

东莞市海恒电子科技有限公司

Dong Guan Hai Heng Electronic Technology Co., Ltd.

TEL: +86 0769-86106218 FAX: +86 0769-82855308 MOBILE: 13580841532

承认书 APPROVAL JD

版本: A1

客 户
CUSTOMER:

品 名 规 格

DESCRIPTION:

2.4/5.8G双频内置天线

料 号

PART NO.:

PCB-N2425D

客 户 料 号

CUS PART NO.:

日 期

D A T E:

2020-03-12

呈样签章

工 程 ENGINEERING DEPARTMENT	品 保 Q C DEPARTMENT	业 务 SALES DEPARTMENT
田宏亮	张明	吕安贵

客户承认签章

工 程 ENGINEERING DEPARTMENT	品 保 Q C DEPARTMENT	采 购 PURCHASING DEPARTMENT

※ 客户确认样品附意栏:

Product Number: PCB-N2425D

Product Name: Embedded Antenna

1. Revision History

Revision	Date	Change Notification	Description
1.0	2020.03.12		

Product Number: PCB-N2425D

Product Name: Embedded Antenna

2. Specification

Sample Photo	
	
A. Electrical Characteristics	
Frequency	2400 ~ 2500 MHz 5150 ~ 5850 MHz
V.S.W.R.	≤ 3.0 @ 2400 ~ 2500 MHz ≤ 3.0 @ 5150 ~ 5850 MHz The data is tested with 1M cable
Antenna Gain	2.5 ± 0.5 dBi @ 2400 ~ 2500 MHz 3.0 ± 0.5 dBi @ 5150 ~ 5850 MHz
Efficiency	70 % @ 2400 ~ 2500 MHz 85 % @ 5150 ~ 5850 MHz
Polarization	Linear
Impedance	50 Ohm
B. Material & Mechanical Characteristics	
Material of Radiator	PCB
Material of Plastic	
Cable Type	1.13
Connector Type	IPEX
C. Environmental	
Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C

Product Number: PCB-N2425D

Product Name: Embedded Antenna

3. Characteristics and Reliability Test

Test Items 測試項目		Test Condition and Procedure 測試方法	Requirements 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	OK
C2	Insertion 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	Antenna 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	OK
C4	Voltage 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 ≥ 500 V or directive material specification 最大電壓 ≥ 500 V 或符合材料規範	N/A
C5	Insulation Resistance 絕緣阻抗	Set Voltage: 500 ± 50 V; between the insulated portions, or between ground as specified. 設置電壓 500 ± 50 V,在绝缘部份測試或指定接地面之间	Resistance ≥ 500 M ohm or directive material specification 阻抗 ≥ 500 M ohm 或符合材料規範	N/A
C6	Contact 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	Vibration 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 $\leq 5\%$	OK
M2	Random 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 $\leq 5\%$	OK
		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		OK
		Antenna+Machine: Height: 0.76 Meter; 1 corner, 3 edges, 6 surface. 整機 : 高 0.76m , 一角、三棱、六面各一次		N/A
M3	Solderability	GB / T2423.28-2005	Tin evenly on full	N/A

Product Number: PCB-N2425D

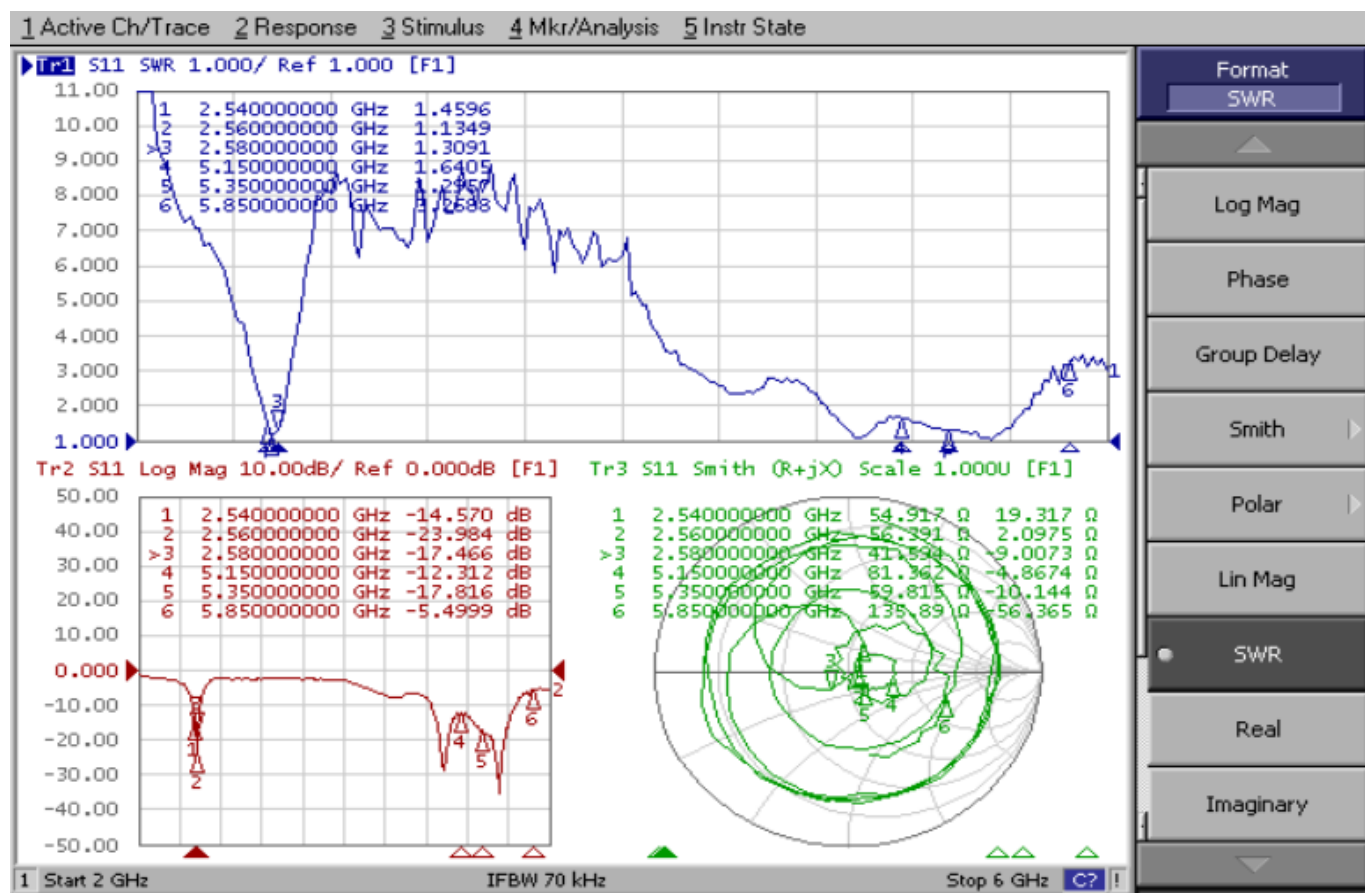
Product Name: Embedded Antenna

	可焊性	Temp: 260±5° C;Duration: 5 seconds 溫度 260±5° C;持續 5 秒	上錫均勻飽滿	
M4	Pull Test 拉力	Holding with individual specification; force applied to axis of terminal .單獨定義產品端子拉力	1. Directive DUT specification 2. Frequency Tol.≤5% 符合待測物規範;頻率偏移≤5%	OK
M5	Torque 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	1. Directive DUT specification 2. Frequency Tol.≤ 5% 符合待測物規範;頻率偏移≤5%	N/A
M6	Dimension 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	OK
E1	Waterproof 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	1. No Visual Damage 2. Frequency Tol.≤5% 無明顯外觀不良;頻率偏移≤5%	N/A
E3	Temperature 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 1. No Visual Damage 2. Frequency Tol.≤5% 恢復 2H 后, 無明顯外觀不良;頻率偏移≤5%	OK
E4	Thermal 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 分爲一個週期;共 24 週期	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.≤5% 恢復 2H 后, 無明顯外觀不良;頻率偏移≤5%	N/A
E5	Aging 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 1. No Visual Damage 2. Frequency Tol.≤5% 無明顯外觀不良;頻率偏移≤5%	OK
E6	High 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	OK
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	OK

Product Number: PCB-N2425D

Product Name: Embedded Antenna

4. Antenna - S Parameter Test Data



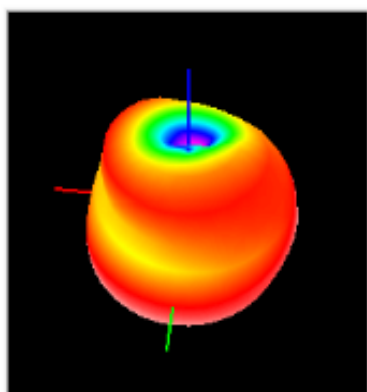
暗室无源测试数据:

Frequency(GHz)	Peak Gain (dBi)	Low Gain (dBi)	Average Gain (dBi)	Efficiency Total (%)
2.40	1.28	0.91	1.17	42.66
2.45	2.44	1.03	1.82	60.67
2.50	2.77	1.57	2.42	72.95
5.15	2.84	1.31	2.22	50.47
5.35	1.52	1.01	1.69	46.56
5.825	2.76	1.16	2.28	61.80

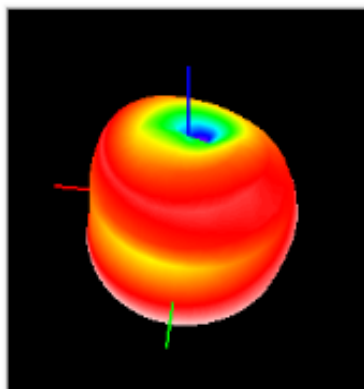
Product Number: PCB-N2425D

Product Name: Embedded Antenna

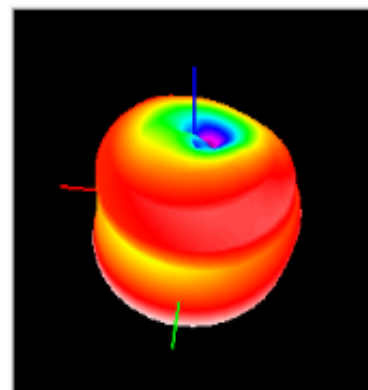
5. Antenna - Radiation Pattern Test Data



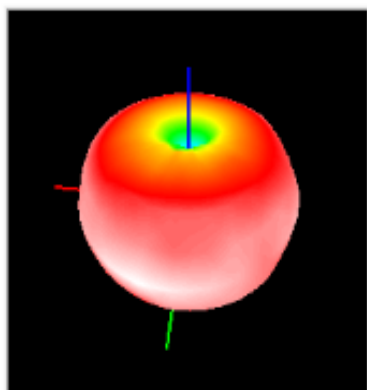
2400MHz



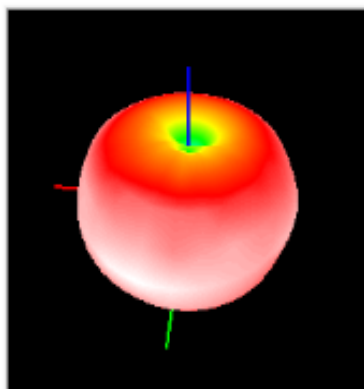
2450MHz



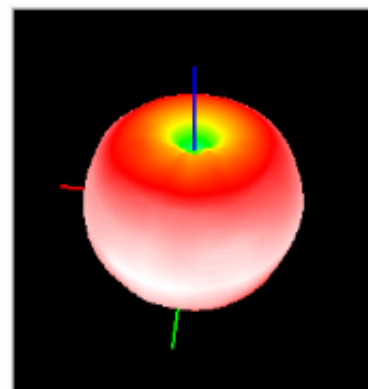
2500MHz



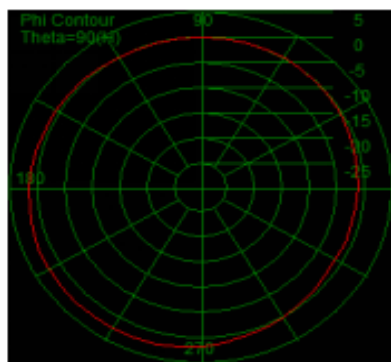
5700MHz



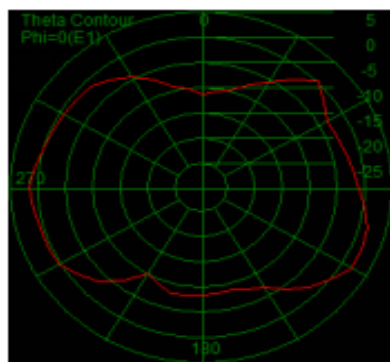
5750MHz



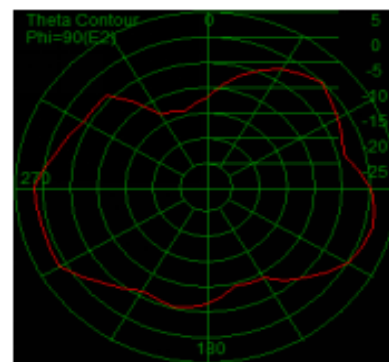
5800MHz



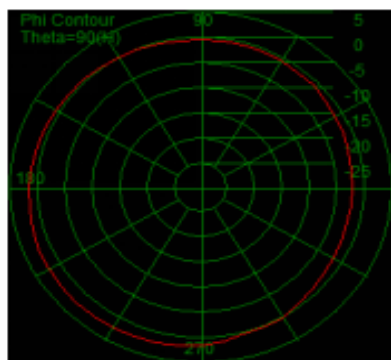
XY_Plane_2400



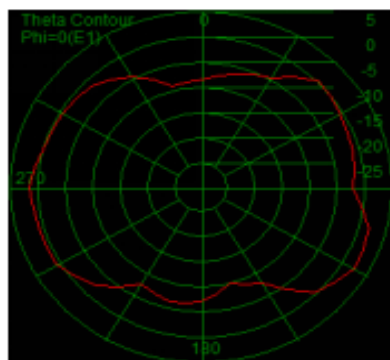
XZ_Plane_2400



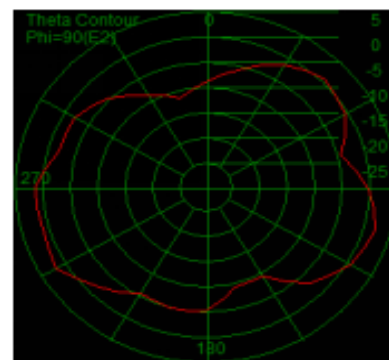
YZ_Plane_2400



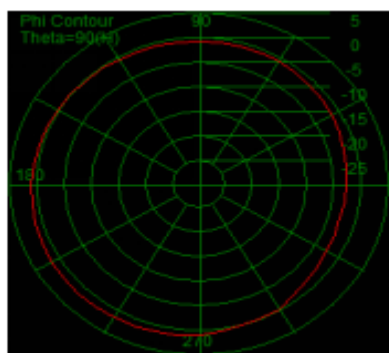
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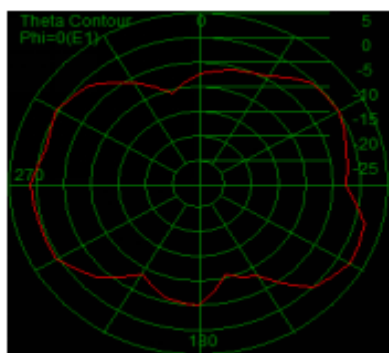
XZ_Plane_2450



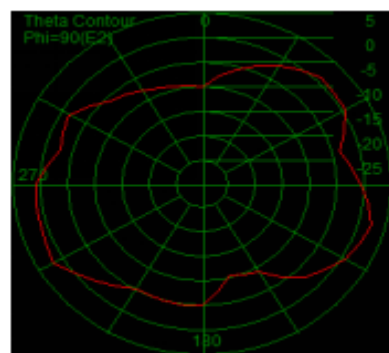
YZ_Plane_2450



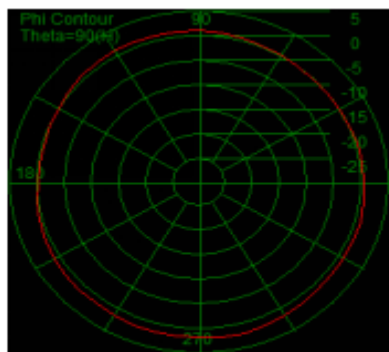
XY_Plane_2500



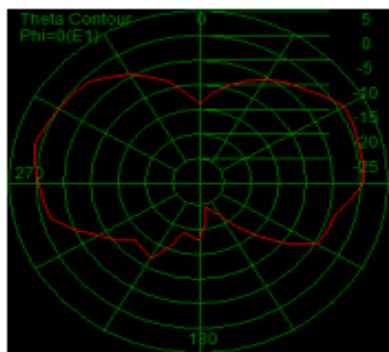
XZ_Plane_2500



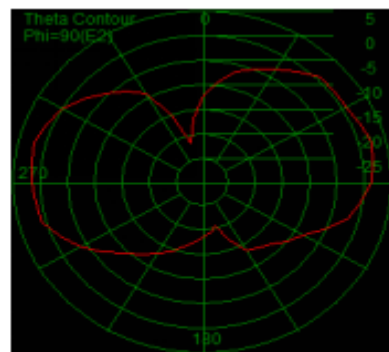
YZ_Plane_2500



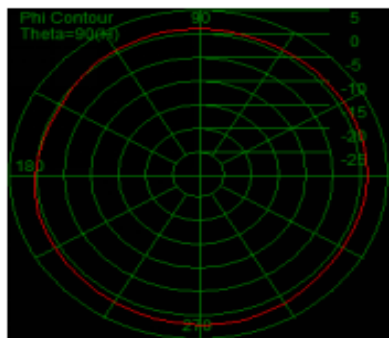
XY_Plane_5700



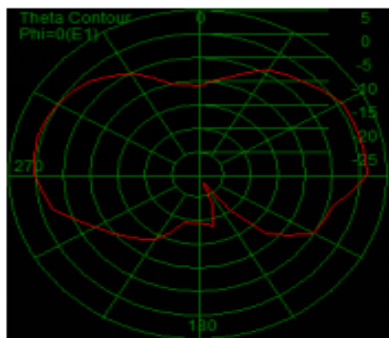
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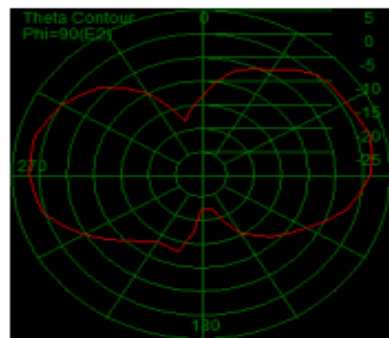
YZ_Plane_5700



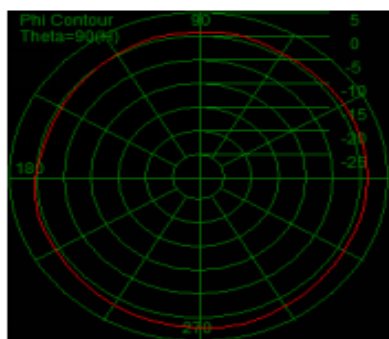
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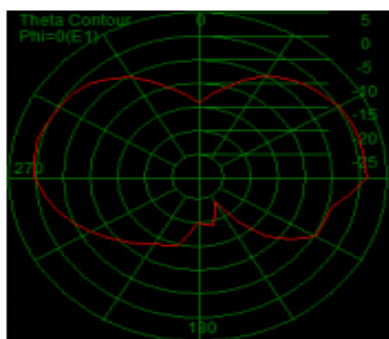
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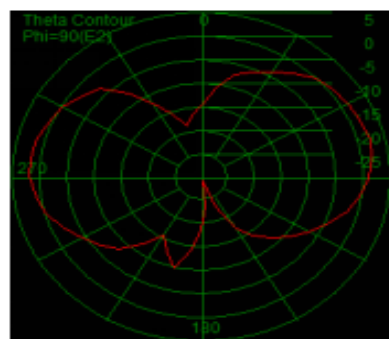
YZ_Plane_5750



XY_Plane_5800



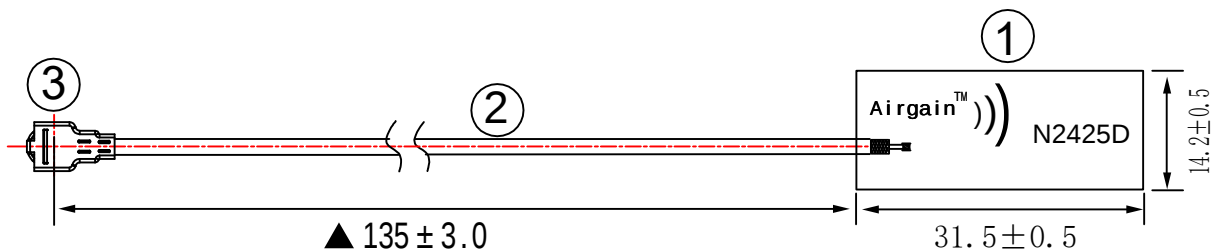
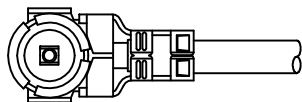
XZ_Plane_5800



YZ_Plane_5800

RoHS

Compatible



重点:

1. 裁线尺寸 : 129.0mm
2. ▲为重点检验尺寸
3. PCB不可有破损、漏铜、印字模糊等现象。
4. 焊锡点要饱满

3	CR-113	IPEX			
2	R-CB-113B	Coaxial Cable	OD1.13 L=120mm	Black	1
1	PCB-N2425D	PCB	RF4	Red	1
No.	Part Number	Name	Material	Finish	Q'ty

SIGN	DATE	DESCRIPTION	APPROVER
△			
△			
△			

东莞市海恒电子科技有限公司

TITLE: 2.4-5.8GHZ Embedded Antenna					
PART NO : PCB-N2425D			CUSTOMER P/N: /		
APP BY	CHK BY	RF BY	DES BY		Tolerance
LQ	DJC			UNITS: mm	X.X ±0.3
2020.03.12	2020.03.12			SCALE: 1/1	X.XX ±0.2
				REVISION: A	X° ±1

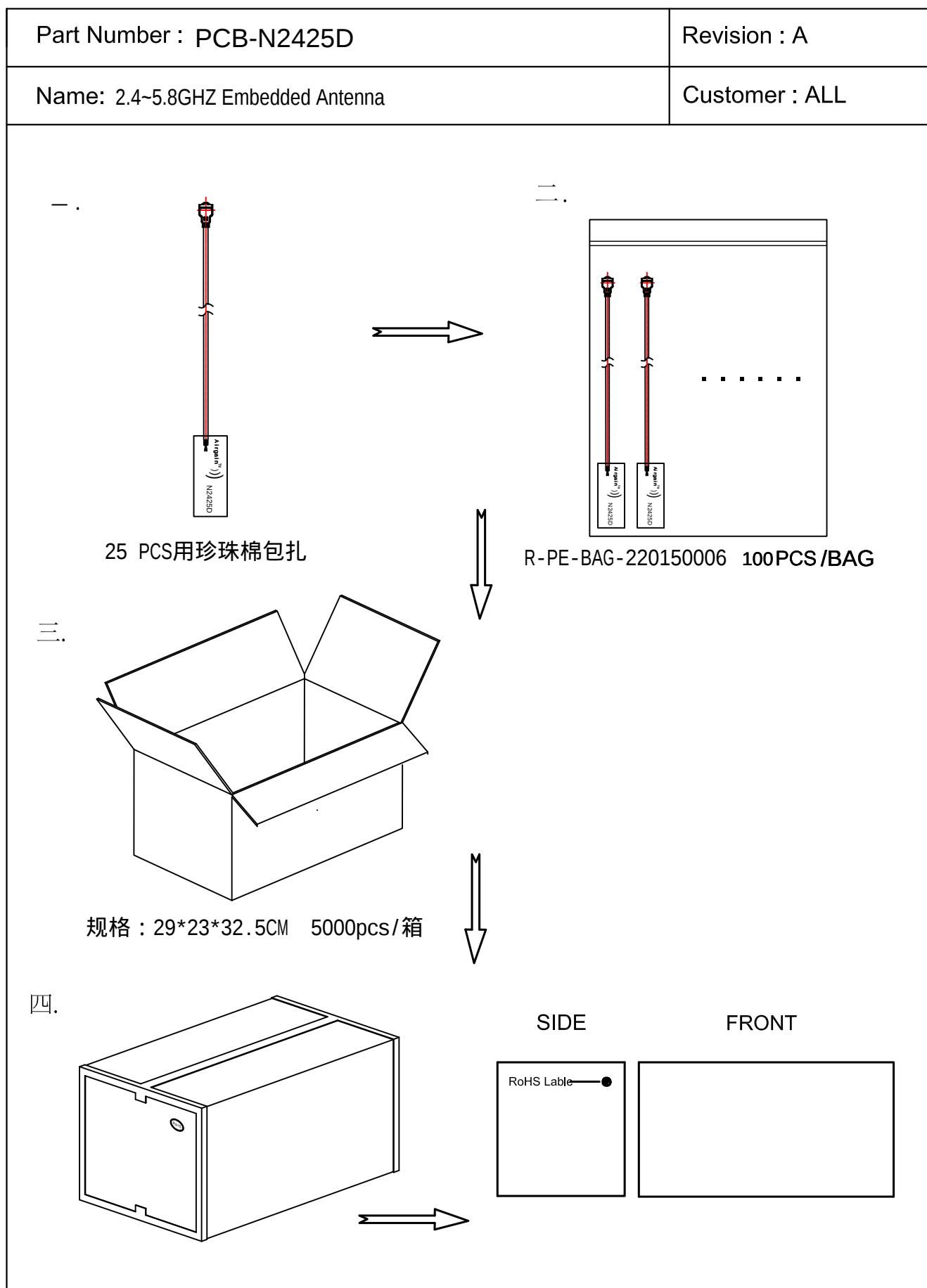
產品包裝規範

PACKING CRITERION

★★★★☆

Date: 2020-03-12

Page: 1 of 1



APPROVED BY : LQ

CHECKED BY : DJC

DESIGNED BY : DJC