



Tengxiang Technology.Inc

东莞市腾祥电子有限公司

Product Number:AN2400-PCB105WX

Product Name: Antenna

Specification For Approval

Date: 2023.9.15

Version: 1.0

客户名称

Customer:

亿联无限

客户料号

Customer P/N:

32030126

腾祥料号

T X P/N:

AN2400-PCB105WX

规格描述

Description :

2.4G PCB 天线 1.13mm 白色线 L=90mm+IPEX

Tengxiang Checked By: 腾祥审核		Customer Approved By: 客户审核	
DRAWN 制作	路婷	TESTED BY 检测	
CHECKED BY 审核	胡超	CHECKED BY 审核	
Q.C.DEPT. 品管	梁凤珍	Q.C.DEPT. 品管	
APPROVED BY 核准	韦佳	APPROVEDBY 核准	



NO.53 Shatou ShaChong Road, ChangAn Town, Guangdong province, China

中国广东省东莞市长安镇沙头区沙涌路 53 号

TEL:86-769-81873082 FAX:86-769-82663788

<http://www.tenxiang.cn>



Tengxiang Technology.Inc

东莞市腾祥电子有限公司

Product Number:AN2400-PCB105WX

Product Name: Antenna

Index:

1. Specification (规格)
2. Characteristics and Reliability Test (产品特性和可靠性测试标准)
3. Antenna - S Parameter Test Data (样品测试数据)
4. Antenna - Radiation Pattern Test Data (辐射模式测试数据)
5. Mechanical and Packing Drawing (图纸包装规范)

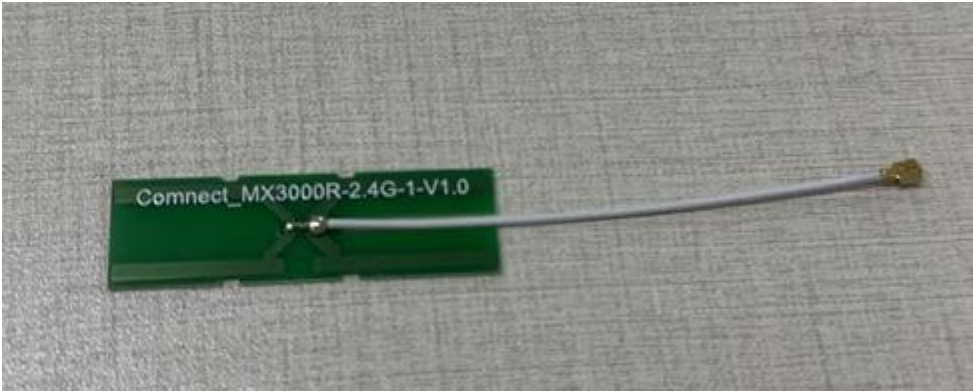
Revision History (变更履历)

Revision	Date	Change Notification	Description
1.0	2023.9.15	初版	

Product Number: AN2400-PCB105WX

Product Name: Antenna

1. Specification

Sample Photo	
	
A. Electrical Characteristics	
Frequency 频率	2400-2500 MHz
S.W.R. 驻波比	≤ 2.0
Antenna Gain 增益	2.80dBi
Polarization 极化方式	Linear
Impedance 阻抗	50 Ohm
B. Material & Mechanical Characteristics	
Cable Type 线材规格	OD1.13mm ,white
Connector Type 连接器规格	I-PEX
C. Environmental	
Storage Temperature 存储温度	- 40°C ~ +80 °C
Operation Temperature 工作温度	- 40°C ~ +80 °C

Product Number: AN2400-PCB105WX

Product Name: Antenna

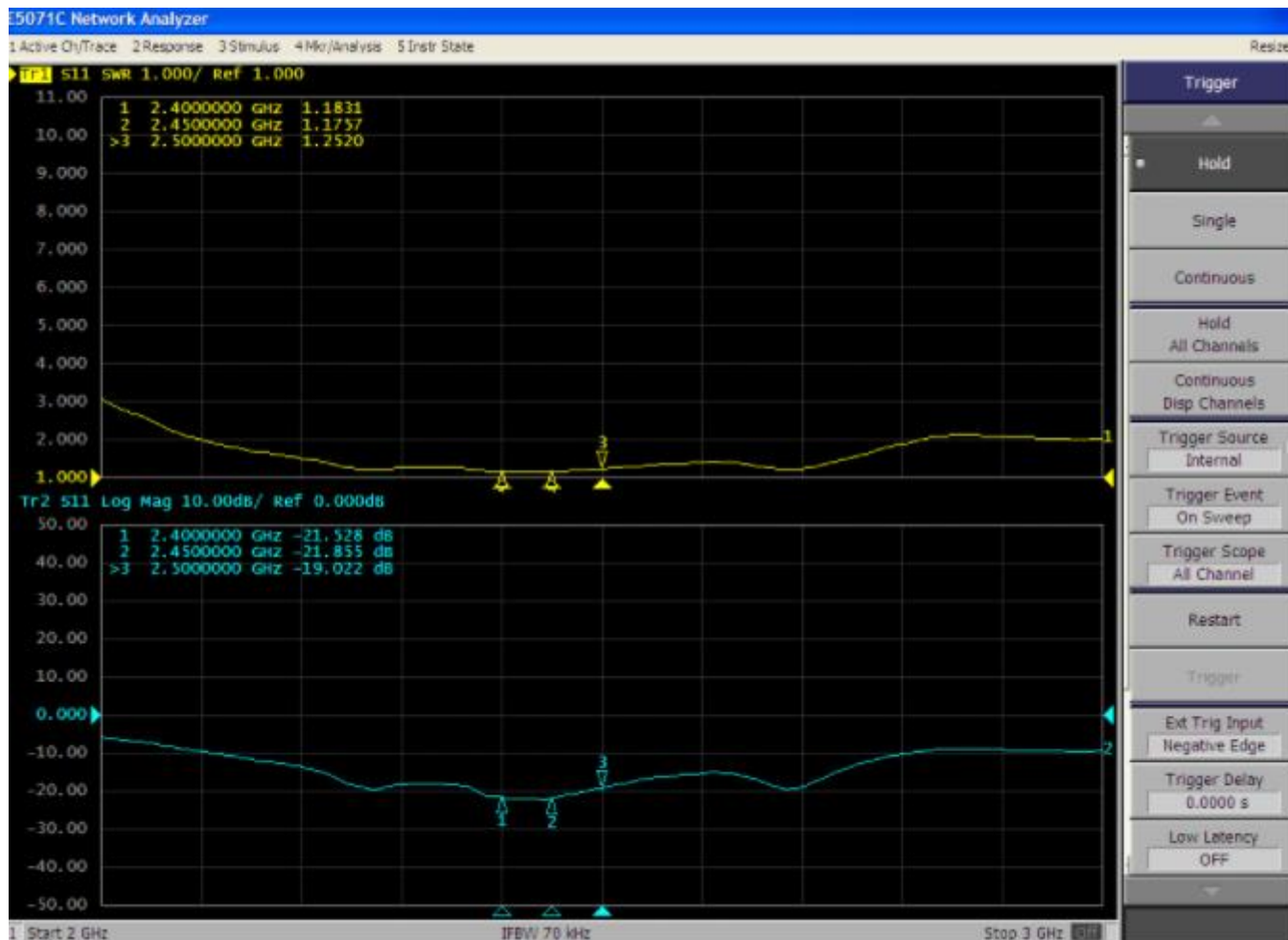
2. Characteristics and Reliability Test

Test Items 测试项目		Test Condition and Procedure 测试方法	Requirements 要求	Result 结果
1	V.S.W.R. 电压驻波比	Set DUT on Network Analyzer; make individual calibration to test 设置网络分析仪参数进行测试	Directive DUT specification 符合待测物规范	PASS
2	Insertion Loss 插入损失	Set DUT on Network Analyzer; make individual calibration to test 设置网络分析仪参数进行测试	Directive DUT specification 符合待测物规范	PASS
3	Antenna Gain 天线增益	Set DUT on Antenna Chamber; make individual calibration to test 设置天线暗室参数进行测试	Directive DUT specification 符合待测物规范	PASS
4	Solderability 可焊性	GB / T2423.28-2005 Temp: $260 \pm 5^{\circ} \text{C}$; Duration: 5 seconds 温度 $260 \pm 5^{\circ} \text{C}$; 持续 5 秒	Tin evenly on full 上锡均匀饱满	PASS
5	Pull Test 拉力	Holding with individual specification; force applied to axis of terminal 单独定义产品端子拉力	1. Directive DUT specification 2. Frequency Tol. $\leq 5\%$ 符合待测物规范; 频率偏移 $\leq 5\%$	PASS
6	Dimension 尺寸	Inspection of dimension, color, material, package, surface process. 检查尺寸, 颜色, 材料, 包装, 表面处理	Directive DUT specification 符合待测物规范	PASS
7	RoHS	With Reference to IEC 62321:2008 with flow chart 参考 IEC 62321 测试流程	Directive RoHS 2015/863/EU 符合 RoHS 2015/863/EU 标准	PASS

Product Number:AN2400-PCB105WX

Product Name: Antenna

3. Antenna - S Parameter Test Data

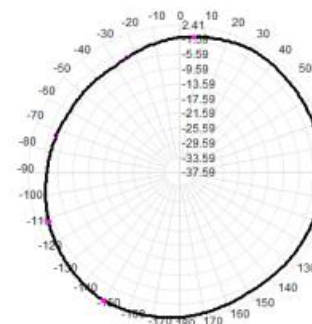
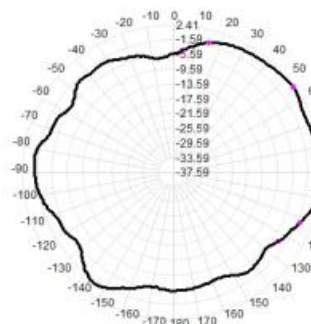
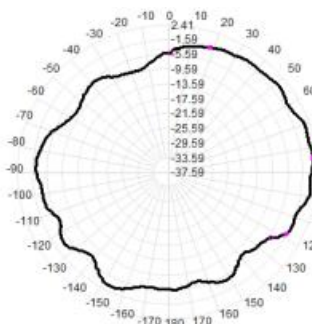
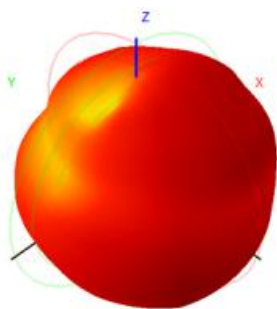




4. Antenna - Radiation Pattern Test Data

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	2.44	2.43	2.43	2.51	2.68	2.79	2.80	2.62	2.58	2.47	2.38
Efficiency (%)	67.44	67.34	68.36	68.36	71.70	72.82	73.49	72.53	72.25	71.05	72.16

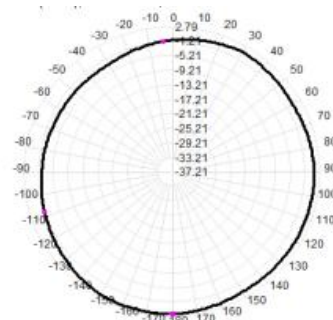
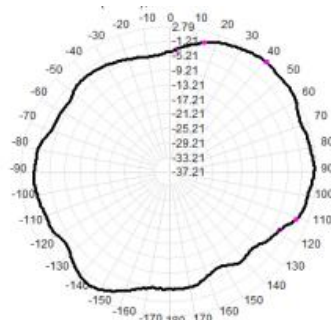
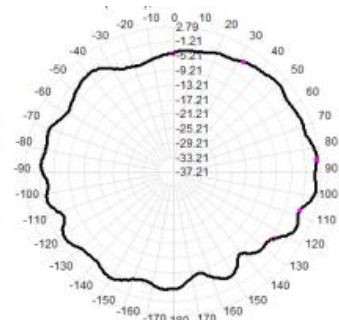
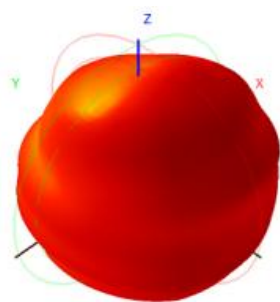
2400MHz



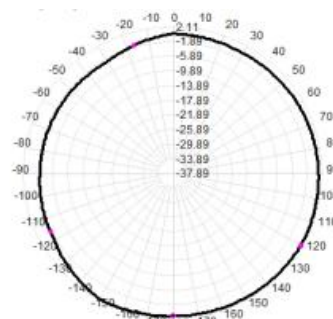
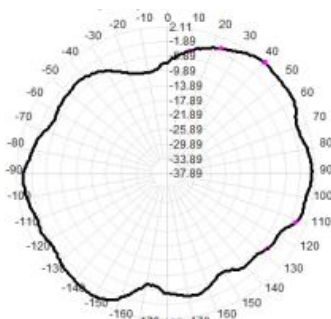
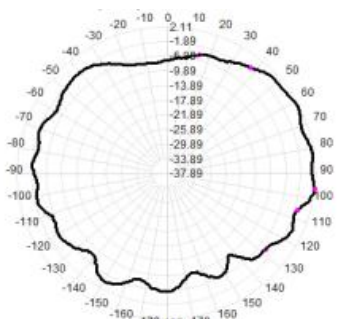
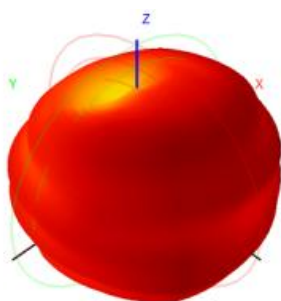
Product Number:AN2400-PCB105WX

Product Name: Antenna

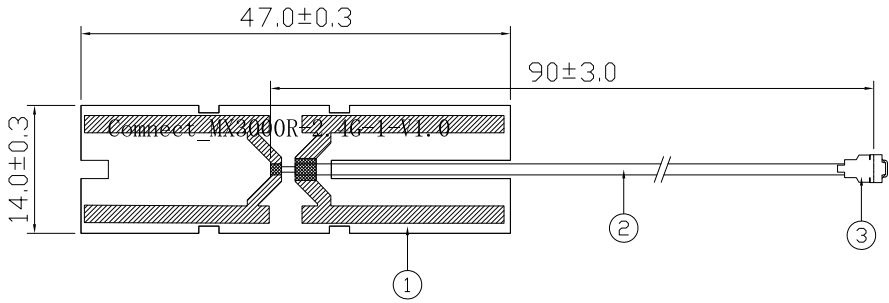
2450MHz



2500MHz



5. Mechanical Drawing See attached files



Note:

1.Mark * is important dimension;"Cpk "Identify for process control(CpK≧1.33).

2.Tolerance:Unmarked tolerance refer to the standard tolerance please.

3.Pay attention to the direction of the connector.

3	CR-113-ZP-A	I-PEX	Cu	Au Plated	1
2	CB-113WS	Coaxial Cable		WHITE	1
1	Connect_MX3000R-2_4G-1-V1.0	PCB	47.0*14.0*0.8mm	GREEN	1
No.	Part Number	Name	Material	Finish	Q'ty

Tengxiang Electronics Co., Ltd.

TITLE: Antenna

PART NO.: AN2400-PCB105WXCUSTOMER P/N: /

APP BY	CHK BY	RF BY	DES BY		Tolerance
YCX	WJ	HC	SY	UNITS: mm	X.X ±0.5
2023.09.15	2023.09.15	2023.09.15	2023.09.15	SCALE: 1/1	X.XX ±0.2
				REVISION: A	X° ±1

产品包装规范

PACKING CRITERION

Date: 2023.09.15

Page: 1 of 1

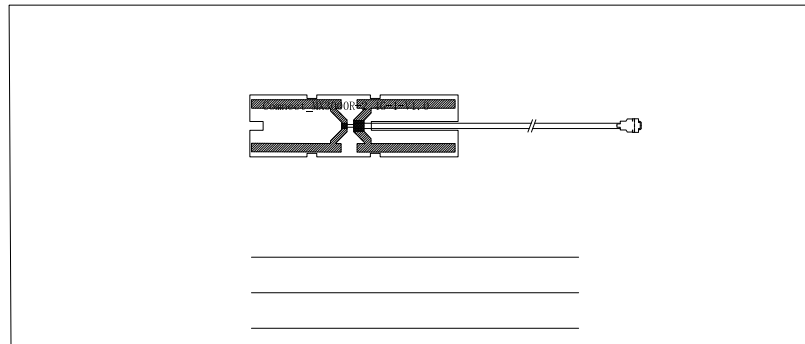
Part Number : AN2400-PCB105WX

Revision : A

Name: Antenna

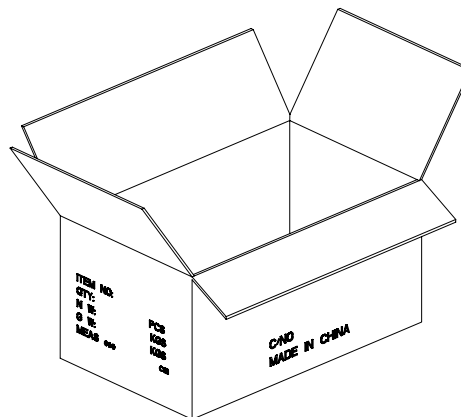
Customer : ALL

1 . Enter PE bag。



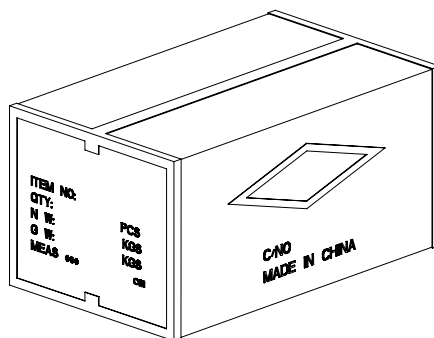
100pcs/ PE bag

2.PACKING。

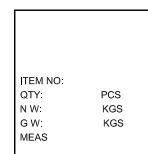


8000pcs/Carton

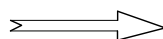
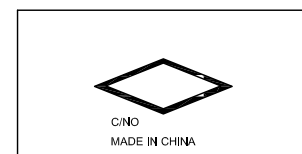
3. SEALING。



SIDE



FRONT



APPROVED BY: YCX

CHECKED BY: HC

DESIGNED BY: SY Y



Tengxiang Technology.Inc

东莞市腾祥电子有限公司

Product Number: AN2400-PCB106WX

Product Name: Antenna

Specification For Approval

Date: 2023.6.17

Version: 1.0

客户名称

Customer:

亿联无限

客户料号

Customer P/N:

腾祥料号

T X P/N:

AN2400-PCB106WX

规格描述

Description:

2.4G PCB 天线 1.13mm 白色线 L= 60mm+IPEX

Tengxiang Checked By: 腾祥审核		Customer Approved By: 客户审核	
DRAWN 制作	路婷	TESTED BY 检测	
CHECKED BY 审核	胡超	CHECKED BY 审核	
Q.C.DEPT. 品管	梁凤珍	Q.C.DEPT. 品管	
APPROVED BY 核准	韦佳	APPROVED BY 核准	



NO.53 Shatou ShaChong Road, ChangAn Town, Guangdong province, China

中国广东省东莞市长安镇沙头区沙涌路 53 号

TEL:86-769-81873082 FAX:86-769-82663788

<http://www.tenxiang.cn>



Tengxiang Technology.Inc

东莞市腾祥电子有限公司

Product Number:AN2400-PCB106WX

Product Name: Antenna

Index:

1. Specification (规格)
2. Characteristics and Reliability Test (产品特性和可靠性测试标准)
3. Antenna - S Parameter Test Data (样品测试数据)
4. Antenna - Radiation Pattern Test Data (辐射模式测试数据)
5. Mechanical and Packing Drawing (图纸包装规范)

Revision History (变更履历)

Revision	Date	Change Notification	Description
1.0	2023.6.17	初版	

Product Number: AN2400-PCB106WX

Product Name: Antenna

1. Specification

Sample Photo	
	
A. Electrical Characteristics	
Frequency 频率	2400-2500 MHz
S.W.R. 驻波比	≤ 2.0
Antenna Gain 增益	3.74dBi
Polarization 极化方式	Linear
Impedance 阻抗	50 Ohm
B. Material & Mechanical Characteristics	
Cable Type 线材规格	OD1.13mm ,white
Connector Type 连接器规格	I-PEX
C. Environmental	
Storage Temperature 存储温度	- 40°C ~ +80 °C
Operation Temperature 工作温度	- 40°C ~ +80 °C

Product Number:AN2400-PCB106WX

Product Name: Antenna

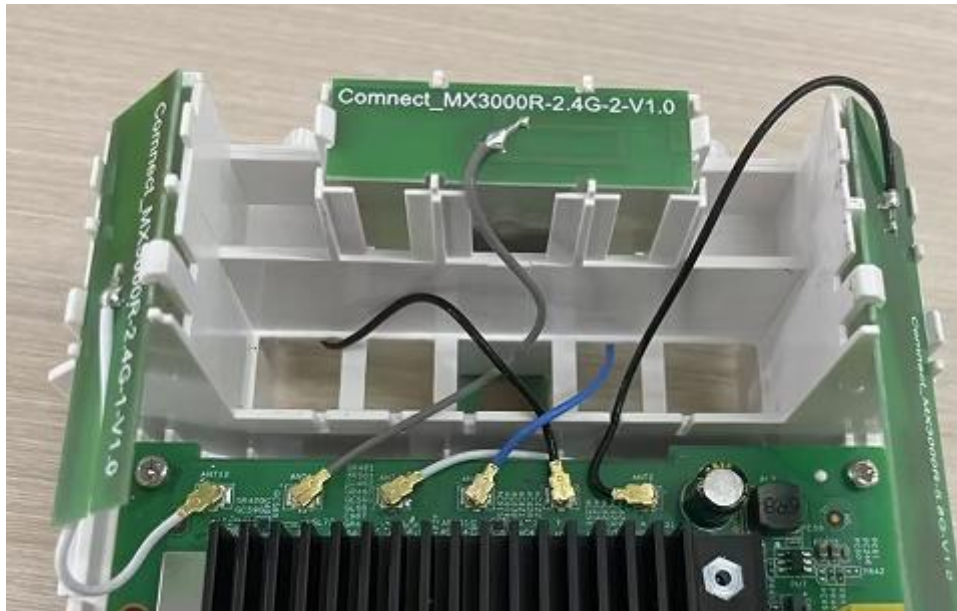
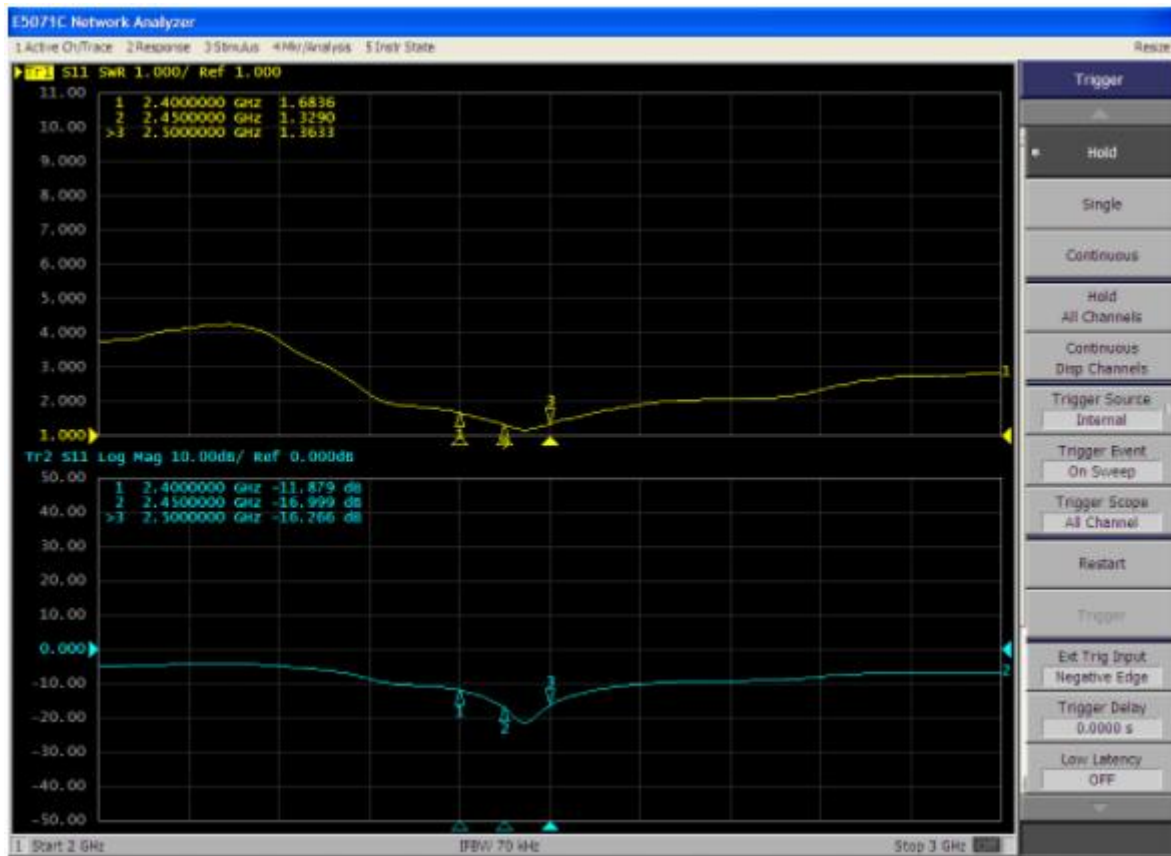
2. Characteristics and Reliability Test

Test Items 测试项目		Test Condition and Procedure 测试方法	Requirements 要求	Result 结果
1	V.S.W.R. 电压驻波比	Set DUT on Network Analyzer; make individual calibration to test 设置网络分析仪参数进行测试	Directive DUT specification 符合待测物规范	PASS
2	Insertion Loss 插入损失	Set DUT on Network Analyzer; make individual calibration to test 设置网络分析仪参数进行测试	Directive DUT specification 符合待测物规范	PASS
3	Antenna Gain 天线增益	Set DUT on Antenna Chamber; make individual calibration to test 设置天线暗室参数进行测试	Directive DUT specification 符合待测物规范	PASS
4	Solderability 可焊性	GB / T2423.28-2005 Temp: 260±5° C;Duration: 5 seconds 温度 260±5° C;持续 5 秒	Tin evenly on full 上锡均匀饱满	PASS
5	Pull Test 拉力	Holding with individual specification; force applied to axis of terminal .单独定义产品端子拉力	1. Directive DUT specification 2. Frequency Tol.≤5% 符合待测物规范;频率偏移≤5%	PASS
6	Dimension 尺寸	Inspection of dimension, color, material, package, surface process.检查尺寸,颜色,材料,包装,表面处理	Directive DUT specification 符合待测物规范	PASS
7	RoHS	With Reference to IEC 62321:2008 with flow chart 参考 IEC 62321 测试流程	Directive RoHS 2015/863/EU 符合 RoHS 2015/863/EU 标准	PASS

Product Number:AN2400-PCB106WX

Product Name: Antenna

3. Antenna - S Parameter Test Data

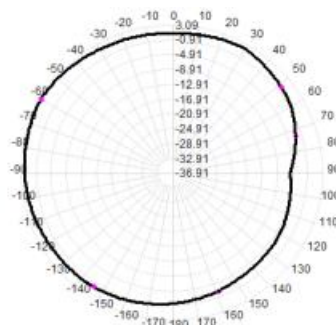
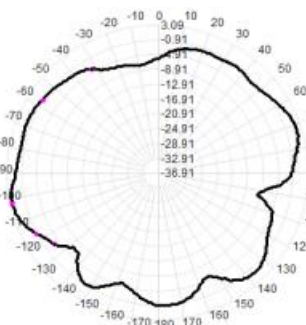
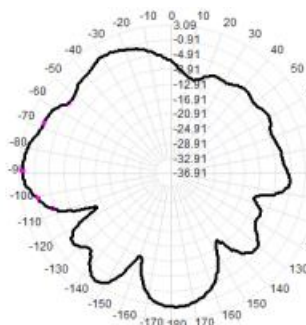
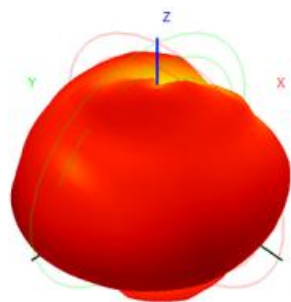




4. Antenna - Radiation Pattern Test Data

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	3.19	3.38	3.51	3.68	3.74	3.64	3.63	3.59	3.67	3.61	3.62
Efficiency (%)	66.71	69.69	70.10	71.40	73.73	73.56	75.07	73.87	73.83	71.69	72.24

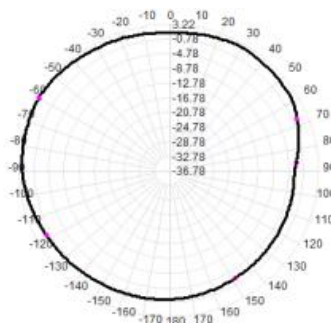
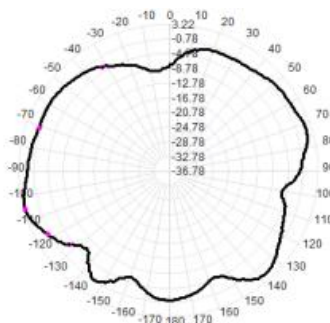
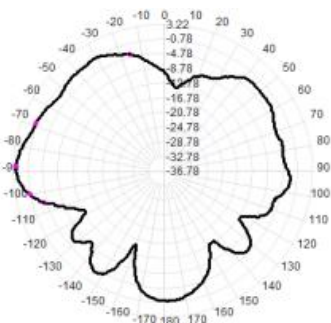
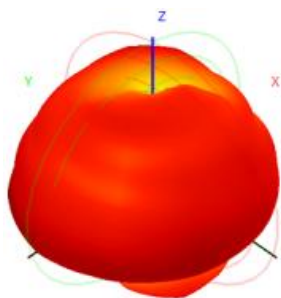
2400MHz



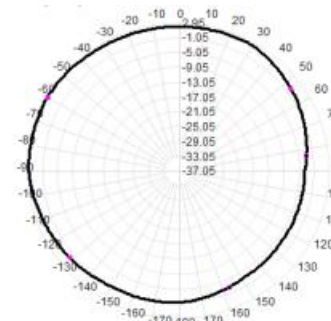
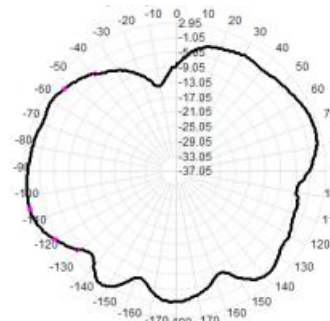
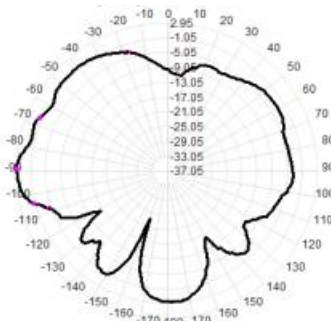
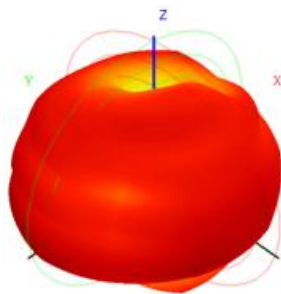
Product Number:AN2400-PCB106WX

Product Name: Antenna

2450MHz

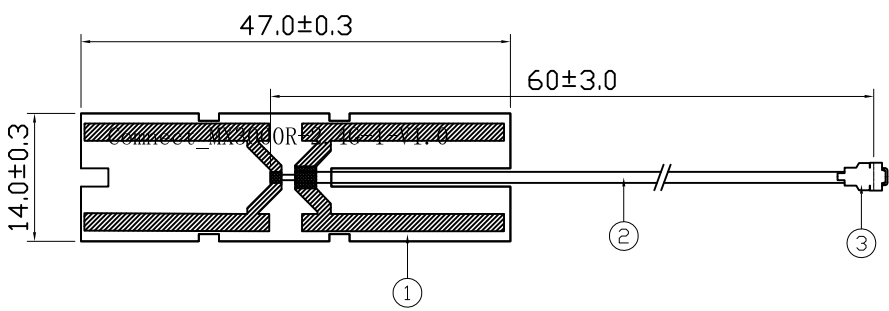


2500MHz



5. Mechanical Drawing See attached files

1	2	3	4	5	6	7	8																																																												
HF☐ RoHS2.0☒ REACH☐ CONFIDENTIAL					<table><tr><td>SIGN</td><td>DATE</td><td>DESCRIPTION</td><td>APPROVER</td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>			SIGN	DATE	DESCRIPTION	APPROVER																																																								
SIGN	DATE	DESCRIPTION	APPROVER																																																																
E							E																																																												
D							D																																																												
C							C																																																												
B	Note: 1.Mark * is important dimension;"Cpk "Identify for process control(CpK≥1.33). 2.Tolerance:Unmarked tolerance refer to the standard tolerance please. 3.Pay attention to the direction of the connector.						B																																																												
A	<table><tr><td>3</td><td>CR-113-ZP-A</td><td>I-PEX</td><td>Cu</td><td>Au Plated</td><td>1</td></tr><tr><td>2</td><td>CB-113WS</td><td>Coaxial Cable</td><td></td><td>WHITE</td><td>1</td></tr><tr><td>1</td><td>Connect_MX3000R-2. 4G-1-V1.0</td><td>PCB</td><td>47.0*14.0*0.8mm</td><td>GREEN</td><td>1</td></tr><tr><td>No.</td><td>Part Number</td><td>Name</td><td>Material</td><td>Finish</td><td>Q'ty</td></tr></table>					3	CR-113-ZP-A	I-PEX	Cu	Au Plated	1	2	CB-113WS	Coaxial Cable		WHITE	1	1	Connect_MX3000R-2. 4G-1-V1.0	PCB	47.0*14.0*0.8mm	GREEN	1	No.	Part Number	Name	Material	Finish	Q'ty	Tengxiang Electronics Co., Ltd. <table><tr><td colspan="4">TITLE: Antenna</td></tr><tr><td colspan="2">PART NO.: AN2400-PCB106WX</td><td colspan="2">CUSTOMER P/N: /</td></tr><tr><td>APP BY</td><td>CHK BY</td><td>RF BY</td><td>DES BY</td></tr><tr><td>YCX</td><td>YCX</td><td>WJ</td><td>DWF</td></tr><tr><td>2023.06.17</td><td>2023.06.17</td><td>2023.06.17</td><td>2023.06.17</td></tr><tr><td colspan="3">UNITS: mm</td><td>Tolerance</td></tr><tr><td colspan="3">SCALE: 1/1</td><td>X.X ±0.5</td></tr><tr><td colspan="3">REVISION: A</td><td>X.XX ±0.2</td></tr><tr><td colspan="3"></td><td>X° ±1</td></tr></table>		TITLE: Antenna				PART NO.: AN2400-PCB106WX		CUSTOMER P/N: /		APP BY	CHK BY	RF BY	DES BY	YCX	YCX	WJ	DWF	2023.06.17	2023.06.17	2023.06.17	2023.06.17	UNITS: mm			Tolerance	SCALE: 1/1			X.X ±0.5	REVISION: A			X.XX ±0.2				X° ±1
3	CR-113-ZP-A	I-PEX	Cu	Au Plated	1																																																														
2	CB-113WS	Coaxial Cable		WHITE	1																																																														
1	Connect_MX3000R-2. 4G-1-V1.0	PCB	47.0*14.0*0.8mm	GREEN	1																																																														
No.	Part Number	Name	Material	Finish	Q'ty																																																														
TITLE: Antenna																																																																			
PART NO.: AN2400-PCB106WX		CUSTOMER P/N: /																																																																	
APP BY	CHK BY	RF BY	DES BY																																																																
YCX	YCX	WJ	DWF																																																																
2023.06.17	2023.06.17	2023.06.17	2023.06.17																																																																
UNITS: mm			Tolerance																																																																
SCALE: 1/1			X.X ±0.5																																																																
REVISION: A			X.XX ±0.2																																																																
			X° ±1																																																																
1	2	3	4	5	6	7	8																																																												



Note:
1.Mark * is important dimension;"Cpk "Identify for process control(CpK≥1.33).
2.Tolerance:Unmarked tolerance refer to the standard tolerance please.
3.Pay attention to the direction of the connector.

3	CR-113-ZP-A	I-PEX	Cu	Au Plated	1
2	CB-113WS	Coaxial Cable		WHITE	1
1	Connect_MX3000R-2. 4G-1-V1.0	PCB	47.0*14.0*0.8mm	GREEN	1
No.	Part Number	Name	Material	Finish	Q'ty

Tengxiang Electronics Co., Ltd.

TITLE: Antenna			
PART NO.: AN2400-PCB106WX		CUSTOMER P/N: /	
APP BY	CHK BY	RF BY	DES BY
YCX	YCX	WJ	DWF
2023.06.17	2023.06.17	2023.06.17	2023.06.17
UNITS: mm			Tolerance
SCALE: 1/1			X.X ±0.5
REVISION: A			X.XX ±0.2
			X° ±1

產品包裝規範

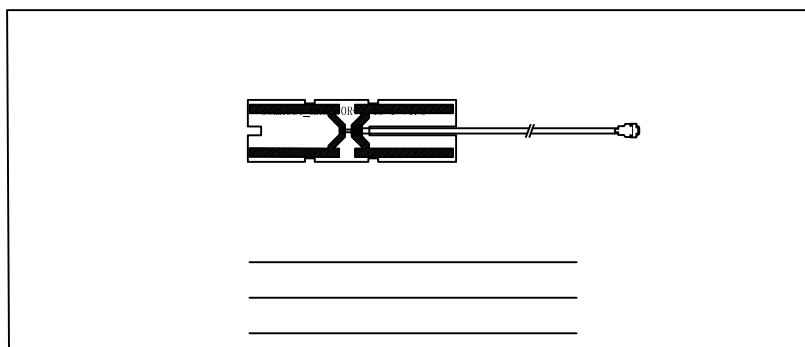
PACKING CRITERION

Date: 2023.06.17

Page: 1 of 1

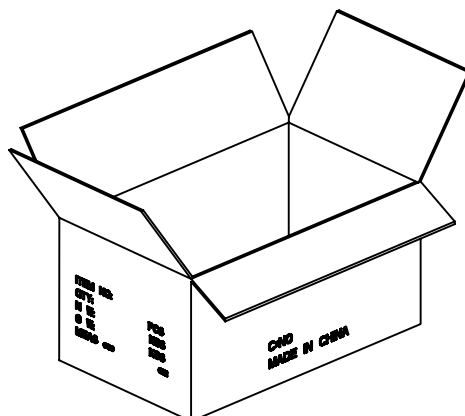
Part Number : AN2400-PCB105WX	Revision : A
Name: Antenna	Customer : ALL

1 . Enter PE bag。



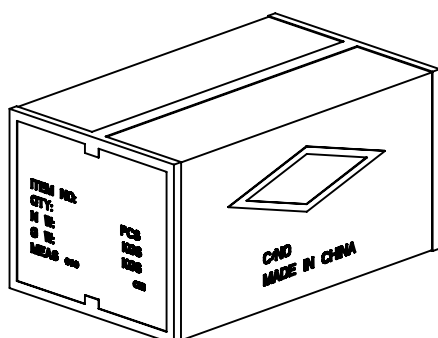
100pcs/ PE bag

2.PACKING 。

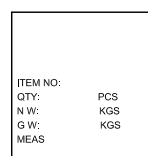


8000pcs/Carton

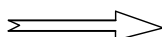
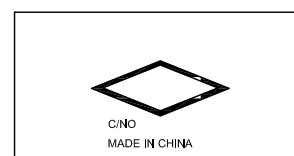
3. SEALING。



SIDE



FRONT



APPROVED BY : YCX

CHECKED BY : HC

DESIGNED BY : DWF



Tengxiang Technology.Inc

东莞市腾祥电子有限公司

Product Number:AN5800-PCB24BX

Product Name: Antenna

Specification For Approval

Date: 2023.6.17

Version: 1.0

客户名称

Customer:

亿联无限

客户料号

Customer P/N:

腾祥料号

T X P/N:

AN5800-PCB24BX

规格描述

Description :

5G PCB 天线 1.13mm 黑色线 L= 90mm+IPEX

Tengxiang Checked By: 腾祥审核		Customer Approved By: 客户审核	
DRAWN 制作	路婷	TESTED BY 检测	
CHECKED BY 审核	胡超	CHECKED BY 审核	
Q.C.DEPT. 品管	梁凤珍	Q.C.DEPT. 品管	
APPROVED BY 核准	韦佳	APPROVEDBY 核准	



NO.53 Shatou ShaChong Road, ChangAn Town, Guangdong province, China

中国广东省东莞市长安镇沙头区沙涌路 53 号

TEL:86-769-81873082 FAX:86-769-82663788

<http://www.tenxiang.cn>



Tengxiang Technology.Inc

东莞市腾祥电子有限公司

Product Number:AN5800-PCB24BX

Product Name: Antenna

Index:

1. Specification (规格)
2. Characteristics and Reliability Test (产品特性和可靠性测试标准)
3. Antenna - S Parameter Test Data (样品测试数据)
4. Antenna - Radiation Pattern Test Data (辐射模式测试数据)
5. Mechanical and Packing Drawing (图纸包装规范)

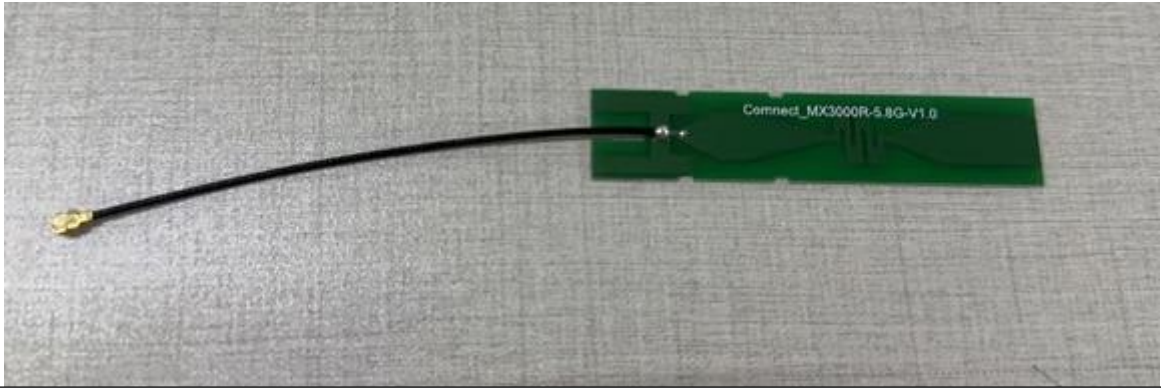
Revision History (变更履历)

Revision	Date	Change Notification	Description
1.0	2023.6.17	初版	

Product Number:AN5800-PCB24BX

Product Name: Antenna

1. Specification

Sample Photo	
	
A. Electrical Characteristics	
Frequency 频率	5150-5850 MHz
S.W.R. 驻波比	≤ 2.0
Antenna Gain 增益	6.47dBi
Polarization 极化方式	Linear
Impedance 阻抗	50 Ohm
B. Material & Mechanical Characteristics	
Cable Type 线材规格	OD1.13mm ,Black
Connector Type 连接器规格	I-PEX
C. Environmental	
Storage Temperature 存储温度	- 40°C ~ +80 °C
Operation Temperature 工作温度	- 40°C ~ +80 °C

Product Number: AN5800-PCB24BX

Product Name: Antenna

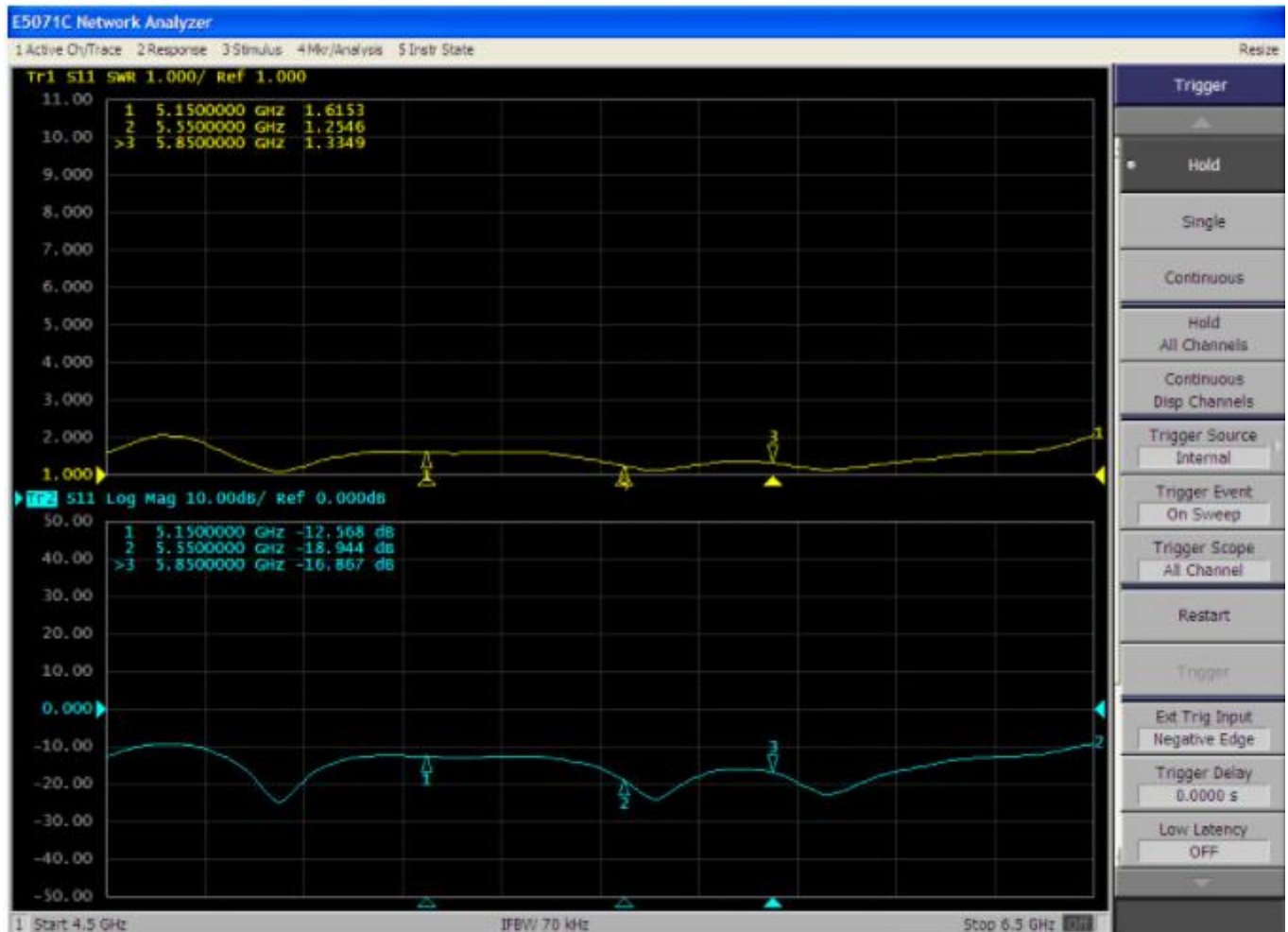
2. Characteristics and Reliability Test

Test Items 测试项目		Test Condition and Procedure 测试方法	Requirements 要求	Result 结果
1	V.S.W.R. 电压驻波比	Set DUT on Network Analyzer; make individual calibration to test 设置网络分析仪参数进行测试	Directive DUT specification 符合待测物规范	PASS
2	Insertion Loss 插入损失	Set DUT on Network Analyzer; make individual calibration to test 设置网络分析仪参数进行测试	Directive DUT specification 符合待测物规范	PASS
3	Antenna Gain 天线增益	Set DUT on Antenna Chamber; make individual calibration to test 设置天线暗室参数进行测试	Directive DUT specification 符合待测物规范	PASS
4	Solderability 可焊性	GB / T2423.28-2005 Temp: $260 \pm 5^{\circ} \text{C}$; Duration: 5 seconds 温度 $260 \pm 5^{\circ} \text{C}$; 持续 5 秒	Tin evenly on full 上锡均匀饱满	PASS
5	Pull Test 拉力	Holding with individual specification; force applied to axis of terminal 单独定义产品端子拉力	1. Directive DUT specification 2. Frequency Tol. $\leq 5\%$ 符合待测物规范; 频率偏移 $\leq 5\%$	PASS
6	Dimension 尺寸	Inspection of dimension, color, material, package, surface process. 检查尺寸, 颜色, 材料, 包装, 表面处理	Directive DUT specification 符合待测物规范	PASS
7	RoHS	With Reference to IEC 62321:2008 with flow chart 参考 IEC 62321 测试流程	Directive RoHS 2015/863/EU 符合 RoHS 2015/863/EU 标准	PASS

Product Number:AN5800-PCB24BX

Product Name: Antenna

3. Antenna - S Parameter Test Data



Product Number:AN5800-PCB24BX

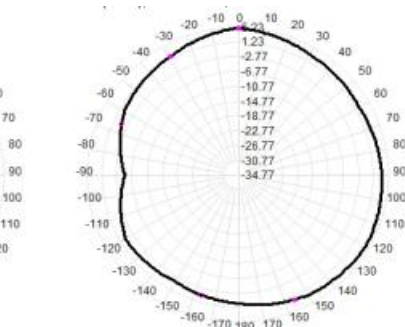
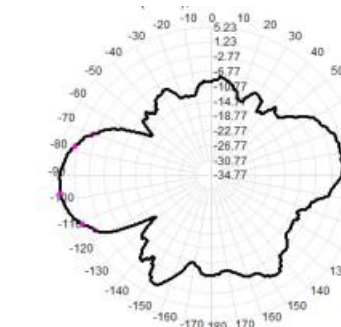
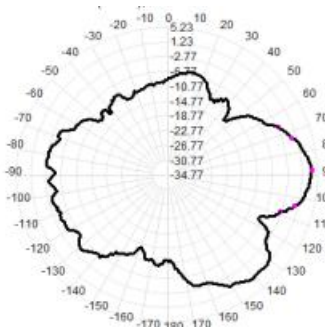
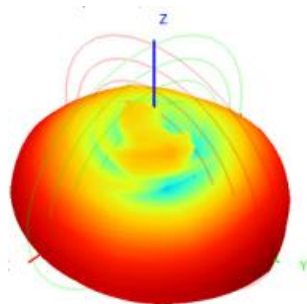
Product Name: Antenna



4. Antenna - Radiation Pattern Test Data

Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Frequency (MHz)	5150.0	5200.0	5250.0	5300.0	5350.0	5400.0	5450.0	5500.0	5550.0	5600.0	5650.0	5700.0	5750.0	5800.0	5850.0
Gain (dBi)	5.23	5.20	5.27	4.19	4.17	4.66	4.98	4.65	5.34	6.04	6.26	5.71	6.15	6.47	6.18
Efficiency (%)	60.92	61.33	61.36	62.98	61.89	66.45	66.52	63.19	61.86	62.46	63.70	63.89	61.67	66.74	61.21

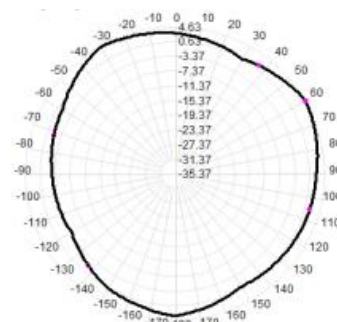
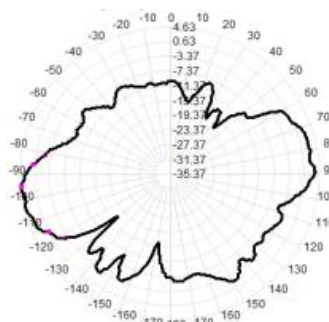
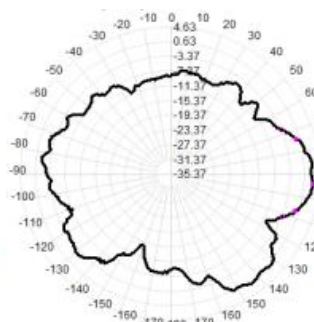
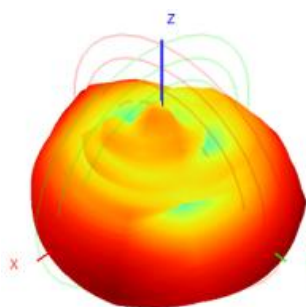
5150MHz



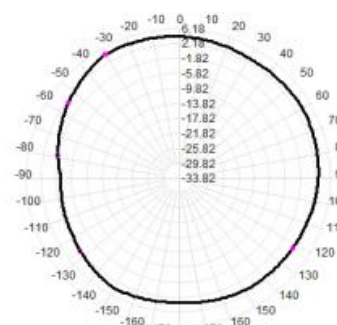
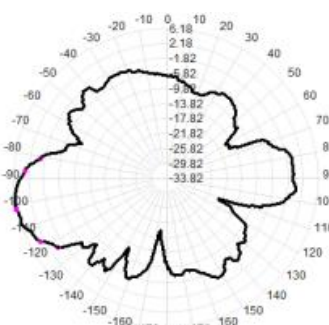
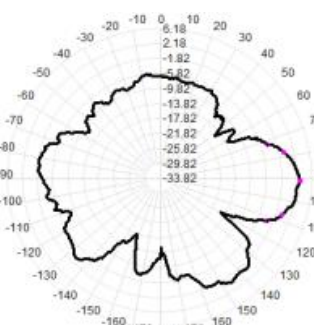
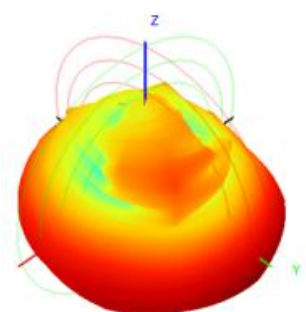
Product Number:AN5800-PCB24BX

Product Name: Antenna

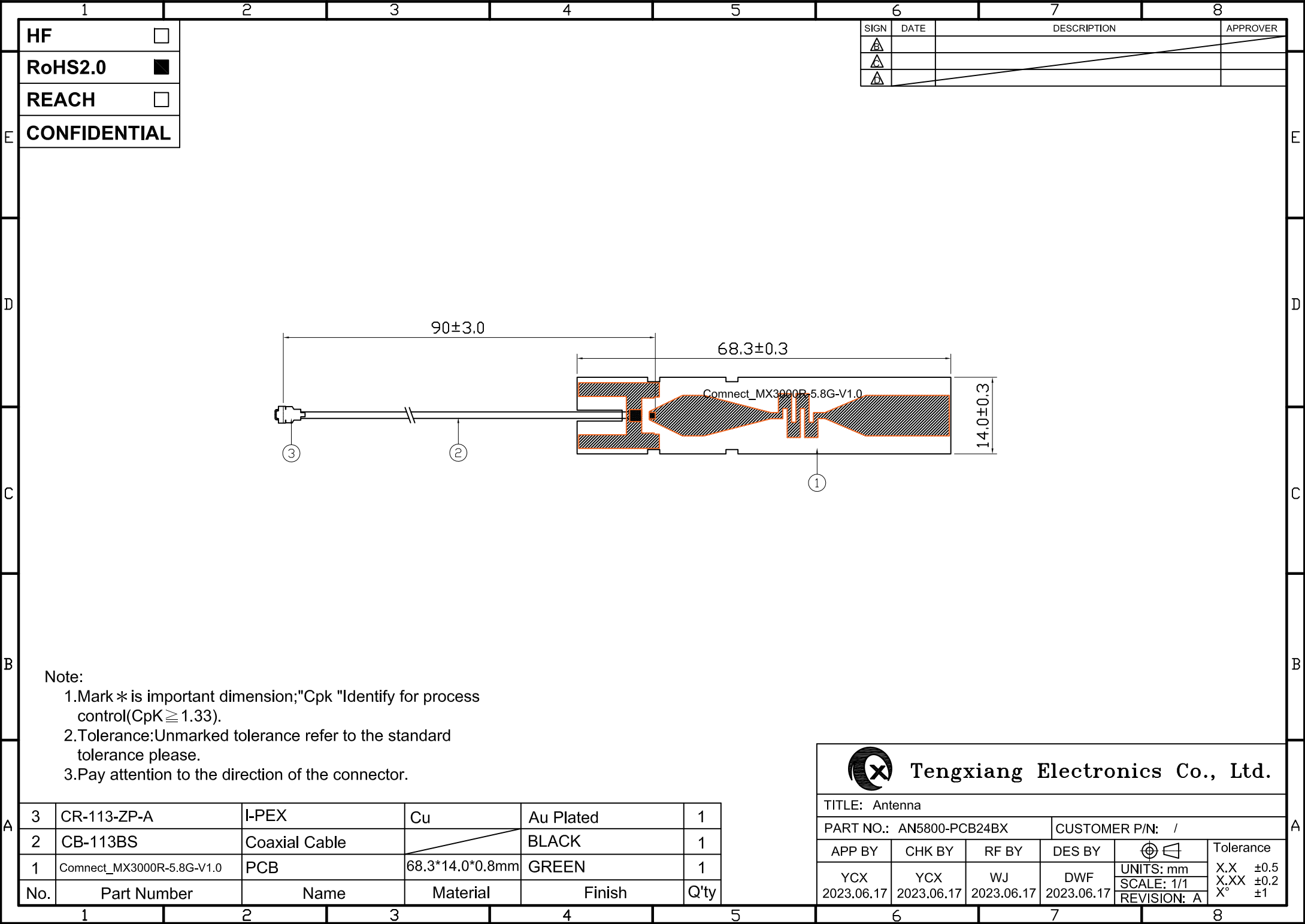
5500MHz



5850MHz



5. Mechanical Drawing See attached files



HF ☐

RoHS2.0 ☒

REACH ☐

CONFIDENTIAL

SIGN	DATE	DESCRIPTION	APPROVER

- Note:
- 1.Mark * is important dimension;"Cpk "Identify for process control($CpK \geq 1.33$).
 - 2.Tolerance:Unmarked tolerance refer to the standard tolerance please.
 - 3.Pay attention to the direction of the connector.

3	CR-113-ZP-A	I-PEX	Cu	Au Plated	1
2	CB-113BS	Coaxial Cable		BLACK	1
1	Connect_MX3000R-5.8G-V1.0	PCB	68.3*14.0*0.8mm	GREEN	1
No.	Part Number	Name	Material	Finish	Q'ty

**Tengxiang Electronics Co., Ltd.**

TITLE: Antenna					
PART NO.: AN5800-PCB24BX				CUSTOMER P/N: /	
APP BY	CHK BY	RF BY	DES BY		Tolerance
YCX	YCX	WJ	DWF		X.X ±0.5
2023.06.17	2023.06.17	2023.06.17	2023.06.17		X.XX ±0.2
					X° ±1

產品包裝規範

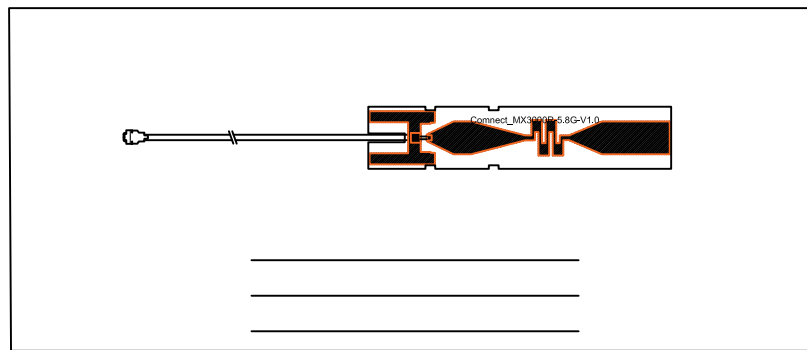
PACKING CRITERION

Date: 2023.06.17

Page: 1 of 1

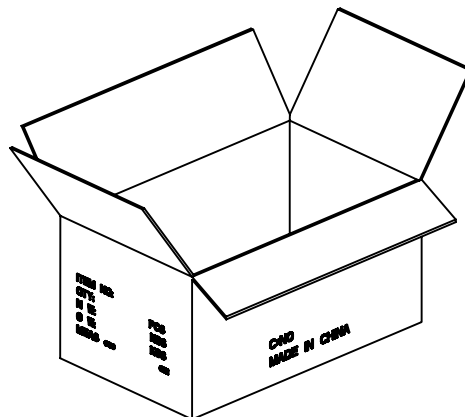
Part Number : AN5800-PCB24BX	Revision : A
Name: Antenna	Customer : ALL

1 . Enter PE bag。



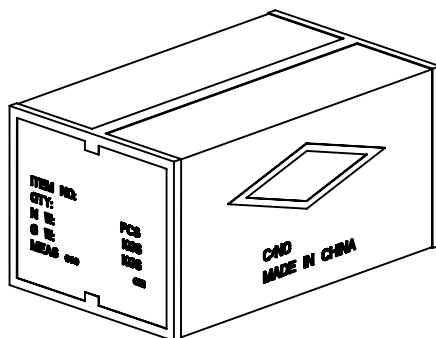
100pcs/ PE bag

2.PACKING 。

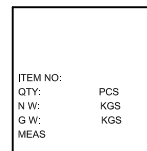


5000pcs/Carton

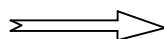
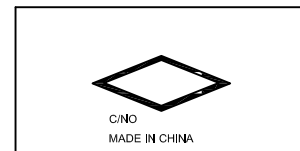
3. SEALING。



SIDE



FRONT



APPROVED BY : YCX

CHECKED BY : HC

DESIGNED BY : DWF