

司南微电子（深圳）有限公司

SINAWELL Electronics(Shenzhen) Co., Ltd.

Customer Name	Shenzhen cannice Technology Co., Ltd
Product Name	A1178-01-L
Customer Item Number	300012000228
Project name	A1178-01-L
Product brand	SN
Product model	SN0994-BT-L

Appendix	<input checked="" type="checkbox"/> cover	<input checked="" type="checkbox"/> buleprint	<input type="checkbox"/> FAI report	<input type="checkbox"/> CPK report告
	<input checked="" type="checkbox"/> Reliability Test Report	<input type="checkbox"/> 3D model	<input checked="" type="checkbox"/> RoHS	<input type="checkbox"/> UN38.3

Supplier	Make	Audit	Approval
Signature	Chen de	Li xiao long	Zhang ping

Customer	Make	Audit	Approval
Signature			

Admit condition	<input type="checkbox"/> admit	<input type="checkbox"/> Denial of recognition
	<input type="checkbox"/> Conditional recognition	Conditions to be satisfied:
	<input type="checkbox"/> Provisional recognition	limit___PCS

Supplier Information:	
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Rev: B

The Main Antenna Sample Confirmation

Customer	Shenzhen CANNICE Technology Co., Ltd.		
Project Name	A1178-01-L	Date	2023-05-11
Project NO.	SN0994	Notes	FPC
Frequency Range	BT		
Designed By	RF Engineer	Structural Engineer	
Checked By	Engineering Manager		
Client' s Approval			

Designer: SINAWELL Electronics(Shenzhen) Co., Ltd.

Add: 712-717, Block A Jinfulai Building,49-1 Dabao Road,Xinan 28th area,Baoan District,Shenzhen,China

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1. Specification description

This specification describes the status of the A1178-01-L internal antenna with a frequency band of 2400MHz-2480MHz.

2. Antenna appearance



3. Electrical performance

3.1. Antenna band

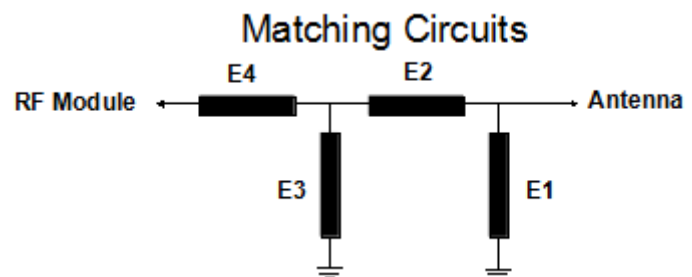
	BT
Transmitting band(MHz)	2400MHz-2500MHz

3.2. Matching Circuit

After the test point is at the antenna connector (RF test port), see the figure below.

1. BT antenna matching.

Element	Value
E1(0402)	2.0PF
E2(0402)	0 Ω
E3(0402)	NC
E4(0402)	0 Ω

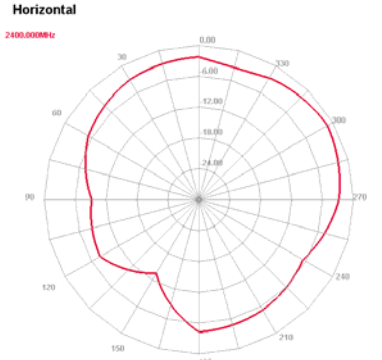
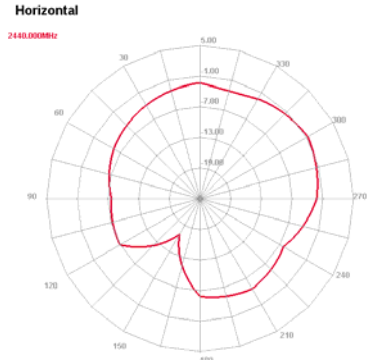
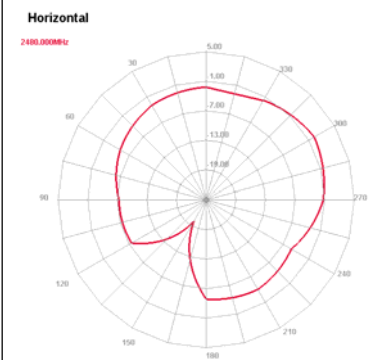


3.3. Return Loss

BT VSWR+ Return

	Resonant Point Range(MHz)	Frequency point(MHz)/Maximum Echo Loss(dB)		
	2400-2500		2400	2500
		VSWR	1.96	1.86
		Return loss	-10.29	-11.53

3.4. Antenna Gain

Channel	0	39	78
Gain	-0.66dBi	-0.78dBi	0.23dBi
Gain diagram			

Passive Test For BT										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dEd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	35.88	-4.45	-0.66	-2.81	16.407	19.476	-0.66	-20	44.32	43.11
2410	37.21	-4.29	-0.37	-2.52	17.248	19.958	-0.37	-18.84	44.58	43.2
2420	38.3	-4.17	-0.23	-2.38	17.807	20.491	-0.23	-18.16	45	43.67
2430	39.93	-3.99	-0.01	-2.16	18.64	21.287	-0.01	-17.66	45.37	43.7
2440	33.13	-4.8	-0.78	-2.93	15.465	17.662	-0.78	-18.03	45.04	44.09
2450	37.15	-4.3	-0.25	-2.4	17.351	19.796	-0.25	-17.25	45.27	43.89
2460	42.27	-3.74	0.38	-1.77	19.97	22.302	0.38	-15.47	45.34	44.06
2470	38.87	-4.1	0.14	-2.01	18.812	20.056	0.14	-15.34	45.59	43.98
2480	46.71	-3.31	0.23	-1.92	21.641	25.065	0.23	-13.58	46.89	46.63
2490	46.36	-3.34	0.25	-1.9	21.335	25.028	0.25	-15.4	46.5	45.97
2500	39.46	-4.04	-0.55	-2.7	18.466	20.995	-0.55	-16.8	46.71	45.97

4. Appearance structure

4.1. Antenna Material

5. Notes

(Electrical Performance Test Report)

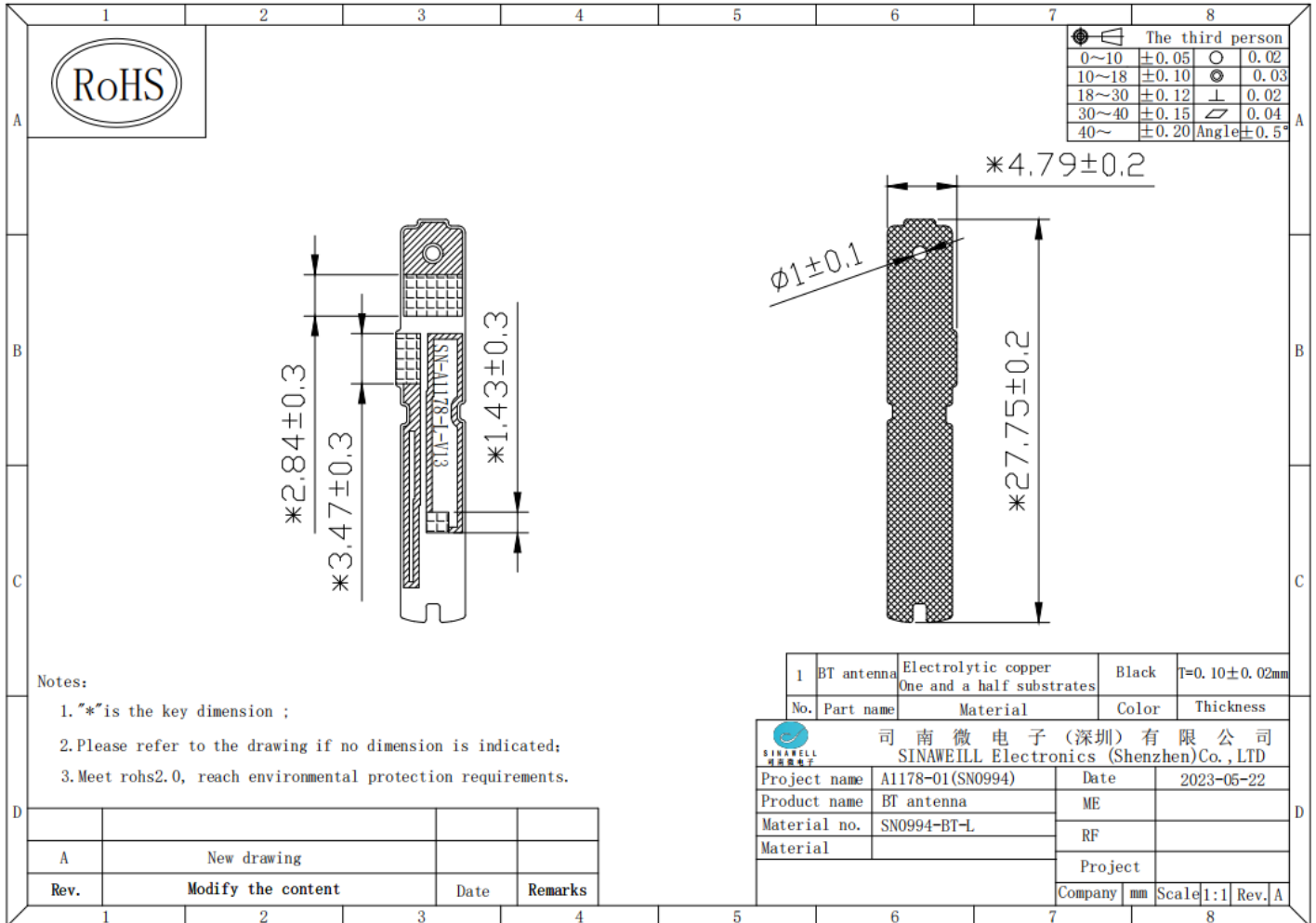
In the electrical performance test report, the 3D darkroom data for manufacturers are provided.

The following table format

Appendix 1: (Mechanical drawing)

Appendix II (Performance report)

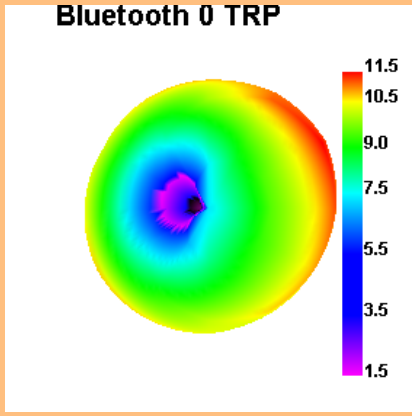
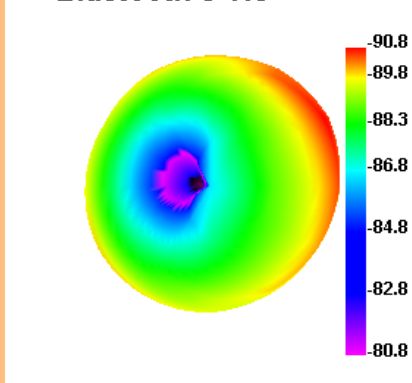
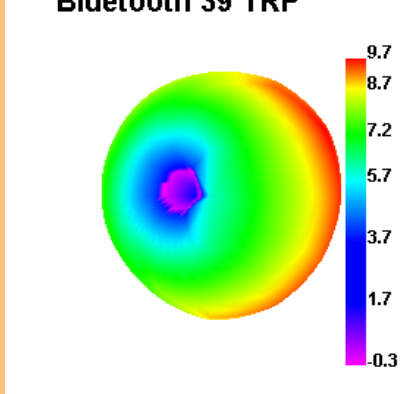
FPC Mechanical drawing(Annex I)

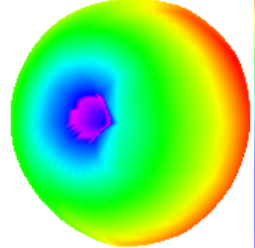
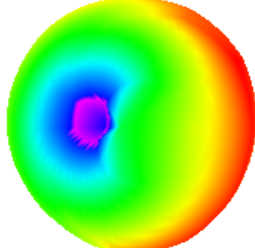
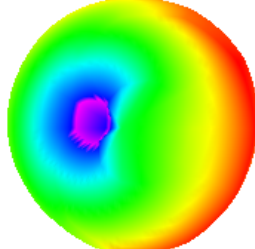


Focus on size

NO	Size(mm)	Tolerance(mm)	Notes
1	27.75	± 0.2	
2	4.79	± 0.2	
3	2.84	± 0.3	
4	3.47	± 0.3	
5	1.43	± 0.3	
6			

3DTest Report (Annex II)

BT	Channel	3DCoupling Test	Field strength map
TRP	0	9.48	<p>Bluetooth 0 TRP</p> 
TIS	0	-88.79	<p>Bluetooth 0 TIS</p> 
TRP	39	8.62	<p>Bluetooth 39 TRP</p> 

TIS	39	-87.77	<p>Bluetooth 39 TIS</p>  <p>A circular radiation pattern plot for Bluetooth 39 TIS. The plot shows a central purple region (lowest power) surrounded by concentric rings of blue, green, yellow, and red (highest power). A color scale on the right ranges from -77.9 (purple) to -87.9 (red).</p>
TRP	78	8.02	<p>Bluetooth 78 TRP</p>  <p>A circular radiation pattern plot for Bluetooth 78 TRP. The plot shows a central purple region (lowest power) surrounded by concentric rings of blue, green, yellow, and red (highest power). A color scale on the right ranges from 0.5 (purple) to 10.5 (red).</p>
TIS	78	-86.47	<p>Bluetooth 78 TIS</p>  <p>A circular radiation pattern plot for Bluetooth 78 TIS. The plot shows a central purple region (lowest power) surrounded by concentric rings of blue, green, yellow, and red (highest power). A color scale on the right ranges from -78.7 (purple) to -88.7 (red).</p>


Size Report

	Customer	cannice	Project Name	A1178-01-L		Measurement Date	2023-05-11	
	Supplier	sinawell	Measurement Tool	Quadratic		Unit	mm	
NO	dimension	Toleranca	Measure 1	Measure 2	Measure 3	Measure 4	Measure 5	determine
1	27.75	±0.2	27.79	27.81	27.80	27.80	27.78	OK
2	4.79	±0.2	4.77	4.79	4.78	4.77	4.80	OK
3	2.84	±0.3	2.89	2.87	2.86	2.86	2.87	OK
4	3.47	±0.3	3.51	3.53	3.56	3.54	3.55	OK
5	1.43	±0.3	1.47	1.45	1.43	1.47	1.45	OK
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DRAWN BY: shimeng yang

APPROVED BY: De Chen

Salt fog Report

Customer Name	CANNICE	Corax	A1178-01-L	Tester	shimeng yang
Test Quantity	5PCS	Test Item	Salt fog	Test Date	2023-05-11
Test conditions	1.Temperature: 35°C				
	2.Humidity: 98%, PH: 6.5-7.2				
	3.Temperature in the box: 37°C				
	4.Test duration: 24hours				
	5.Drug concentration: 5%NaCl				
Testing procedure	1.Put the product in the salt mist box.				
	2.Place the product at the right angle.				
	3.set the relevant parameters and start the spray.				
	4.Complete the removal of the experimental product. Before inspection, wash the product with clean water and place it at room temperature for two hours.				
TEST	Projects	Before testing	After testing	test result	remarks
	Coating	/	/	/	
	Conductivity	Well	Well	qualified	
	Resistance	Well	Well	qualified	
	Cohesion	Well	Well	qualified	

DRAWN BY: shimeng yang

APPROVED BY: De Chen

Explanation of FPC Preservation Period

I .Preservation conditions: temperature 21 +4; humidity 60% H +10%.

II . Exit Guarantee

1.Appearance Guarantee: No oxidation occurs during 12 months of storage in original packaging.

2.Functional Assurance

A:One year to ensure good welding continuity.

B:Ensure good conductivity within two years.

III、 Points for Attention in FPC Welding

1. FC itself has hygroscopicity. It is suggested to preheat the three-layer plate (including) for 30 minutes before use, and bake it for 120 minutes at 100 in order to avoid bursting due to hygroscopicity and rapid oxidation during operation.

2. HOT BAR jobs

A: FPC is used for cooked pressing. CVI should be crossed over glass to avoid suspension, resulting in fracture of copper during bending.

B: FPC avoids the use of dead angle and is liable to cause fracture.

3: SMT operation: The plating part should be shielded to prevent atomization in flow welding.

4: Hand welding operation: the working temperature of soldering iron should not exceed 290 C, and the time of soldering iron staying on the plate surface should not exceed 10 seconds.



覆铜板检验报告
PICCL Quality Test Report

日期 (DATE) : 2022-09-25

品名 (Product Name)	SHISE252018FY1
PI 厚度 (PI film Thickness) μm	25
接著剂厚 (Adhesive Thickness) μm	20
铜箔厚度 (Copper Foil Thickness) μm	18
幅宽 (Width) mm	250
生产日期 (P/Date)	2022-09-24
保质期 (Shelf life)	2022-09-24-2023-09-23

工厂地址: 江苏省太仓市太平北路 168 号
TEL: 0512-53378333 FAX: 0512-53378355
Factory Address: No. 168 Taping North Road,
Tai-Cang City, JiangSu Province, China

测试项目 (Item)	品质标准 (Spec)	测试结果 (Result)			测试方法 (Test Method)
		生产批号 (LOT NO.)			
		22924A**	***		
厚度 Thickness (μm)	$\pm 10\%$	58	***		SERENGETI SPEC
剥离强度 Peel Strength (kgf/cm)	A 面	≥ 0.7	1.22	***	IPC-TM-650 2.4.9
	B 面				
尺寸安定性 Dimensional Stability (%)	MD	$\leq \pm 0.2\%$	-0.0851	Nothing	IPC-TM-650 2.2.4
	TD		0.0873	Follows	
焊锡耐热性 Solder Resistance	300°C*10SEC 无分层起泡	PASS	***		IPC-TM-650 2.4.13
外观 Appearance	无凸点、撞痕、裁切不良、皱痕等等	OK	***		SERENGETI SPEC

- 注: 1. 保存条件: 常温常湿保存一年 (Deadline of reserve is 1 year in normal condition).
2. 以上测试项目仅供参考 (Above test for reference only).

苏州蔡伦格蒂电子材料有限公司

审核: 周光 经办: f



Quality Assurance Certificate

Customer Name: Shenzhen Kenaixin Technology Co., Ltd

Our commitment A1178-01 product, Has been produced and inspected according to your company's technical quality indicators or supply quality agreement, All indicators are qualified, Factory approval.

Product raw material list

Category	Name of material	Material specifications	Suppliers
FPC	Substrate	Half-and-half adhesive substrate	Cai Rengedi
	Back Glue	3M 9471 LE	3M
	Positive ink	Black oil (PSM-800)	U-LI
	Character ink	White characters (KTM-150F)	Glory
	Gold plated	1 U	Get Rich