



東莞市亨松電子科技有限公司

Dongguan Hengxin Electronic Technology Co., Ltd.

承認書

客 戶: _____

品 名: 2.4G FPC内置天线接四代端子

料 號: HX-P504-130B

客戶料號: _____

送樣日期: 2025.08.13

客戶確認			供應廠商	
工程部	品保部	採購部	核准	送樣人
			趙 2025.08.13 守 剛	龚银明

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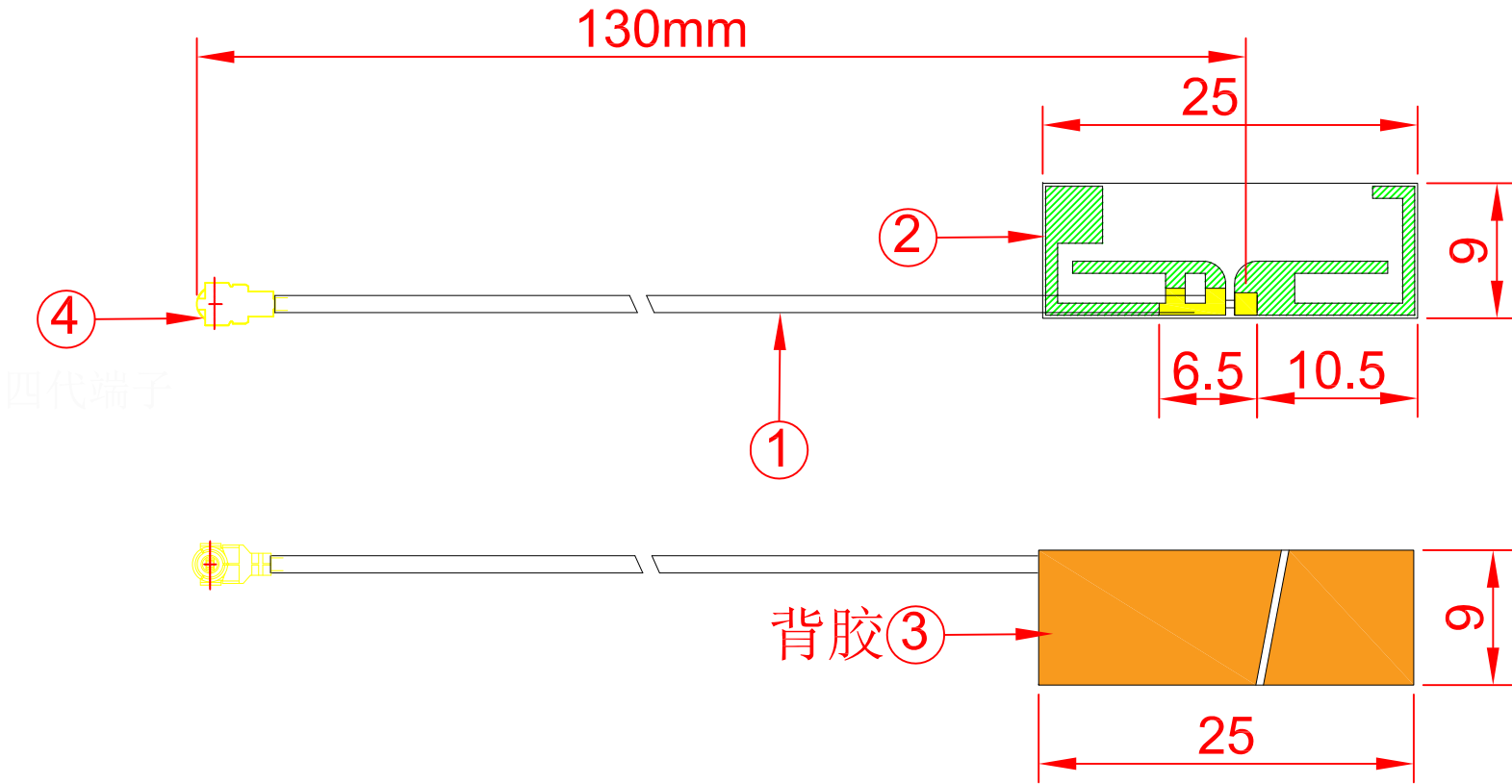
Http://www.nogps.com

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RoHS
Compatible

序号	日期	原因	确认人
B			
C			
D			



四代端子

4	HX-CI-UFL-01	Connector	U.FL 4 Connector	1
3	HX-3M-300LSE	AL foil	25*9*0.25mm	1
2	HX-P504-A01	FPC	25*9*0.25mm	1
1	HX-CB-1.13B	Coaxial Cable	SHOWA-O.D. 1.13mm	1
No.	Part Number	Name	Material	Q'ty

东莞市亨松电子科技有限公司

PART NAME: 2.4G FPC内置天线 1.13线四代端子

PART NO.: HX-P504-130B

DATE: 2025-08-12

APPROVED BY

CHECKED BY

DESIGNED BY

UNIT: mm

Tolerance

赵
2025.08.12
守刚

卓靖婷

SCALE: 1/1
REVISION: A

X.X ±0.50
X.XX±0.15
X° ±3°

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- 2. Specification**
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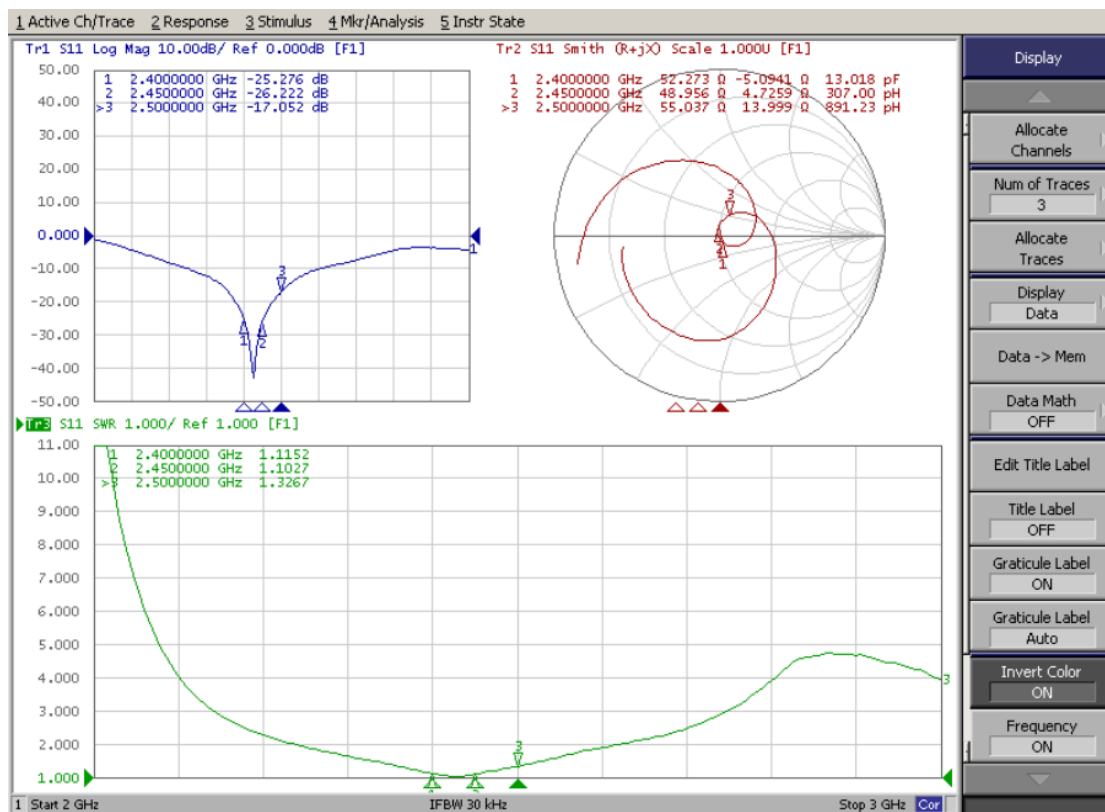
1. Reliability Testing

Test Item	Procedure	Requirement
1. Visual inspection and Dimension Check	Applicable methods using x5 magnification	follow specification
2. Rapid Changing of Temperature	-40°C (30minutes) to 80°C (30minutes); 24 cycles	After 2 hours recovery: 1. no visible damage 2. bandwidth tolerance < $\pm 5\%$
3. Damp Heat	24 hours at 60°C; 90 ~ 95% RH	After 2 hours recovery: 1. no visible damage 2. bandwidth tolerance < $\pm 5\%$
4. Endurance	24 hours at 80°C	After 2 hours recovery: 1. no visible damage 2. bandwidth tolerance < $\pm 5\%$
5. Connector Pull Strength Test	≥ 1.0 Kg	Hold 2~3S: 1. no visible damage 2. bandwidth tolerance < $\pm 5\%$

2. Specification

A. Electrical Characteristics	
S.W.R.(Tested in PC)	≤ 2.0 @ 2400~2500 MHz
Typical Antenna Gain	< 2.0 dBi @ 2450 MHz
Impedance	50 Ohm
B. Material	
Material of Radiator	FPC
Cable Length	130mm
Connector Type	U.FL4
C. Environmental	
Operation Temperature	- 40 °C ~ + 85 °C
Storage Temperature	- 40 °C ~ + 85 °C

3. S.W.R. Testing Result



4. Antenna Radiation Pattern

Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

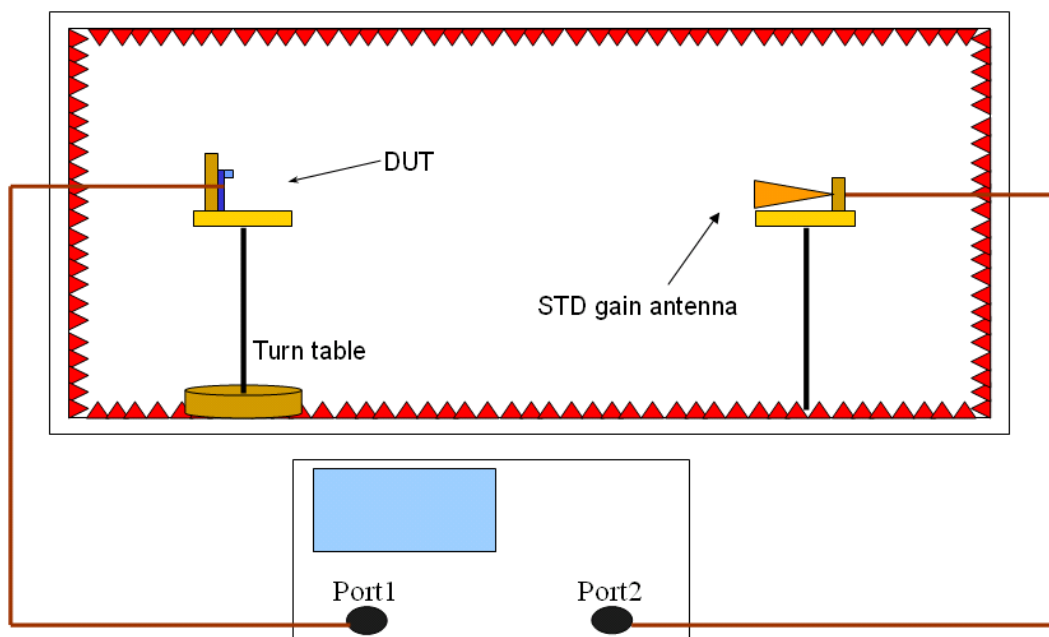
Quiet Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

Testing Equipment: Agilent 5071B

Received Antenna: 0.7 ~ 6.0 GHz for Gain Calibration

Double Ridged Horn Antenna



東莞市亨松電子科技有限公司

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型号 Type	RF-1.13	料号 P/N	XGN113/50-1001
结构图 Structure drawing			
结构特性 Structure drawing			
结构 Structure	项目 Item	标准值 Standard value	
1. 内导体 Inner conductor	材料 Material	镀银铜线 Silverplated copper wire	
	组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire	7/0.08 ±0.005	
	(绞合)标称外径(mm) (Intertwist)NOM.O.D.(mm)	0.24±0.01	
2. 绝缘层 Insulation	材料 Material	聚全氟乙丙烯 FEP	
	颜色 Color	Natural	
	标称外径 Dia. (approx)	0.7± 0.03	
3. 外导体 Outer conductor	材料 Material	镀锡铜线 Tinned copper	
	组成:总根数/单根外径(mm)Makeup:total/O.D.of every wire (mm)	16/4/0.05±0.005	
	标称外径 Dia. (approx)	0.92±0.05	
4. 护套层 Jacket	材料 Material	聚全氟乙丙烯 FEP	
	颜色 Color	黑 Black	
	标称外径 Dia. (approx)	1.13±0.05	
电性能特性 Electrical characteristics			
项目 Item	标准值 Standard value	项目 Item	标准值 Standard value
特性阻抗 Characteristic impedance (Ω)	50±2.0	1GHz	≤2.1
最大工作频率 Max.operating frequency(MHz)	8000	2GHz	≤3.0
最大工作电压 Max.operating voltage(V)	AC 1000V for 1min	3GHz	≤3.7
电容 Capacitance(pF/m)	98	4GHz	≤4.35
驻波比 Standing wave ratio	≤1.3 @0~6GHz	5GHz	≤5.0
	≤1.4 @6~8GHz	6GHz	≤5.5
		7GHz	≤6.2
		8GHz	≤6.8
可靠性 Dependability			
项目 Item	单位 Unit	标准值 Standard value	
最小弯曲半径 (一次/重复) Min.bending radius (static / repeated)	MM	4	
工作温度范围 Operating temperature	℃	-55~+200	
氟塑料收缩 Fluoroplastic shrink	MM	绝缘层: ≤0.2mm; 护套层: ≤0.3mm Insulation shrink:<0.20mm;Jacket shrink:<0.30mm	
包装 Packing			
项目 Item	单位 Unit	标准值 Standard value	
每轴长度 The length of each spool	M	1000	
每轴接头数 / 每段最短长度 Connectors per spool / The shortest length of each root	NO./M	≤3 / ≥10	
注意事项 Matters needing attention			
储存条件 Condition of storage	温度: 30℃以下; 湿度: 20%~65% 。 Temperature:Under 30℃;Humidity:20%~65%		
最佳储存周期 Optimal storage period	2个月; 电缆存放2个月以上可焊性会降低, 但电性能特性不受影响。在夏季高温高湿环境下电缆开剥后需尽快加工。 Two months;If the cable is stored for more than two months,the solderability will be reduced, but the electrical characteristics will not be affected. The cable needs to be procesed as soon as possible after stripping,under high temperature and high humidity in summer		
加工温度 Processing temperature	氟塑料在260℃, 可短时间承受; 300℃以上分子通常带有的等端基会分解; 400℃以上发生显著的热分解。 Fluoroplastic can endure short time at 260℃;Molecular with terminal groups will decompose over 300℃ and significantly decompose over 400℃		
结构层位移 Structural layer displacement	当电缆长度低于 50mm 时, 绝缘层和护套层易发生位移 The insulation layer and jacket layer are easily displaced,when the cable length is less than 50mm		

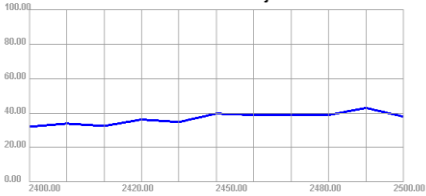
Passive Test For WIFI-2.4G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dB)	UHS (%)	DRIS (%)	Max (dB)	Min (dB)	Irectivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	32.07	-4.94	1.66	-0.49	12.577	19.497	1.66	-23.57	6.6	0	45.1	45.07
2410	33.9	-4.7	1.94	-0.21	13.35	20.546	1.94	-21.12	6.64	0	44.88	44.83
2420	32.5	-4.88	1.68	-0.47	12.663	19.835	1.68	-21.11	6.56	0	44.83	44.71
2430	36.24	-4.41	1.95	0	14.163	22.076	1.95	-21.02	6.56	0	45.16	44.88
2440	34.77	-4.59	1.98	-0.17	13.631	21.143	1.98	-21.35	6.57	0	45.17	44.94
2450	39.71	-4.01	2	0.42	15.586	24.125	2	-20.66	6.58	0	45.89	45.33
2460	38.89	-4.1	1.88	0.35	15.282	23.61	1.88	-20.39	6.61	0	45.86	45.53
2470	39.08	-4.08	1.76	0.3	15.428	23.656	1.76	-19.5	6.53	0	45.69	45.39
2480	38.88	-4.1	1.91	0.28	15.459	23.419	1.91	-18.88	6.53	15	45.73	45.51
2490	42.97	-3.67	1.87	0.59	17.005	25.964	1.87	-18.32	6.41	15	45.96	45.84
2500	37.94	-4.21	1.99	0.05	14.846	23.096	1.99	-19.09	6.41	15	45.47	45.3

Application Information	
04Version	5.243.347
TotalTime	7m 52s 240ms
AdditionalInfor	NULL

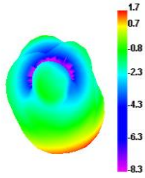
2400.00MHz - 2500.00MHz Gain



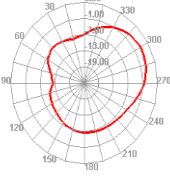
2400.00MHz - 2500.00MHz Efficiency



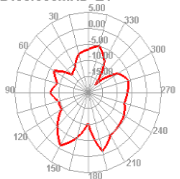
2400.000MHz



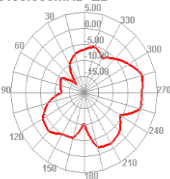
2400.000MHz H



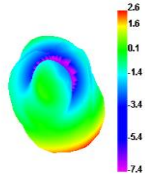
2400.000MHz E1



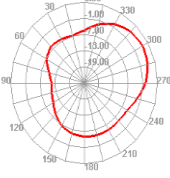
2400.000MHz E2



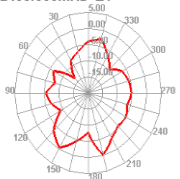
2450.000MHz



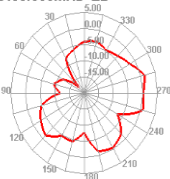
2450.000MHz H



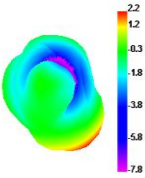
2450.000MHz E1



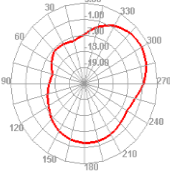
2450.000MHz E2



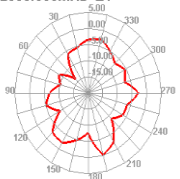
2500.000MHz



2500.000MHz H



2500.000MHz E1



2500.000MHz E2

