



Dongguan Hengxin Electronic Technology Co., Ltd.

Acknowledgment Form

Custome: _____

Product Name: 2.4GThe built-in
antenna connects

part number: HX-P504-220B

Customer part number: _____

Datelanded: 2025.08.14

Client confirmation			Supplier	
Engineering Department	Quality Assurance Department	Purchasing Department	Approval	person sending the samples
			Zhao Shougang	Gao Yin ming

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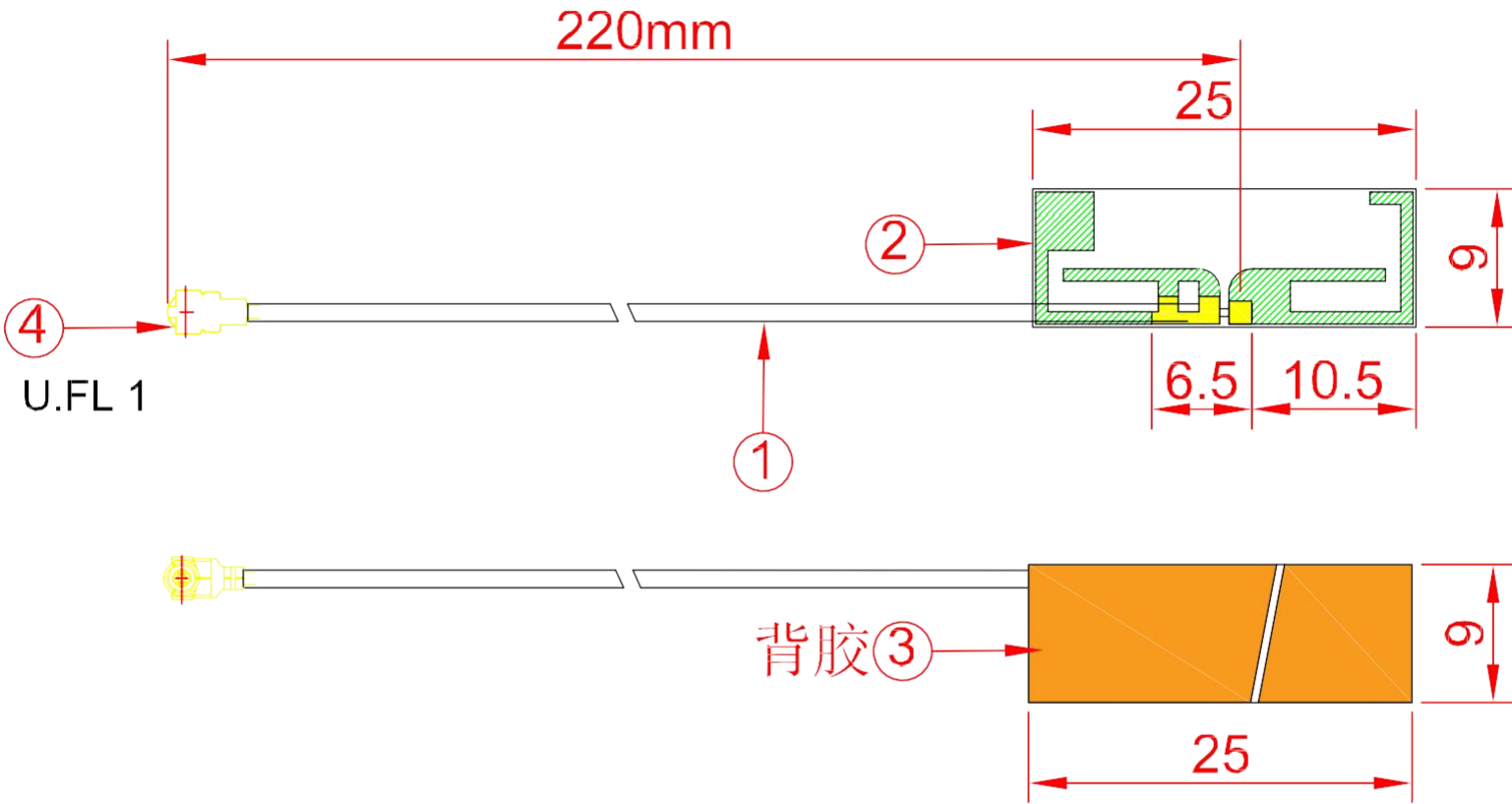
E-mail:nogps@nogps.com

Http://www.nogps.com

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序号	日期	原因	确认人
B			
C			
D			



4	HX-CI-UFL-01	Connector	U.FL 1 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

Dongguan Hengxin Electronic Technology Co., Ltd.				
PART NAME: 2.4G FPCThe built-in antenna connects U.FL 1 Connector				
PART NO.: HX-P504-220B			DATE: 2025-08-14	
APPROVED BY	CHECKED BY	DESIDNED BY		Tolerance
		zhuo	UNITS: mm	X.X ±0.50
			SCALE: 1/1	X.XX±0.15
			REVISION:A	X° ±3°

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1. Reliability Testing
2. Specification
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4. Antenna Radiation Pattern

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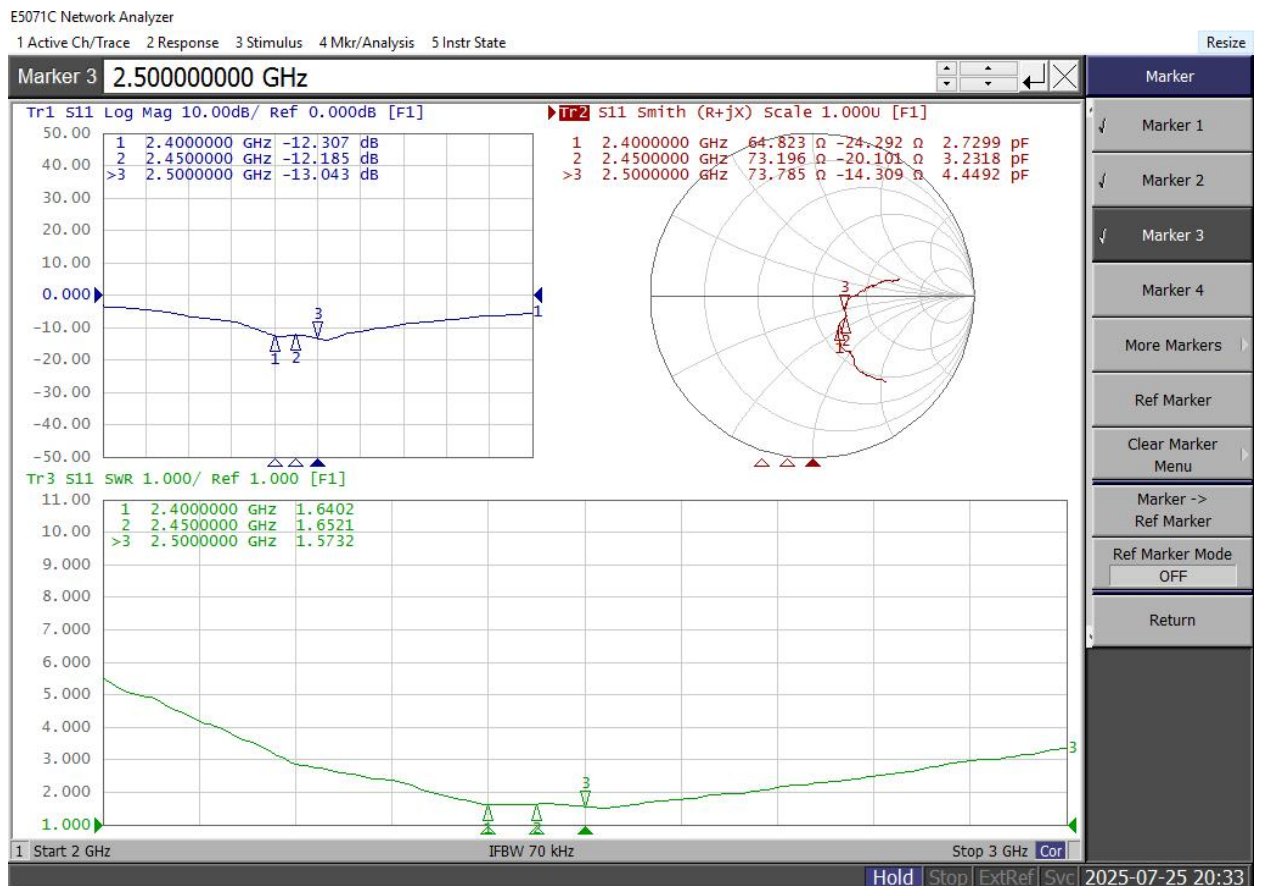
1. Reliability Testing

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	1.82dBi @ 2450 MHz
Impedance	50 Ohm
B. Material	
Material of Radiator	FPC
Cable Length	220mm
Connector Type	U.FL1
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

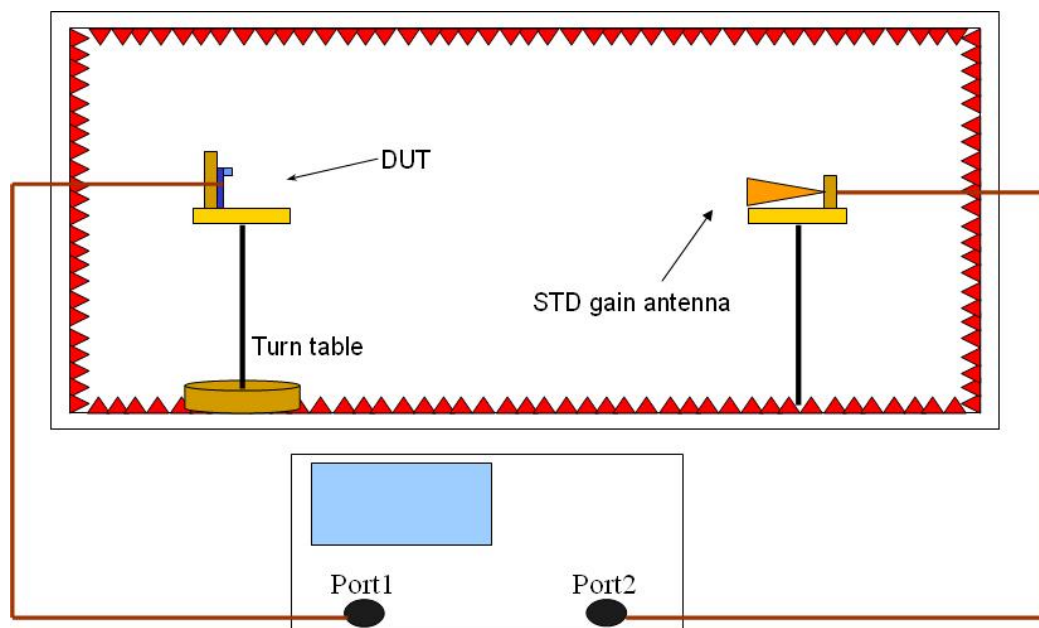
Quiet Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

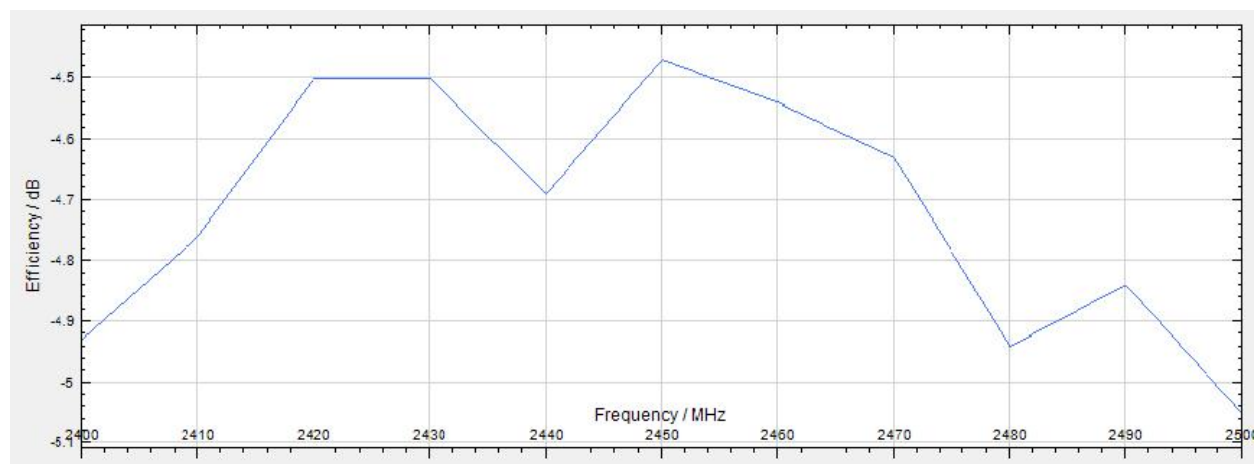
Testing Equipment: Agilent 5071B

Received Antenna: 0.7 ~ 6.0 GHz for Gain Calibration

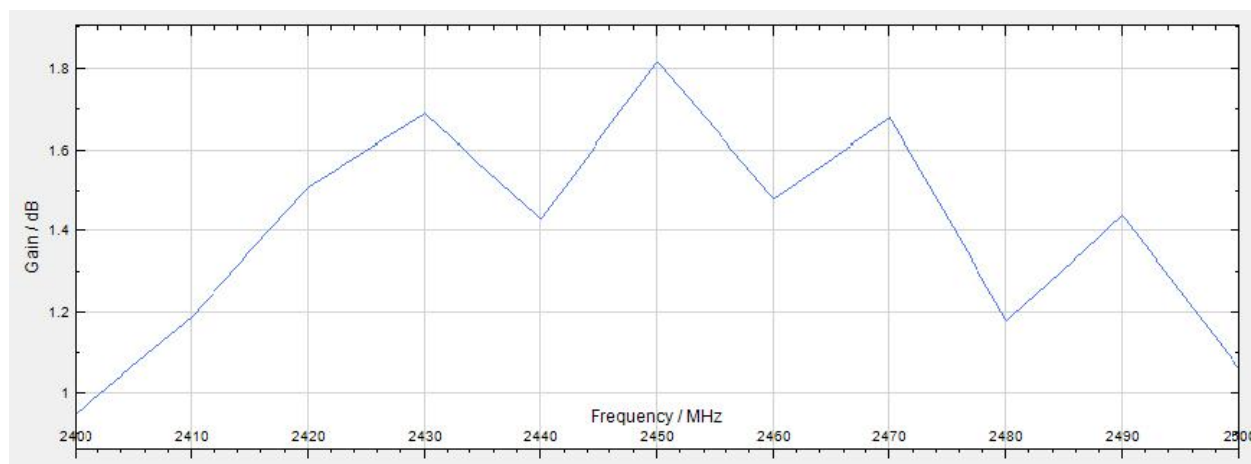
Double Ridged Horn Antenna



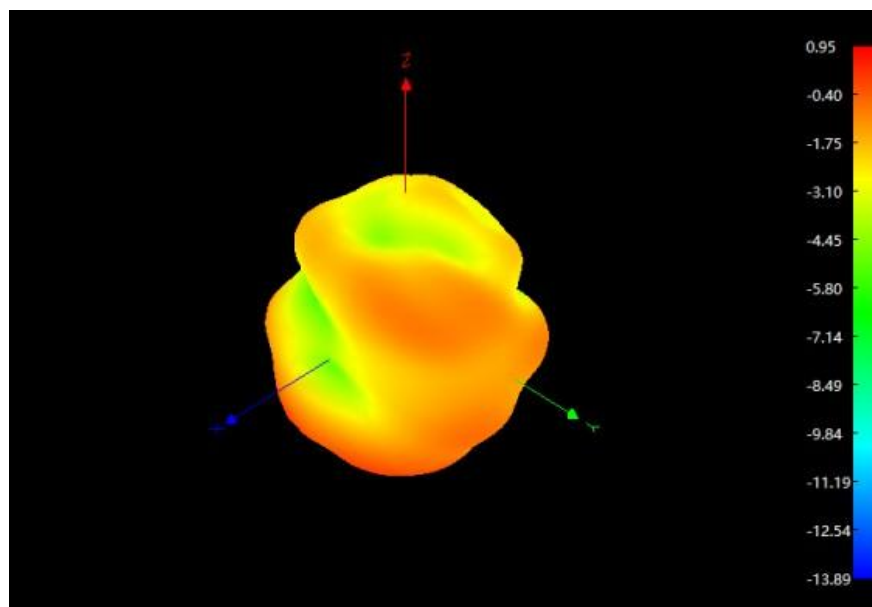
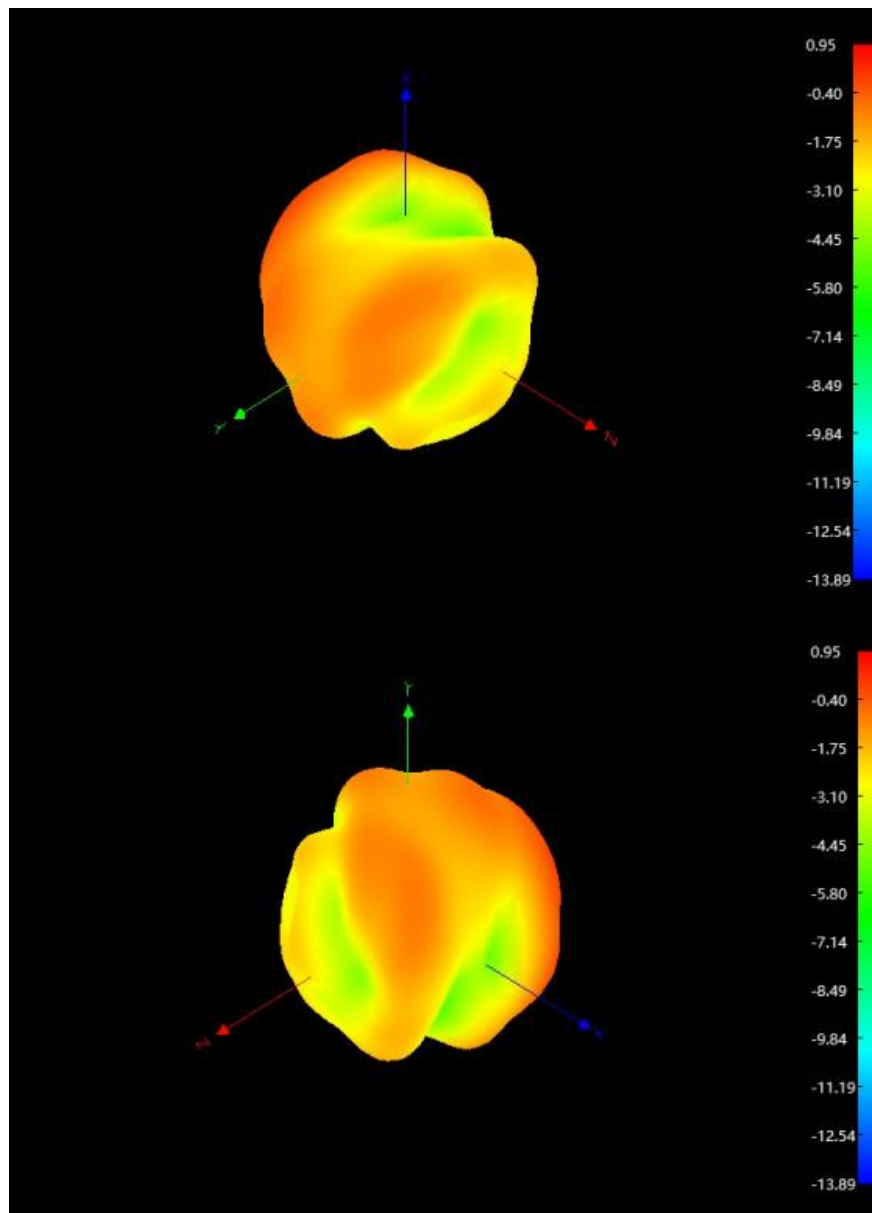
Frequency	Efficiency	Efficiency / %
2400	-4.93	32.14
2410	-4.76	33.42
2420	-4.5	35.48
2430	-4.5	35.48
2440	-4.69	33.96
2450	-4.47	35.73
2460	-4.54	35.16
2470	-4.63	34.43
2480	-4.94	32.06
2490	-4.84	32.81
2500	-5.05	31.26



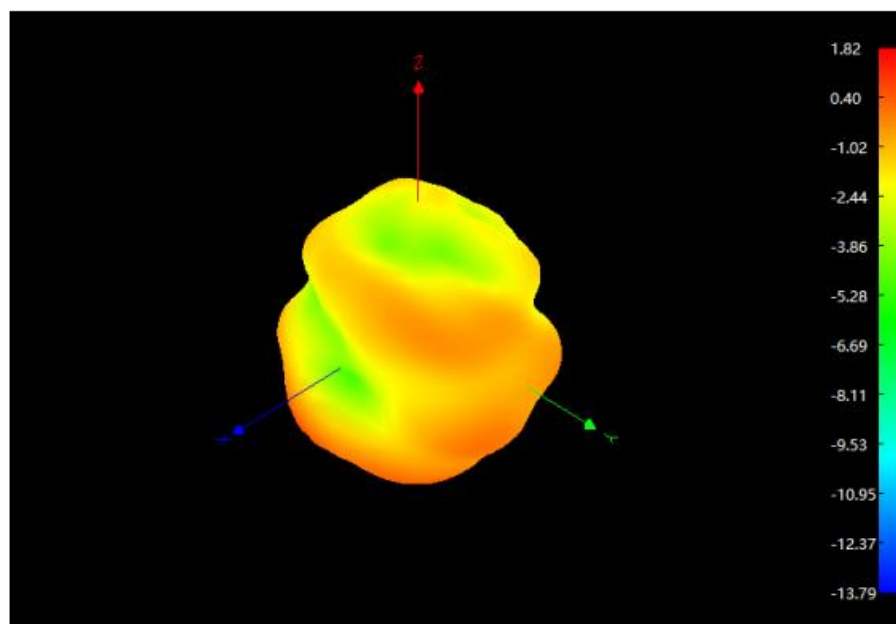
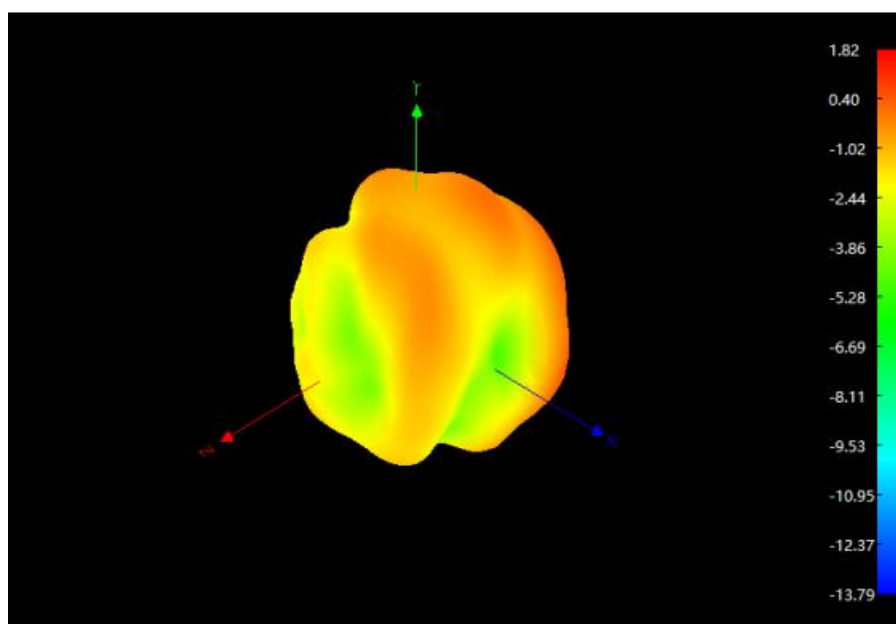
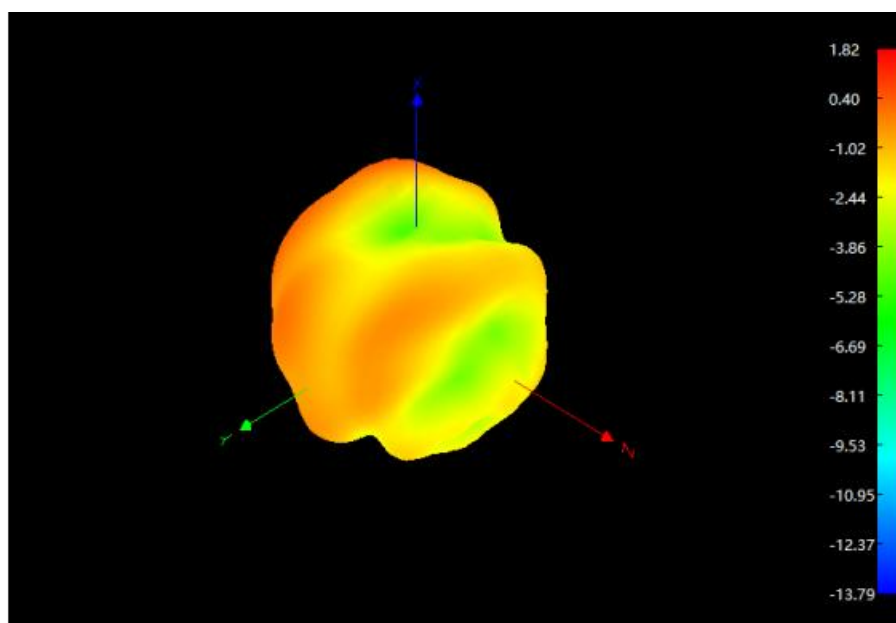
Frequency	Gain/ dB
2400	0.95
2410	1.19
2420	1.51
2430	1.69
2440	1.43
2450	1.82
2460	1.48
2470	1.68
2480	1.18
2490	1.44
2500	1.06



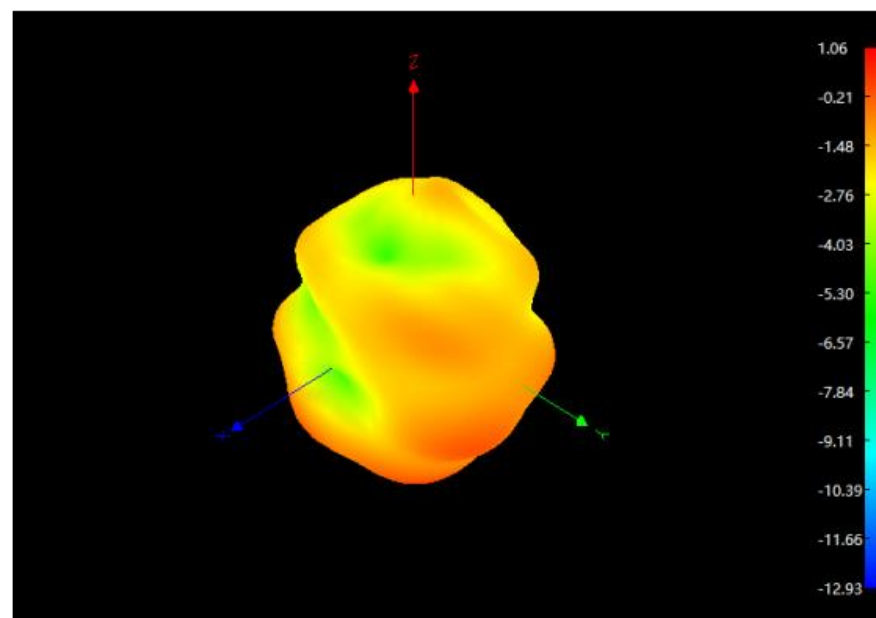
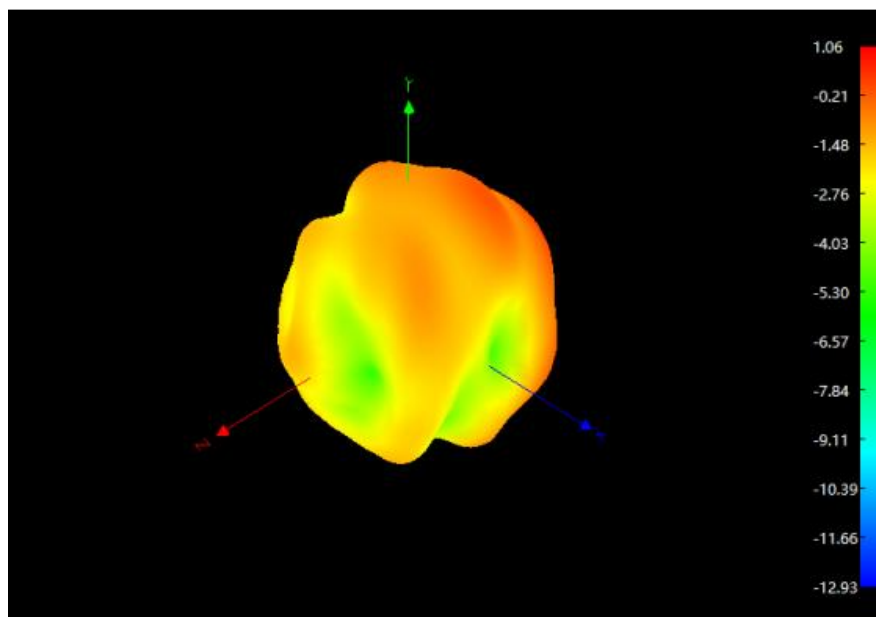
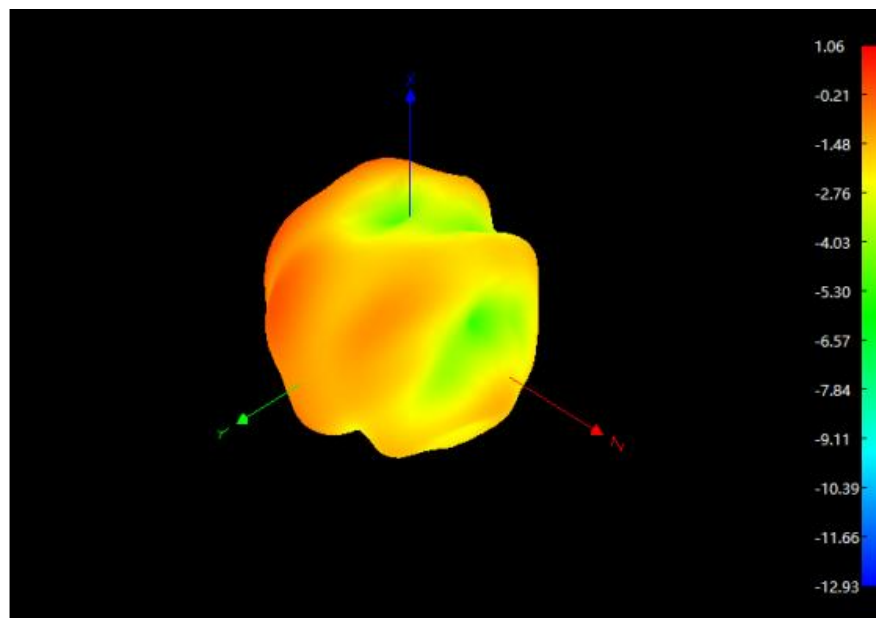
3D 2400



3D 2450



3D 2500



東莞市亨松電子科技有限公司

Dongguan Hengxin Electronic Technology Co., Ltd.

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 UØ=	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 UØ=	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 hight 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		