can absorb the most of the electromagnetic energy into the six wall is a better simulation of the free space conditions.

The main working principle of microwave anechoic chamber is according to the electromagnetic wave in the medium from the low magnetic guide magnetic direction of propagation rules, absorbing materials to guide the electromagnetic wave using high permeability, through resonance, a substantial absorption of electromagnetic wave radiation energy, by coupling the electromagnetic energy into heat energy.

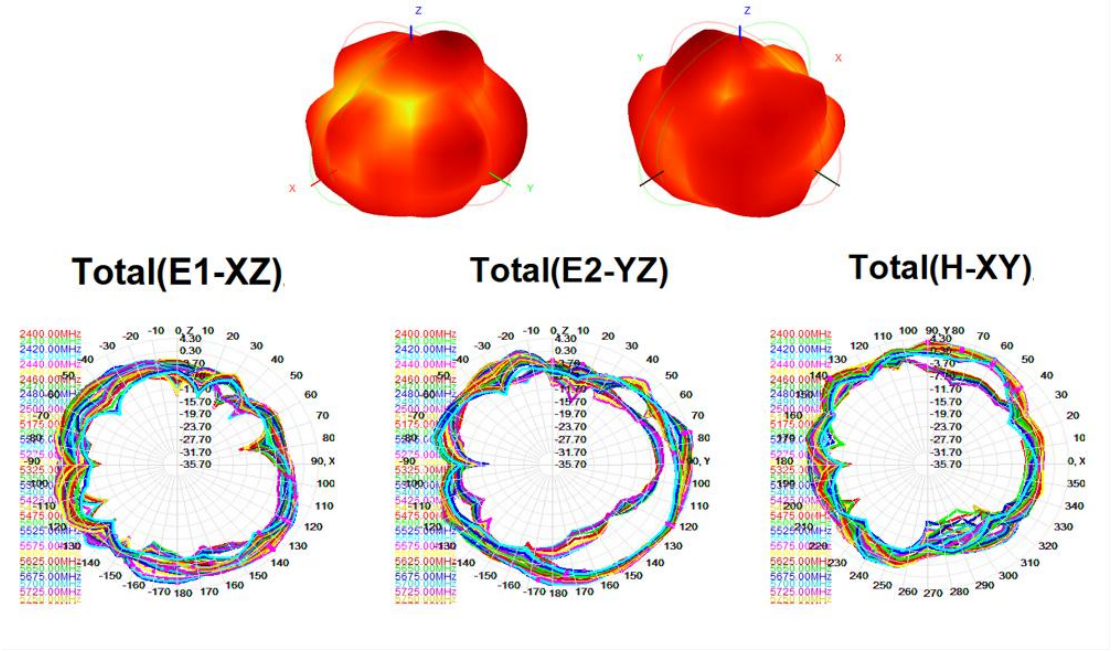
main performance ：

Frequency range:400MHz ~ 6GHz ceiling reflected wave loss materials: 400MHz ~ 6GHz is equal to or more than 15dB (microwave absorbing material by composite wave absorbing materials, namely tapered containing carbon sponge suction wave material paste in ferrite)

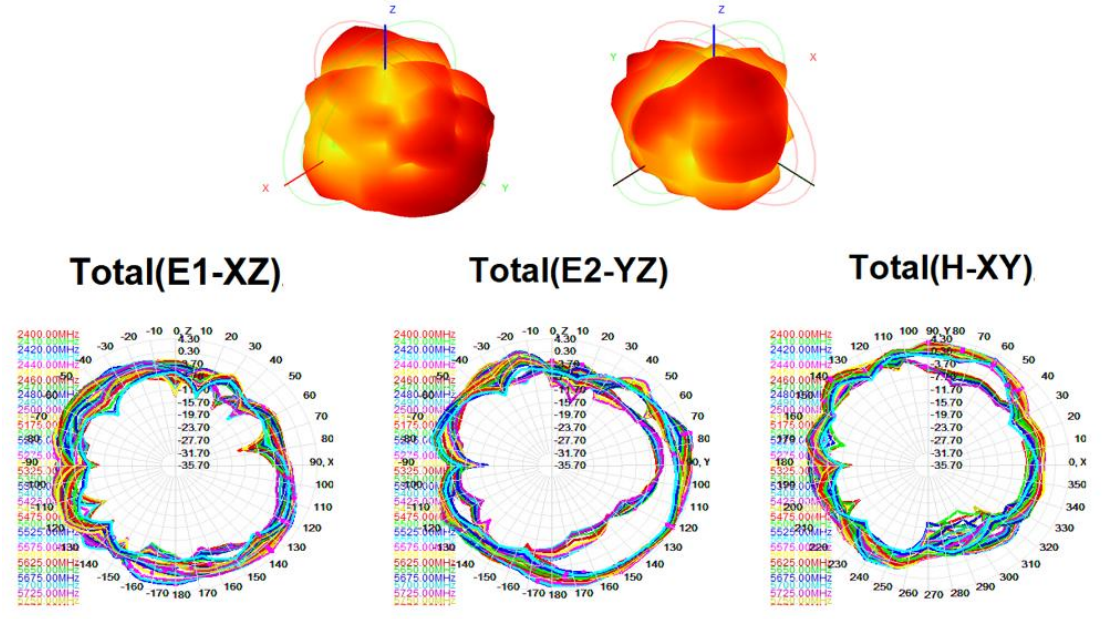



5、Gain table of Antenna

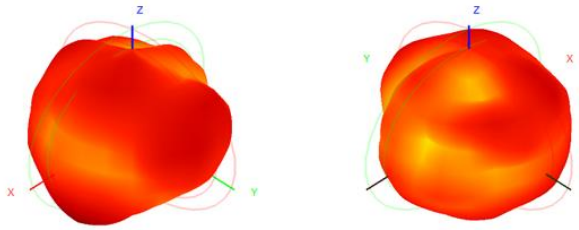
Passive field pattern-WIFI-MAIN-2400MHZ-2500MHZ



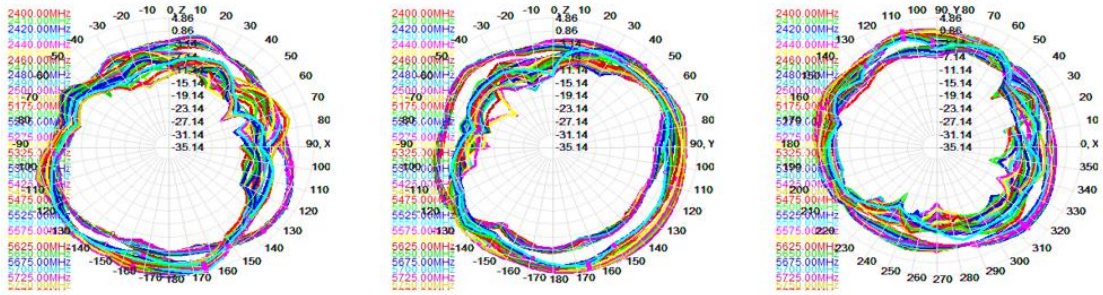
Passive field pattern-WIFI-MAIN-5150MHZ-5850MHZ



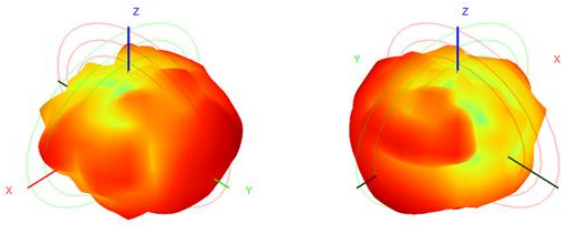
Passive field pattern-WIFI-DIV-2400MHZ-2500MHZ



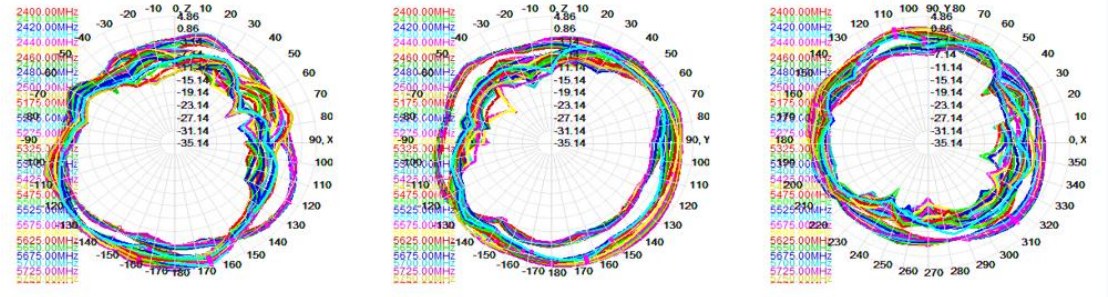
Total(E1-XZ) Total(E2-YZ) Total(H-XY)



Passive field pattern-WIFI-DIV-5150MHZ-5850MHZ



Total(E1-XZ) Total(E2-YZ) Total(H-XY)



Passive efficiency gain

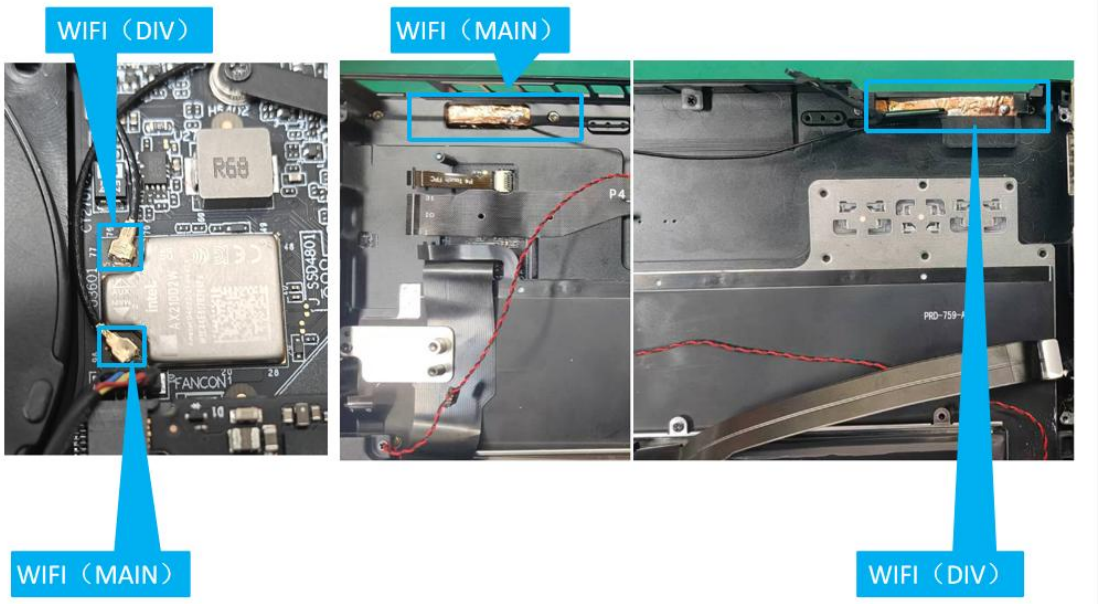
WIFI-MAIN (2400MHZ-5850MHZ)							
Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)
2400	-4.11	1.56	38.85	5250	-2.19	4.26	60.34
2410	-3.80	1.73	41.65	5300	-2.47	4.00	56.57
2420	-3.65	1.60	43.17	5350	-2.46	4.72	56.80
2430	-3.39	1.66	45.86	5400	-1.76	4.99	66.65
2440	-3.23	1.64	47.49	5450	-1.83	4.75	65.63
2450	-2.98	1.70	50.37	5500	-2.66	4.42	54.17
2460	-2.74	1.80	53.21	5550	-2.63	4.58	54.60
2470	-2.69	1.92	53.88	5600	-2.75	4.22	53.12
2480	-2.75	1.96	53.03	5650	-3.85	4.06	41.17
2490	-2.89	1.74	51.45	5700	-3.94	3.44	40.36
2500	-3.03	1.68	49.72	5750	-3.49	2.58	44.72
5150	-2.79	3.11	52.56	5800	-3.96	2.65	40.16
5200	-2.83	4.37	52.12	5850	-4.07	2.56	39.16

WIFI-DIV (2400MHZ-5850MHZ)							
Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)
2400	-5.00	-0.51	31.65	5250	-2.30	2.99	58.90
2410	-4.84	-0.55	32.84	5300	-2.72	2.67	53.48
2420	-4.80	-0.80	33.11	5350	-2.85	2.81	51.83
2430	-4.73	-0.97	33.64	5400	-2.39	3.08	57.69
2440	-4.68	-0.99	34.03	5450	-2.22	3.16	59.95
2450	-4.59	-0.69	34.79	5500	-2.85	2.00	51.94
2460	-4.57	-0.66	34.89	5550	-2.65	2.51	54.34
2470	-4.68	-0.36	34.05	5600	-2.20	2.55	60.29
2480	-4.82	-0.19	32.98	5650	-2.75	2.35	53.10
2490	-5.16	-0.36	30.49	5700	-2.94	2.47	50.86
2500	-5.33	-0.56	29.29	5750	-2.71	2.22	53.54
5150	-2.70	2.69	53.74	5800	-3.11	2.76	48.81
5200	-2.78	3.24	52.73	5850	-3.98	0.89	39.95

WIFI

Test Condition		Free Space	
band	Channel	TRP (dBm)	TIS (dBm)
802.11B 11Mbps	1	11.70	-77.91
	6	10.55	-78.63
	11	12.12	-79.34
802.11G 54Mbps	1	9.74	-70.44
	6	11.66	-68.51
	11	11.93	-66.72
802.11N NCS7	1	10.11	-66.72
	6	11.85	-63.96
	11	12.00	-63.86
802.11A 54Mbps	149	11.60	-70.1
	157	10.93	-71.05
	165	10.53	-71.84

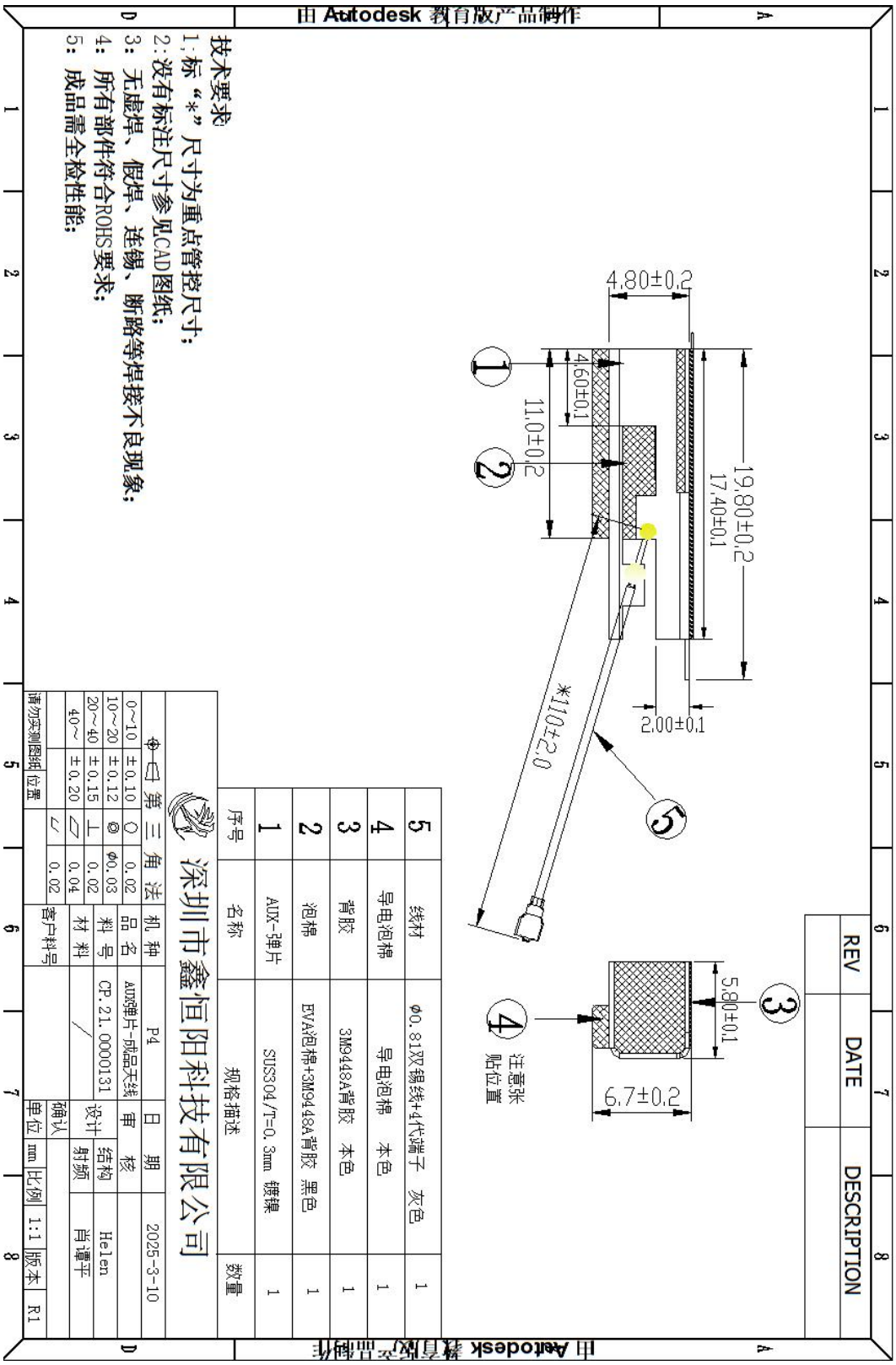
6，Antenna assembly drawing

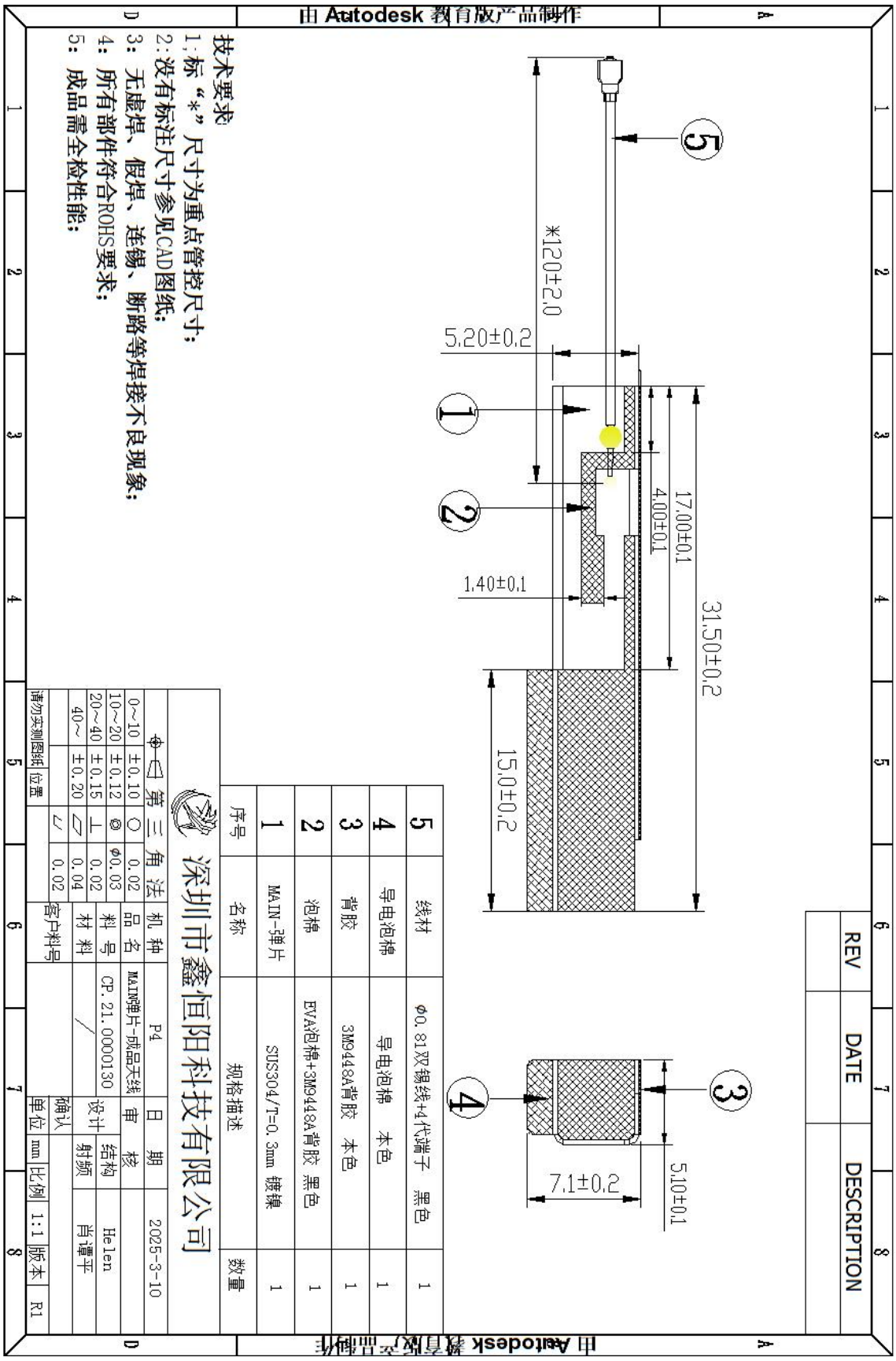


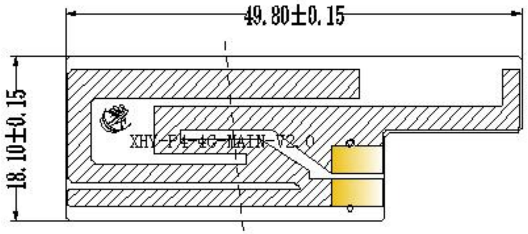
7、Machine picture

8、Machine motherboard picture

9、Antenna drawing size




由 Autodesk 教育版产品制作
技术要求
1:标“*”尺寸为重点管控尺寸;
2:没有标注尺寸参见CAD图纸;
3: 无虚焊、假焊、连锡、断路等焊接不良现象;
4: 所有部件符合ROHS要求;
5: 成品需全检性能;
REV
DATE
DESCRIPTION
*120±2.0
5.20±0.2
17.00±0.1
4.00±0.1
1.40±0.1
31.50±0.2
15.0±0.2
7.1±0.2
5.10±0.1
5 线材 Φ0.81双锡线+4代端子 黑色 1
4 导电泡棉 导电泡棉 本色 1
3 背胶 3M9448A背胶 本色 1
2 泡棉 EVA泡棉+3M9448A背胶 黑色 1
1 MAIN-弹片 SUS304/T=0.3mm 镀镍 1
序号 名称 规格描述 数量
深圳市鑫恒阳科技有限公司
第三角法
机种 P4
品名 MAIN弹片-成品天线
料号 CP.21.0000130
材料 /
客户料号
日期 2025-3-10
审核
设计 Helen
结构
射频 肖谭平
确认
单位 mm
比例 1:1
版本 R1
0~10 ±0.10 ○ 0.02
10~20 ±0.12 ◎ Φ0.03
20~40 ±0.15 ⊥ 0.02
40~ ±0.20 ▱ 0.04
∠ 0.02
位置
请勿实测图纸



注:

1：金手指镀金

1：布铜区域

2：基材区域

3、背胶采用3M 300LSE，粘性在300MP以上，无特别说明，背胶外形与基材一致,覆在基材背面，背胶做半切;
4、FPC材质电解铜、单面版，铜箔为半对半基材，柔韧性要好;
5、产品覆油后经180° 折弯表面无裂痕现象,柔韧性要好;
6、金手指表面镀沉金3~5u",不可有氧化现象,以铜箔相接处，经180° 折弯之后无裂痕、不导通现象,非模样可不电镀；
7、走线及孔精确公差范围:±0.03mm，外形尺寸公差控制在0.1mm以内;
8、未标注尺寸按CAD电子图档1:1量取;
9、未开模产品打样外形需要用激光切割，如果用手工切割，要注意外形要切割准一些，已开模产品打样外形需要用模具冲切;
10、所来非模样，需要切割好外形之后，在送样到我司;
11、表面印字，具体内容及位置见图

手撕位 - - - - - - - - - - - - - - - -

FPC黑色覆盖膜　丝印亮黑色字码

深圳市鑫恒阳科技有限公司

第三角法				机种	P4	日期	2024-11-12	页码	1 of 1		
0~10	±0.10	○	0.02	品名	4G-FPC	设计	Helen	审核			
10~20	±0.12	◎	Ø0.03	料号	NZ.01.0000182	审核	工程	Helen			
20~40	±0.15	⊥	0.02	材质	电解铜/半对半/3M300		射频	TSR			
40~	±0.20	▱	0.04	模面处理	镀金 0.5u	确认					
		⌓	0.02								
请勿实测图纸	位置			外观处理	黑色覆盖膜	单位	mm	比例	1:1	版本	REV:A

注：

1：金手指镀金 ■

1：布铜区域 ▨

2：基材区域 □

3、背胶采用3M 300LSE，粘性在3000PI以上，无残胶现象，背胶外形与基材一致，覆在基材背面，背胶做半切；

4、PCB材质电解铜，单面胶，铜箔为半对半基材，柔韧性要好；

5、产品覆油后经180°折弯表面无裂痕现象，柔韧性要好；

6、金手指表面镀沉金3~5u'，不可有氧化现象，以铜箔相接处，经180°折弯之后无裂痕、不导通现象，非模样可不电镀；

7、走线及孔精确公差范围：±0.03mm，外形尺寸公差控制在0.1mm以内；

8、未标注尺寸按CAD电子图档1：1取；

9、未开模产品打样外形需采用激光切割，如采用手工切割，要注意外形要切割准一些，已开模产品打样外形需采用模具冲切；

10、所述非模样，需要切割好外形之后，在送样到我司；

11、表面印字，具体内容及位置见图

手撕位

FPC黑色覆盖膜 丝印亮黑色字码

深圳市鑫恒阳科技有限公司									
未注公差	第三角法		0.02	机种	P4	日期	2024-11-12	页码	1 of 1
0~10	±0.10	○	0.02	品名	DIY-FPC	设计	Helen	审核	
10~20	±0.12	◎	φ0.03	料号	NZ.01.0000183	审核	工程	Helen	
20~40	±0.15	⊥	0.02	材质	电解铜/半对半/3M300	批准	触摸	TSR	
40~	±0.20	⫽	0.04	表面处理	镀金 0.50	确认			
清勿夹测图纸	位置	∠	0.02	外观处理	黑色覆盖膜	单位	mm	比例	1:1	版本	REV:A

10、ROHS

Antenna CP. 21. 0000130 / CP. 21. 0000130 NZ. 01. 0000182 / NZ. 01. 0000183 meets RoHS requirements.

11、 Product packing instructions

A. packing should meet the moistureproof, vibration, pressure and mildew proof, etc.

B. the smallest packing unit logo must have the manufacturer trademarks, product model, name, code and quantity.

C. in the attached packing list, certificate of approval, and the factory inspection report.

**********END**********