

Antenna sample acknowledgement

The Main Antenna Sample Confirmation

Customer	Dongguan Yinqu Technology Co., LTD			
Project Name	B204-L		日期	2024-12-16
			Date	
Project NO.	SN1043	备注	FPCAntenna + touch	
		Notes		
Frequency Range	BT			
Designed By	RF Engineer		Structural Engineer	
Checked By	Engineering Manager			
Client' s Approval				

SINAWELL Electronics(Shenzhen) Co., Ltd.

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

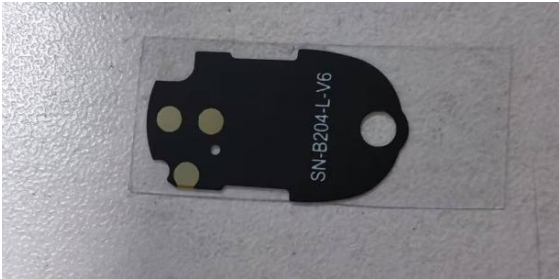
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1. Specification Summary

This specification describes the condition of the B204-L FPC antenna + touch, whose frequency band is BT.

2. Antenna appearance



3. Electrical performance

3.1. Antenna frequency band

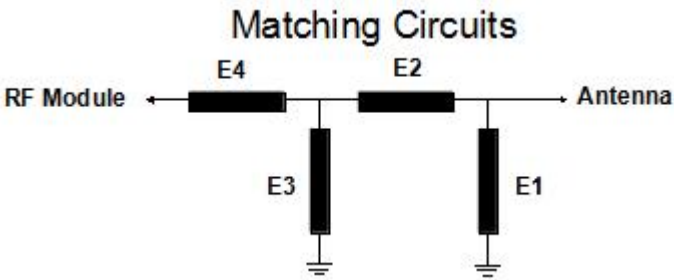
Transmit frequency band (MHz)	BT
	2400MHz-2500MHz

3.2. Matching circuit

The test point is behind the antenna connector (RF test port), as shown below

1. BT Antenna matching

Element	Value
E1(0402)	2.4PF
E2(0402)	0 欧姆
E3(0402)	NC
E4(0402)	NC



3.3. Loss of return

BT VSWR+ Return

Range of resonance points(MHz)		Frequency (MHz)/ maximum return loss (dB)		
	2400-2500		2400	2500
		VSWR	1.94	1.95
		Return loss	-9.78	-9.77

3.4. Gain of antenna



L			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	17.26	-7.63	-3.83
2410	18.77	-7.26	-3.29
2420	19.11	-7.19	-3.08
2430	20.08	-6.97	-2.64
2440	19.51	-7.1	-2.54
2450	18	-7.45	-2.77
2460	17.74	-7.51	-2.72
2470	17.59	-7.55	-2.77
2480	17.31	-7.62	-3.02
2490	16.03	-7.95	-3.5
2500	14.61	-8.35	-3.94

4. Exterior structure

4.1. Antenna material FPC

5. Remarks

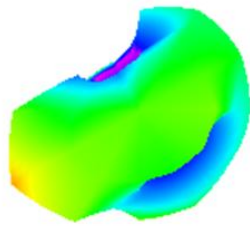
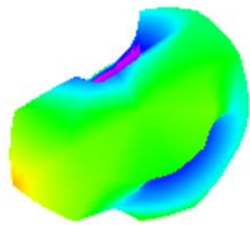
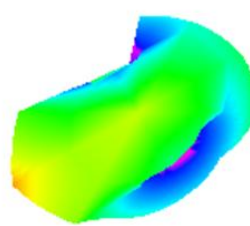
(Electrical Performance Test Report)

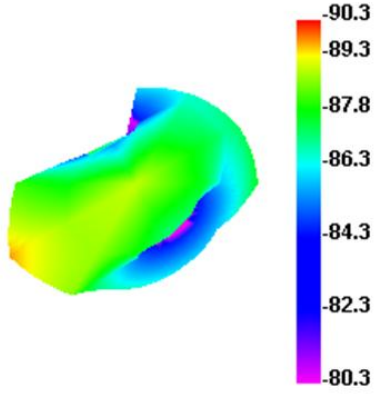
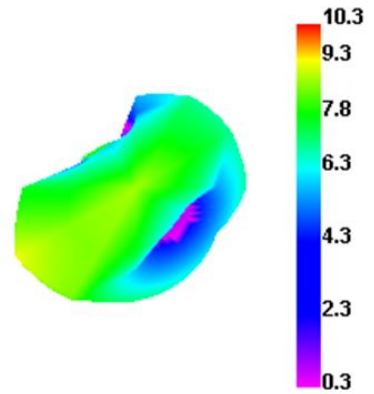
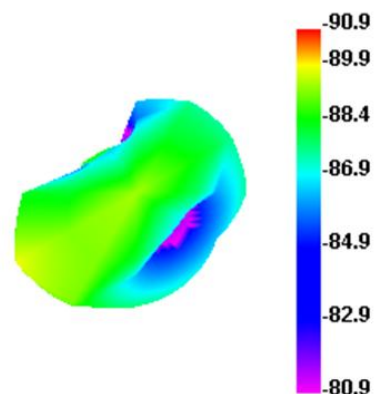
In the electrical performance test report,
the 3D anechoic chamber data provided by
the manufacturer is in the following table
format

Appendix I: Structural drawings

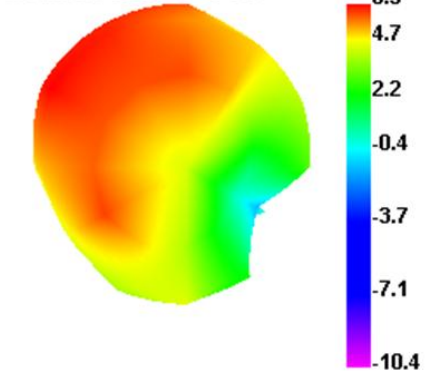
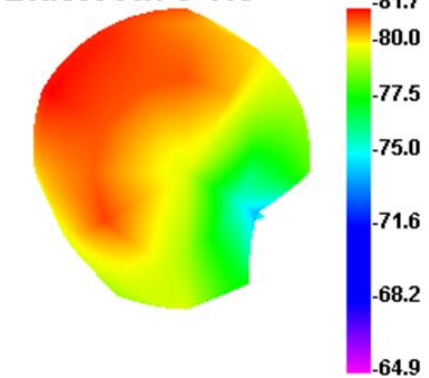
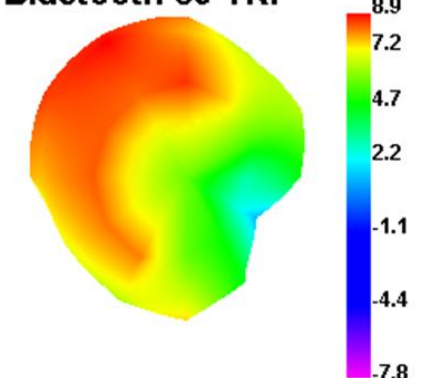
Appendix II (Electrical Performance Test Report)

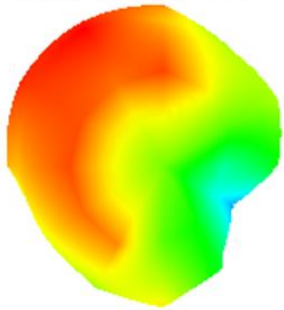
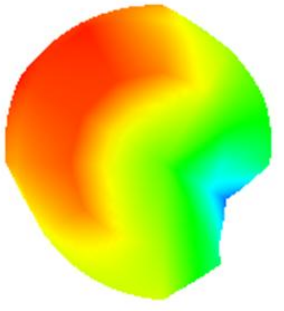
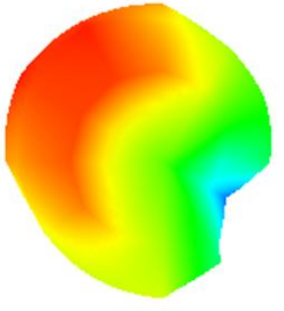
3D Test Report (FS)

BT	Channel	3D 耦合测试	Field strength map
TRP	0	3.37	Bluetooth 0 TRP  6.5 5.5 4.0 2.5 0.5 -1.5 -3.5
TIS	0	-84	Bluetooth 0 TIS  -88.2 -87.2 -85.7 -84.2 -82.2 -80.2 -78.2
TRP	39	5.24	Bluetooth 39 TRP  9.6 8.6 7.1 5.6 3.6 1.6 -0.4

TIS	39	-86.97	Bluetooth 39 TIS 
TRP	78	5.78	Bluetooth 78 TRP 
TIS	78	-87.39	Bluetooth 78 TIS 

3D Test Report (BH)

BT	Channel	3D 耦合测试	Field strength map
TRP	0	3.57	Bluetooth 0 TRP 
TIS	0	-84.97	Bluetooth 0 TIS 
TRP	39	5.46	Bluetooth 39 TRP 

TIS	39	-86.34	Bluetooth 39 TIS  -87.1 -85.4 -82.9 -80.4 -77.0 -73.7 -70.3
TRP	78	6.6	Bluetooth 78 TRP  9.6 8.0 5.6 3.1 -0.1 -3.4 -6.6
TIS	78	-86.57	Bluetooth 78 TIS  -89.3 -87.7 -85.2 -82.8 -79.5 -76.3 -73.0

The measure is reported

	客户	音趣	项目名称	B204-L		测量日期	2024-12-16	
	供应商	司南微	测量工具	二次元		测量单位	mm	
NO	尺寸	公差	实测 1	实测 2	实测 3	实测 4	实测 5	判定
1	尺寸	公差	实测 1	实测 2	实测 3	实测 4	实测 5	判定
2	11.75	±0.20	11.82	11.80	11.84	11.81	11.81	OK
3	20.25	±0.20	20.18	20.20	20.21	20.18	20.22	OK
4	2	±0.30	2.21	2.16	2.09	2.12	2.14	OK
5	2	±0.30	2.18	2.03	2.20	2.14	2.10	OK
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制表：杨世梅

审核：陈德

Salt spray report

客户名称	音趣	项目名称	B204-L	测试员	杨世梅
测试数量	5PCS	测试项目	盐雾	测试日期	2024-12-16
测试条件	1.温度：35℃				
	2.湿度：98%，PH 值：6.5-7.2				
	3.箱内温度：37℃				
	4.试验持续时间：48 小时				
	5.药水浓度：5%NaCl				
测试步骤	1.将产品放入盐雾机箱内				
	2.将产品依照正确的角度放置好				
	3.设置好相关参数，开始喷雾				
	4.完成实验产品取出，在检验之前，将产品用清水冲洗后常温下放置两个小时				
测试	项目	测试前	测试后	测试结果	备注
	镀层	良好	良好	合格	
	导电性	良好	良好	合格	
	电阻	良好	良好	合格	
	结合力	良好	良好	合格	

制表：杨世梅

审核：陈德

FPC Shelf life Description

一、Storage conditions: temperature $21^{\circ}\text{C} \pm 4^{\circ}\text{C}$: humidity $60\% \text{H} \pm 10\%$

二、Factory warranty

1.Appearance guarantee: no oxidation for 12 months under the original packing condition

2.Functional guarantee

A:One year to ensure good welding continuity.

B:Ensure good conduction within two years.

三、FPC welding precautions

1.FPC itself has moisture absorption, it is recommended to preheat at 100°C and bake for 30 minutes before use, and for more than three layers of plate, it is necessary to preheat at 100°C and bake for 120

Minutes, in order to avoid the operation due to moisture absorption, rapid oxidation and burst board

2.HOT BAR job

A: FPC is used for ripe pressure, CVI should be across the glass to avoid suspension, resulting in copper bending fracture

B: FPC avoids the use of folded dead Angle, easy to cause fracture.

3: SMT operation: Cover the tin part to prevent atomization during flow welding.

4: Hand welding operation: the operating temperature of the soldering iron should not exceed 350°C , and the time of the soldering iron staying on the plate should not exceed 3 seconds.

Antenna sample acknowledgement

The Main Antenna Sample Confirmation

Customer	Dongguan Yinqu Technology Co., LTD		
Project Name	B204-R	日期	2024-12-16
		Date	
Project NO.	SN1204	备注	FPCAntenna + touch
		Notes	
Frequency Range	BT		
Designed By	RF Engineer	Structural Engineer	
Checked By	Engineering Manager		
Client' s Approval			

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. Overview of Specifications

This specification describes the condition of the B204-R built-in antenna + touch, whose frequency band is BT.

2. Antenna appearance



3. Electrical performance

3.1. Antenna frequency band

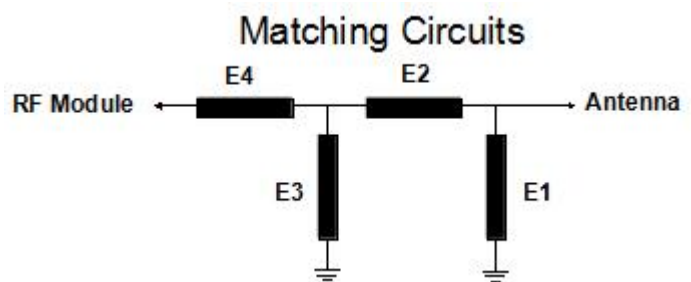
Transmit frequency band (MHz)	BT
	2400MHz-2500MHz

3.2. Matching circuit

The test point is behind the antenna connector (RF test port), as shown below

1. BT Antenna matching

Element	Value
E1(0402)	2.4PF
E2(0402)	0 欧姆
E3(0402)	NC
E4(0402)	NC

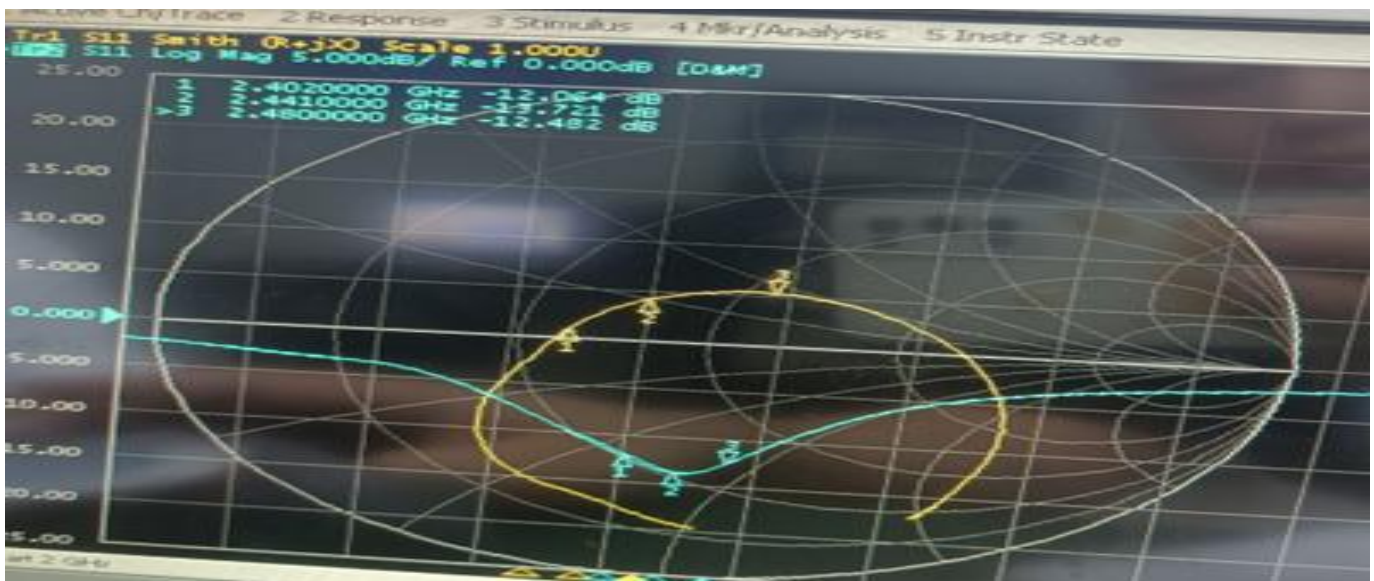


3.3. Loss of return

BT VSWR+ Return

Range of resonance points(MHz)	Frequency (MHz)/ maximum return loss (dB)			
	2400-2500		2400	2500
		VSWR	2.34	1.65
		Return loss	-12.06	-12.48

3.4. Gain of antenna



R			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	20.28	-6.93	-3.66
2410	20.8	-6.82	-3.61
2420	21.05	-6.77	-3.7
2430	21.64	-6.65	-3.81
2440	20.31	-6.92	-4.04
2450	17.63	-7.54	-4.73
2460	16.79	-7.75	-5.06
2470	15.99	-7.96	-5.1
2480	15.41	-8.12	-4.89
2490	14.38	-8.42	-4.94
2500	12.74	-8.95	-5.6

4. Exterior structure

4.1. Antenna material

FPC

5. Remarks

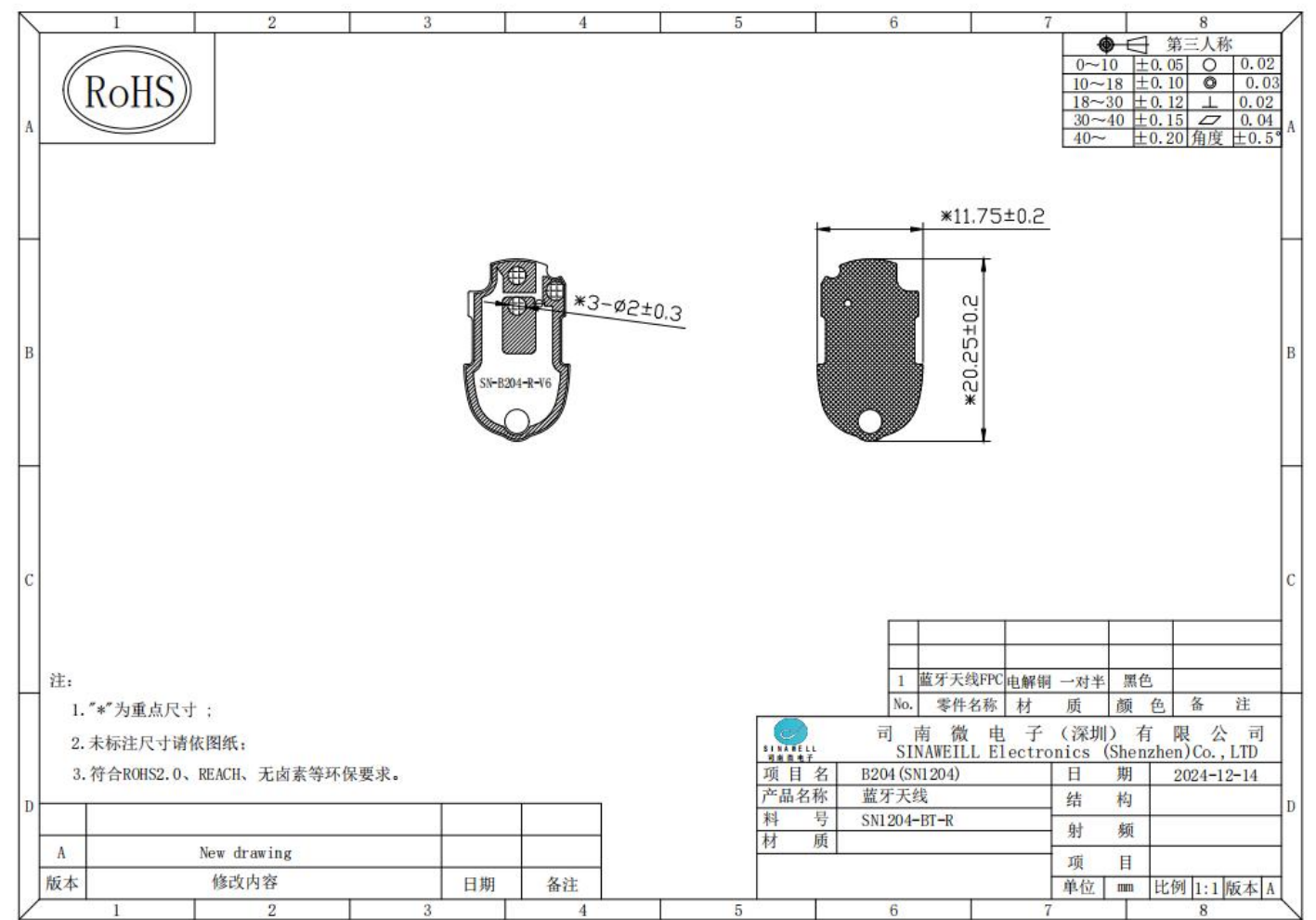
(Electrical Performance Test Report)

In the electrical performance test report,
the 3D anechoic chamber data provided by
the manufacturer is in the following table
format

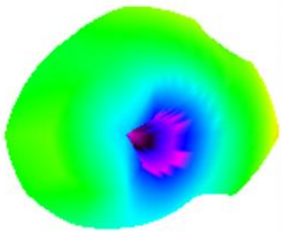
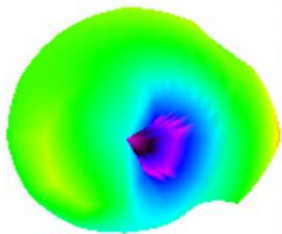
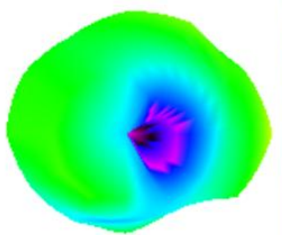
Appendix I: Structural drawings

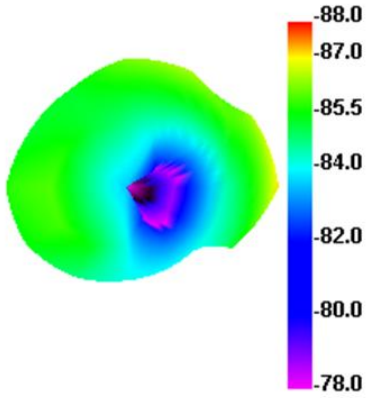
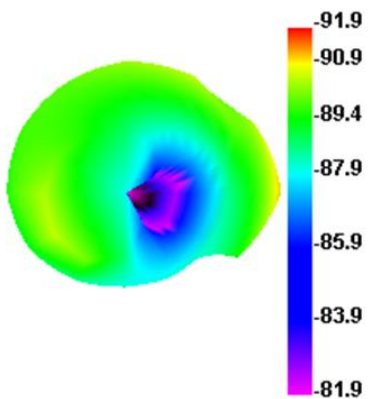
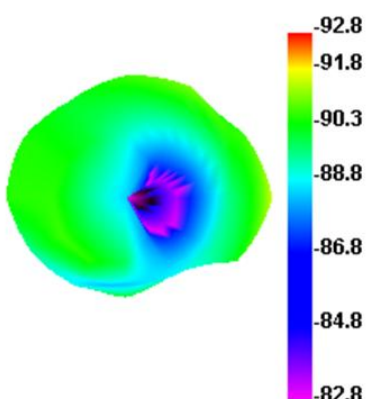
Appendix II (Electrical Performance Test Report)

LDS 结构图纸

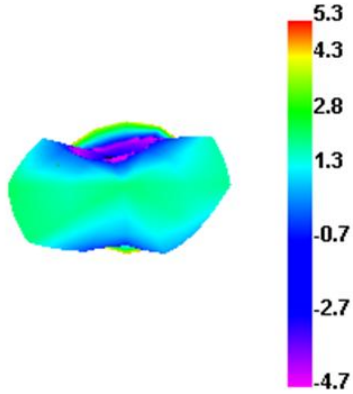
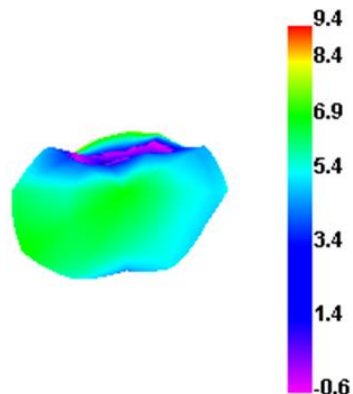
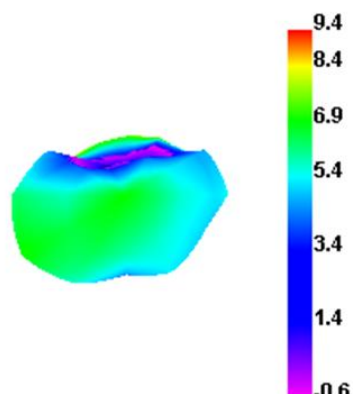


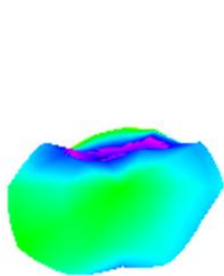
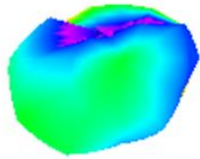
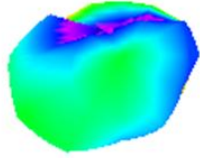
3D Test Report (FS)

BT	Channel	3D 耦合测试	Field strength map
TRP	0	5.35	Bluetooth 0 TRP  11.0 10.0 8.5 7.0 5.0 3.0 1.0
TIS	0	-84.29	Bluetooth 39 TRP  11.8 10.8 9.3 7.8 5.8 3.8 1.8
TRP	39	6.25	Bluetooth 78 TRP  10.8 9.8 8.3 6.8 4.8 2.8 0.8

TIS	39	-86.32	Bluetooth 0 TIS 
TRP	78	6.02	Bluetooth 39 TIS 
TIS	78	-87.08	Bluetooth 78 TIS 

3D Test Report (BH)

BT	Channel	3D 耦合测试	Field strength map
TRP	0	4.35	Bluetooth 0 TRP 
TIS	0	-82.17	Bluetooth 39 TRP 
TRP	39	5.04	Bluetooth 39 TRP 

TIS	39	-85.44	Bluetooth 39 TIS  -89.2 -88.2 -86.7 -85.2 -83.2 -81.2 -79.2
TRP	78	5.93	Bluetooth 78 TRP  10.1 9.1 7.6 6.1 4.1 2.1 0.1
TIS	78	-85.75	Bluetooth 78 TIS  -90.7 -89.7 -88.2 -86.7 -84.7 -82.7 -80.7

尺寸报告

	客户	音趣	项目名称	B204-R		测量日期	2024-12-16	
	供应商	司南微	测量工具	二次元		测量单位	mm	
NO	尺寸	公差	实测 1	实测 2	实测 3	实测 4	实测 5	判定
1	11.75	±0.20	11.80	11.83	11.84	11.80	11.82	OK
2	20.25	±0.20	20.15	20.17	20.20	20.16	20.21	OK
3	2	±0.30	2.23	2.12	2.23	2.16	2.18	OK
4	2	±0.30	2.22	2.12	2.21	2.13	2.15	OK
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制表：杨世梅

审核：陈德

盐 雾 报 告

客户名称	音趣	项目名称	B114-R	测试员	杨世梅
测试数量	5PCS	测试项目	盐雾	测试日期	2024-12-16
测试条件	1.温度：35℃				
	2.湿度：98%，PH 值：6.5-7.2				
	3.箱内温度：37℃				
	4.试验持续时间：48 小时				
	5.药水浓度：5%NaCl				
测试步骤	1.将产品放入盐雾机箱内				
	2.将产品依照正确的角度放置好				
	3.设置好相关参数，开始喷雾				
	4.完成实验产品取出，在检验之前，将产品用清水冲洗后常温下放置两个小时				
测试	项目	测试前	测试后	测试结果	备注
	镀层	良好	良好	合格	
	导电性	良好	良好	合格	
	电阻	良好	良好	合格	
	结合力	良好	良好	合格	

制表：杨世梅

审核：陈德

FPC Shelf life Description

一、Storage conditions: temperature $21^{\circ}\text{C} \pm 4^{\circ}\text{C}$: humidity $60\% \text{H} \pm 10\%$

二、Factory warranty

1.Appearance guarantee: no oxidation for 12 months under the original packing condition

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A:One year to ensure good welding continuity.

B:Ensure good conduction within two years.

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1.FPC itself has moisture absorption, it is recommended to preheat at 100°C and bake for 30 minutes before use, and for more than three layers of plate, it is necessary to preheat at 100°C and bake for 120

Minutes, in order to avoid the operation due to moisture absorption, rapid oxidation and burst board

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B: FPC avoids the use of folded dead Angle, easy to cause fracture.

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