承　认　书

SPECIFICATION FOR APPROVAL

客户名称 Customer Name：深圳天刊

产品型号 Product Model：TTC-CV-P450

客户料号Customer P/N ：

鑫恒阳料号 XINHENGYANG P/N：

产品规格 SPEC IFFCATIONS：WIFI天线FPC 黑色

制作日期 Production date：2025.07.28

封样版本 Sample Version：R1

鑫恒阳（XINHENGYANG）		
编制（FICTION）	结构（SE）	研发（R&D）
客户（Customer）		
采　购（PUR）	结构（SE）	研发（R&D）

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三、变更履历（Change history）

编号 Number	有效日期 Effective date	更改记录 Change record
R1	2025.07.28	初版发行Initial release

四、基本参数（The basic parameters）

A. 电气参数Electrical Specifications	
频率/Frequency	2400MHZ-2500MHZ
驻波/VSWR	< 3
效率/Avg Efficiency	>30%
阻抗/Impedance	50 ± 25 Ohm
极化/Polarization	Linear
峰值增益/Peak Gain	2400-2500MHZ：1.08dBi
B. 材料与机械参数/Material & Mechanical Characteristics	
材质/Material of Radiator	FPC Black
尺寸/Dimension	18.73*12.48±0.2mm
C. 环境/ Environmental	
工作温度/Operation Temperature	- 20 ℃ ~ + 60 ℃
储存温度/Storage Temperature	- 20 ℃ ~ + 60 ℃

五、测试设备 Introduction:

微波暗室，吸波室，电波暗室。微波暗室由电磁屏蔽室、滤波隔离室、接地装置、通风管道、室内配电系统、监控系统、吸波材料部分组成。它基于吸波材料作为屏蔽室的衬里，可以将大部分电磁能吸收到六面墙中，是一种更好的模拟自由空间条件的方法。

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.

微波暗室的主要工作原理是根据电磁波在介质中从低磁导向高磁导方向传播的规律，利用高磁导率吸波材料引导电磁波，通过共振，大量吸收电磁波的辐射能量，再通过耦合把电磁波的能量转变成热能。

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.

主要性能 main performance:

频率范围：400MHz~6GHz天花板反射波损耗材料：400MHHz~6GHz等于或大于15dB（微波吸收材料由复合吸波材料制成，即锥形含碳海绵吸波材料在铁氧体中粘贴）。

Frequency range:400 MHz ~ 6 GHz ceiling reflected wave loss materials : 400 MHz ~ 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).




六、性能测试报告（Test Report）

这些规格是专门为N5定义的模型。

Those specifications were specially defined for N5 model.

1. 机器配图Machine image:

2. 电压驻波比VSWR

1. 测量方法Measuring Method

1. 50Ω同轴电缆连接到天线，然后将该电缆连接到网络分析仪以测 量电压驻波比 。

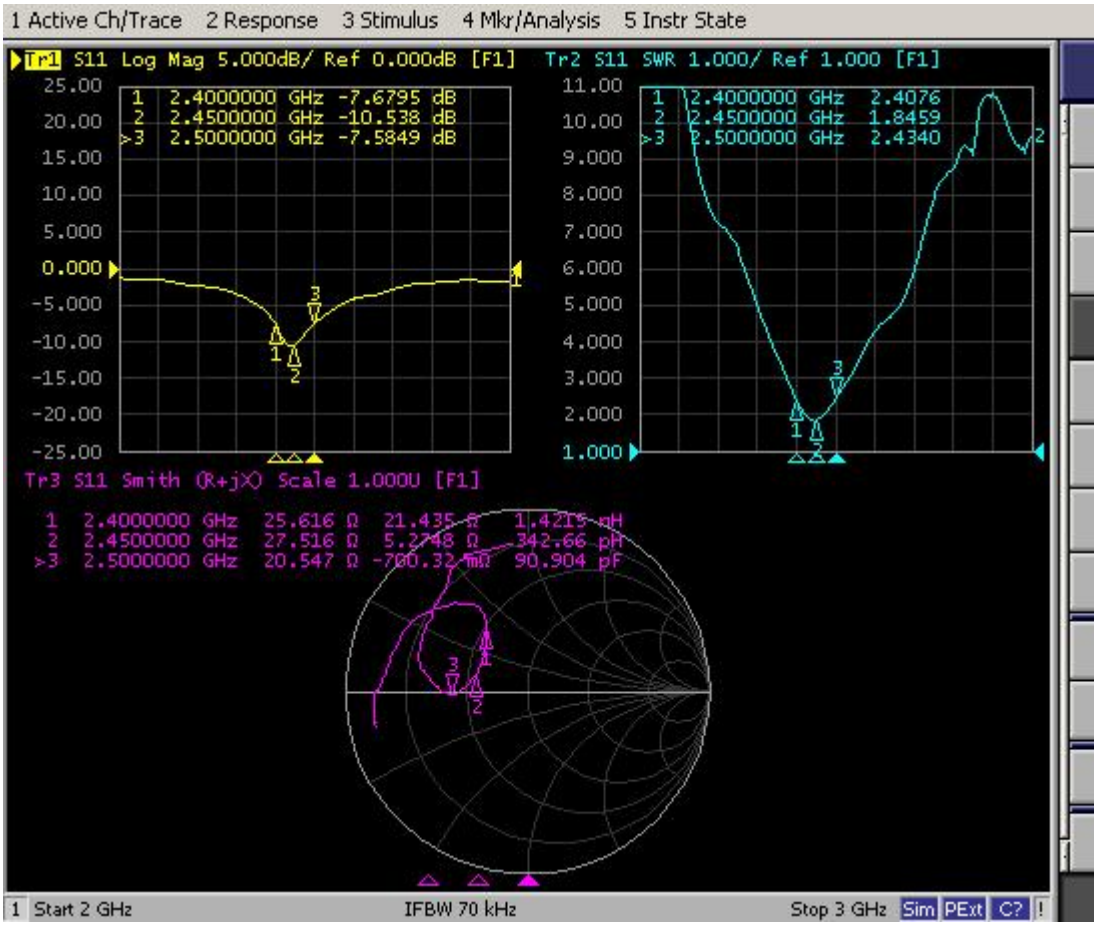
A 50Ω coaxialcable is connected to the antenna. Then this cable is connected to a network analyzer to measurethe VSWR.

2. 夹具与金属保持至少20cm的距离。

Keeping this jig away from metal at least 20cm

2. 测量频率点和驻波比

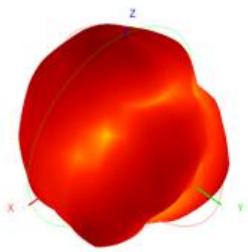
Measurement frequency points and VSWR value

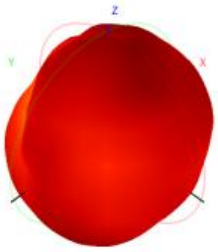


3.2D/3D场型图

2D/3D field pattern diagram

2400MHz-2500MHz





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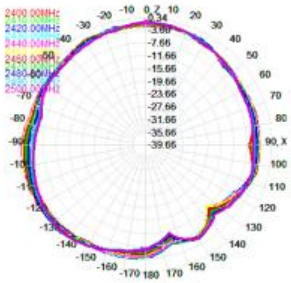

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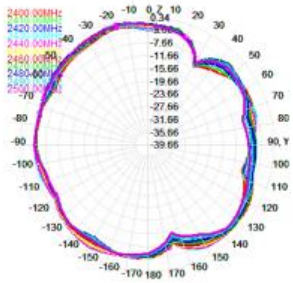
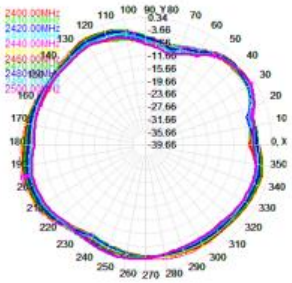


Total(H-XY)



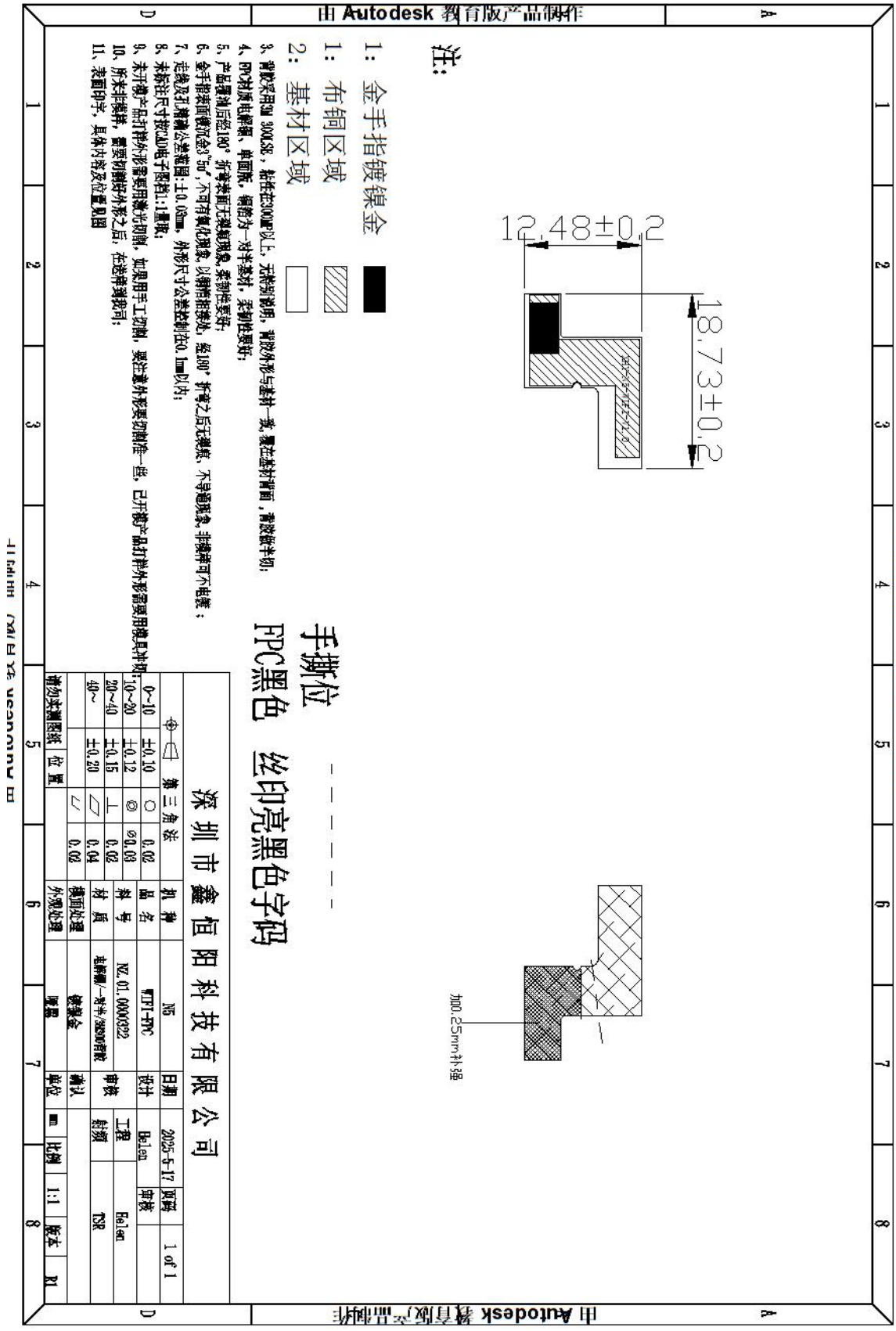
4.效率、增益（Passive efficiency and gain ）

Freq (MHz)	Effi(%)	Gain(dBi)
2400	37.48	-0.65
2410	41.13	-0.46
2420	44.59	-0.48
2430	48.36	0.28
2440	51.27	0.00
2450	52.34	0.18
2460	54.19	0.25
2470	56.01	0.62
2480	57.74	0.91
2490	57.65	0.96
2500	58.90	1.08

5.OTA

Test Condition		Free Space	
Band	Channel	TRP (dBm)	TIS (dBm)
802.11B.11M	1	10.81	-66.78
	6	9.09	-71.6
	11	9.29	-70.41
802.11G.54M	1	10.9	-57.57
	6	9.18	-57.27
	11	9.56	-57.12
802.11N.MCS7	1	9.44	-52.97
	6	8.06	-54.67
	11	8.89	-53.31

七、 工程图纸（Product Drawing）



八、环保标准/RoHS

天线 NZ.01.0000322 符合RoHS环保要求，详情请参阅电子文件。

Antenna NZ.01.0000322 meets RoHS requirements See electronic file for details.

九、产品包装说明/Product packaging instructions

A.包装应符合防潮、防震、耐压、防霉等要求。

A. packingshouldmeetthemoistureproof, vibration, pressure and mildewproof, etc.

B.最小包装单位标志必须有制造商商标、产品型号、名称、代码和数量。

B. thesmallestpackingunitlogomusthave the manufacturer trademarks, productmodel, name, codeand quantity.

C.在随附的装箱单、批准证书和工厂检验报告中。

C. intheattachedpackinglist, certificate ofapproval, andthe factory inspectionreport.

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