

东莞市豪邦电子有限公司

规格书

SPECIFICATION FOR APPROVAL

客 户 名 称： 云狐

客 户 项 目 名 称： W70超声波天线

客 户 料 号：

物 料 名 称：

乔木料号：

日期： 2025-12-24

版别： A

	MANUFACTURE SIGNATURE	CUSTOMER SIGNATURE
CHECKED BAY:	熊江琴	
AUDITOR BAY:	吴亚锋	
APPROVED BAY	谭文锋	
DATE:	2026-3-24	

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Product Number: DF5DBI82564/5-40

Product Name: Antenna

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1. Revision History

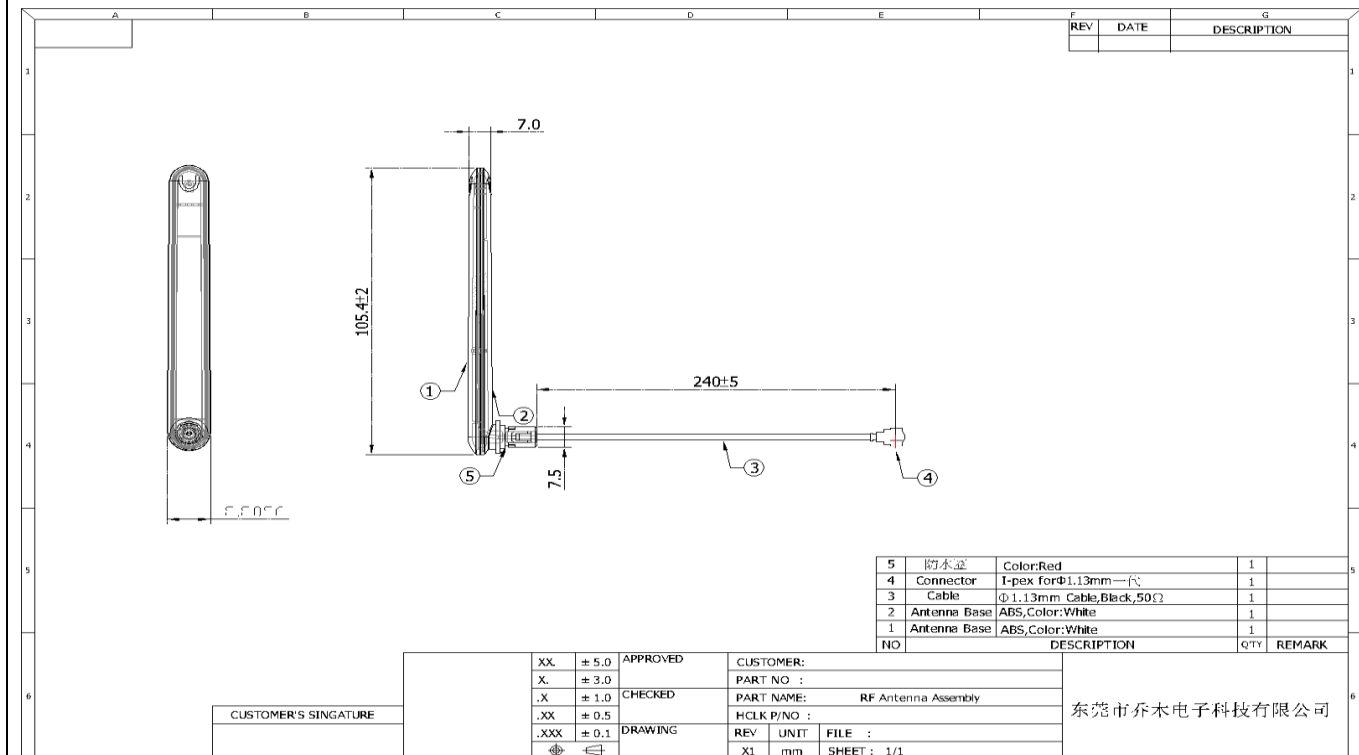
Revision	Date	Change Notification	Description
1.0	2026-3-24		

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2. Specification

Sample Photo



A. Electrical Characteristics

Frequency	2400 ~ 2500
S.W.R.	<= 2.0
Antenna Gain	2.53dBi MAX
Polarization	Linear
Impedance	50 Ohm

B. Material & Mechanical Characteristics

Material of Radiator	
Material of Plastic	Body: Hinge: Base:
Cable Type	1.13mm 黑色
Connector Type	I-pex

C. Environmental

Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C

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Antenna Color Storage life	< 2 year
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3. Characteristics and Reliability Test

Test Items 測試項目		Test Condition and Procedure 測試方法	Requirement 要求	Result 結果
C1 V	.S.W.R. 電壓駐波比	Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試	Directive DUT specification 符合待測物規範	PASS
C2 In	sertion Loss 插入損失	Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試	Directive DUT specification 符合待測物規範	N/A
C3 Ant	enna Gain 天線增益	Set DUT on Antenna Chamber; make individual calibration to test 設置天線暗室參數進行測試	Directive DUT specification 符合待測物規範	PASS
C4 V	oltage Breakdown 耐電壓	Test voltage should be applied between insulated portions, or between ground as specified. 在绝缘部分测试电压,或指定接地面之间	Max Voltage $\geq$ 500 V or directive material specification 最大電壓 $\geq$ 500V 或符合材料規範	N/A
C5 In	sulation Resistance 絕緣阻抗	Set Voltage: 500 $\pm$ 50V; between the insulated portions, or between ground as specified. 設置電壓 500 $\pm$ 50V,在绝缘部份測試或指定接地面之間	Resistance $\geq$ 500 M ohm or directive material specification 阻抗 $\geq$ 500M ohm 或符合材料規範	N/A
C6 Cont	act Resistance 接觸阻抗	Air Temp: 26°C; measured with test equipment 室溫 26°C, 指定量測設備	Directive material specification 符合材料規範	N/A
M1 V	ibration 震動	GB / T2423.48-2008 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz 3 directions; 2 hours for each direction 振幅 1.5mm ; 頻率 20~80~20Hz ; 3 個方向各 2H	1. No Visual Damage 2. Frequency Tol. $\leq$ 5% 無明顯外觀不良; 頻率偏移 $\leq$ 5%	PASS
M2 Rand	om Drop 跌落	GB / T2423.8-1995 Single : Height: 1.0 Meter; 3 directions; 1 time for each direction 單支天線, 高 1m ; 3 個方向各 1 次	1. No parts separated 、 fracture 2. Frequency Tol. $\leq$ 5% 產品無脫落、斷裂; 頻率偏移 $\leq$ 5%	PASS
		Packing : Height: 0.76 Meter; 1 corner, 3 edges, 6 surface 包裝: 高 0.76m , 一角、三棱、六面各一次		PASS

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		Antenna+Machine:Height: 0.76 Meter; 1 corner, 3 edges, 6 surface.整機：高 0.76m，一角、三稜、六面各一次		N/A
M3	Solderability	GB / T2423.28-2005	Tin evenly on full	N/A

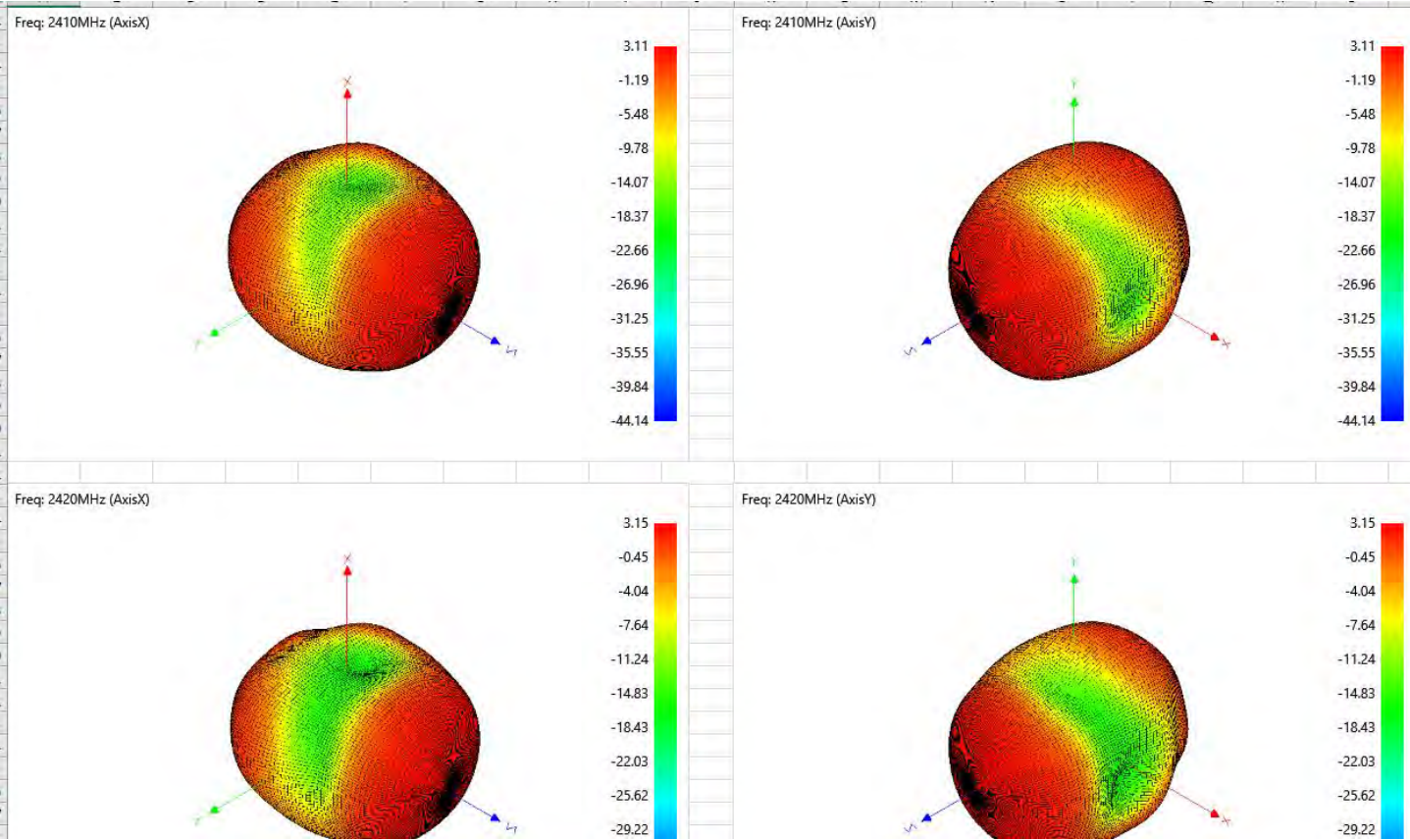
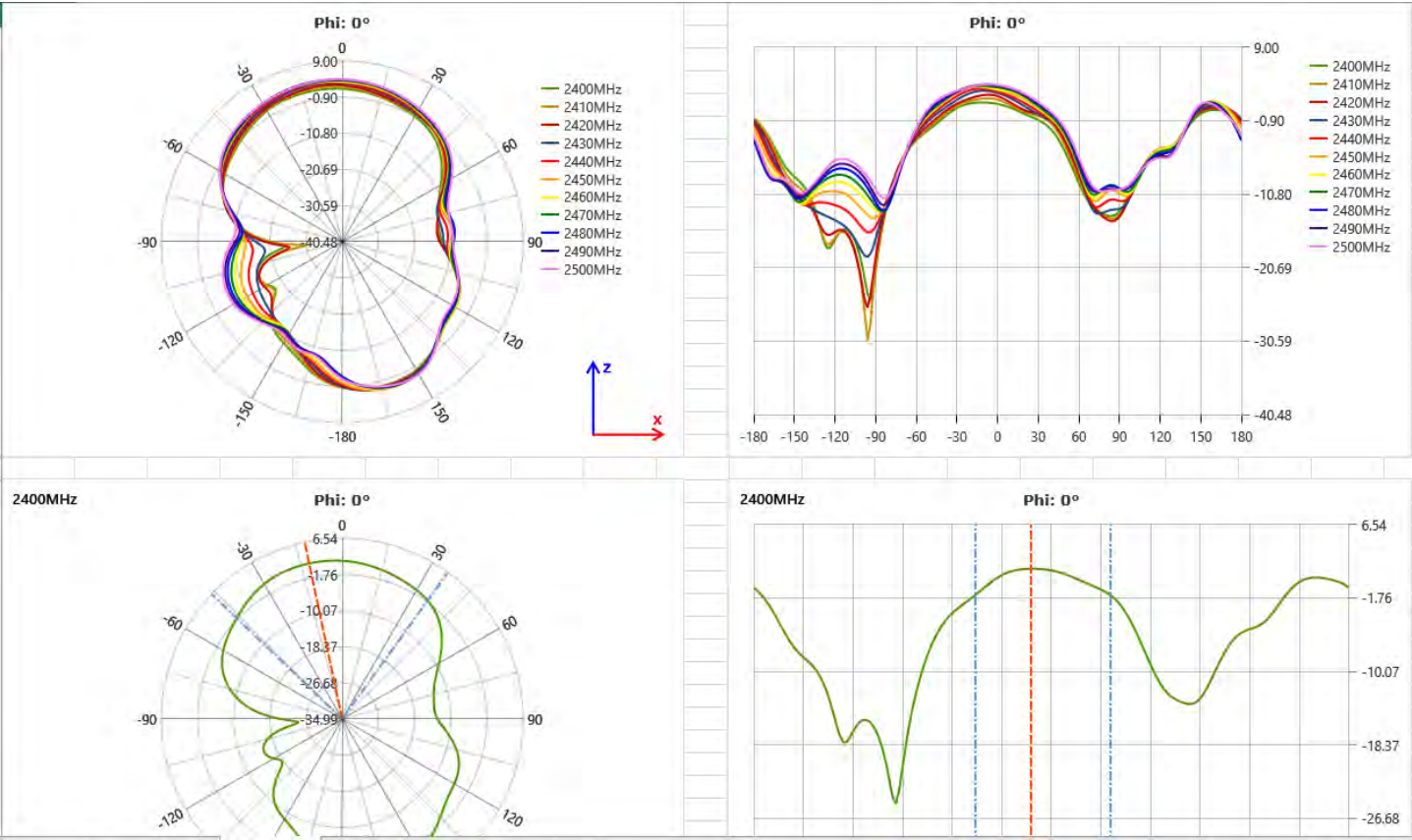
M4 P	ull Test 拉力	Holding with individual specification; force applied to axis of terminal .單獨定義產品端子拉力	Directive DUT specification Frequency Tol.≤5% 符合待測物規範;頻率偏移≤5%	PASS
M5 T	o rque Test 扭力	Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal 單獨定義產品端子之順時針及逆時針扭力	Directive DUT specification Frequency Tol.≤ 5% 符合待測物規範;頻率偏移≤5%	N/A
M6 D	imension 尺寸	Inspection of dimension, color, material, package, surface process.检查尺寸,颜色,材料,包装,表面處理	Directive DUT specification 符合待測物規範	PASS
E1 W	aterproof 防水	With Reference to IEC 60529 // IP Code Definition 參考 IEC60529 IP 定義	Directive DUT specification 符合待測物規範	N/A
E2	Salt Spray 鹽霧	GB / T 2423.17-2008 Temp: 35°C; RH: ≥ 95%; NaCl solution: ≥ 5%;Time: 24H 溫度 35°C; 濕度≥95%;鹽水濃度≥5%; 測試 24H	No Visual Damage Frequency Tol.≤5% 無明顯外觀不良;頻率偏移≤5%	PASS
E3 T	emperature and Humidity Chamber 恒溫恒濕	GB / T 2423.3-2006 Temp: 80°C / 12 H; -40°C / 12H RH: ≥ 90 %; Time: 24H 溫度 80°C 測試 12H 轉-40°C 測試 12H; 濕度≥90 %; 時間 24H	After 2 Hours Recovery No Visual Damage Frequency Tol.≤5% 恢復 2H 后, 無明顯外觀不良;頻率偏移≤5%	PASS
E4 T	ermal Shock 冷熱衝擊	GB / T 2423.22 - 2008 40° C (30 minutes) to + 80° C (30 minutes); Cycles: 24 40° C 測試 30 分轉 80° C 測試 30 分為一個週期; 共 24 週期	After 2 Hours Recovery No Visual Damage Frequency Tol.≤5% 恢復 2H 后, 無明顯外觀不良;頻率偏移≤5%	PASS
E5 A	ging test 老化	GB / T 2423.2 - 2008 Temp: 80°C; Time: 24 hours 溫度 80° C, 測試 24H	After 2 Hours Recovery No Visual Damage Frequency Tol.≤5% 無明顯外觀不良;頻率偏移≤5%	PASS
E6 H	igh Temp. 高溫	Temp. 270±10° C; Times: 120 seconds 溫度 270±10° C, 測試時間 120 秒	No Visual Damage 無明顯外觀不良	N/A
R1	RoHS	With Reference to IEC 62321:2008 with flow chart 參考 IEC 62321 測試流程	Directive RoHS 2011/65/EU 符合 RoHS 2011/65/EU 標準	PASS
R2	PFOS	With Reference to USA EPA 3550C:1996 by LC/MS 參考 USA EPA 3550C 測試流程	Directive RoHS 2006/122/EC 符合 RoHS 2011/65/EU 標準	PASS

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4. 网分仪数据:



5: 方向图



TOA数据：

	A	B	C	D	
1	Frequency(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)	
2	2400	1.96	-5.58	27.67	
3	2410	2	-5.32	29.36	
4	2420	2.04	-5.18	30.33	
5	2430	2.06	-4.61	34.61	
6	2440	2.1	-4.39	36.35	
7	2450	2.2	-3.84	41.29	
8	2460	2.4	-3.32	46.57	
9	2470	2.42	-3.04	49.69	
10	2480	2.47	-2.88	51.56	
11	2490	2.5	-2.58	55.22	
12	2500	2.53	-2.38	57.75	