

# FPC 天线样品承认书

## The Main FPC Touch & Antenna Sample Confirmation

|                            |                     |       |                     |           |
|----------------------------|---------------------|-------|---------------------|-----------|
| 客户名称<br>Customer           | 深圳市科奈信科技有限公司        |       |                     |           |
| 项目名称<br>Project Name       | A1531-R             |       | 日期                  | 2025-5-09 |
|                            |                     |       | Date                |           |
| 物料编号<br>Project NO.        | SN1387              | 备注    | FPC Antenna         |           |
|                            |                     | Notes |                     |           |
| 客户料号                       |                     |       |                     |           |
| 频段<br>Frequency Range      | BT                  |       |                     |           |
| 设计<br>Designed By          | RF Engineer         |       | Structural Engineer |           |
|                            |                     |       |                     |           |
| 审核<br>Checked By           | Engineering Manager |       |                     |           |
|                            |                     |       |                     |           |
| 客户确认<br>Client' s Approval |                     |       |                     |           |

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1. 规格书概述
- 该规格书描述 A1531-R 内置式 FPC 天线的状况，其频段为 BT。
2. FPC 天线外观



3. 电性能

3.1. 天线频段

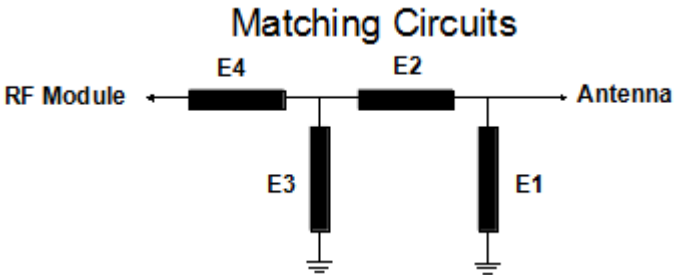
|           |                 |
|-----------|-----------------|
|           | BT              |
| 发射频段(MHz) | 2400MHz-2500MHz |

3.2. 匹配电路

测试点在天线连接器(射频测试口)后，见下图

1. BT 天线匹配。

| Element | Value |
|---------|-------|
| E1      | NC    |
| E2      | 0 欧姆  |
| E3      | NC    |
| E4      | 0 欧姆  |

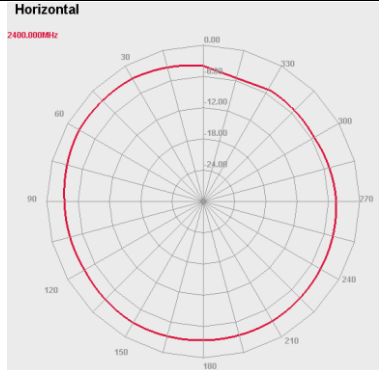
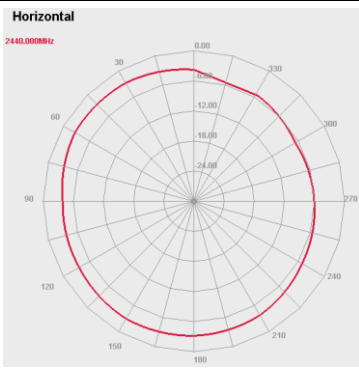
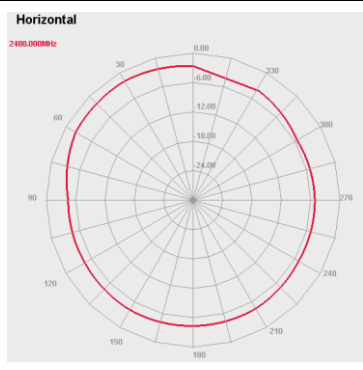


3.3. 回波损耗

BT VSWR+ Return

|  | 谐振点范围(MHz) | 频点(MHz)/最大回波损耗(dB) |         |        |
|--|------------|--------------------|---------|--------|
|  | 2400-2500  |                    | 2400    | 2500   |
|  |            | VSWR               | 1.76    | 1.93   |
|  |            | Return loss        | -11.202 | -9.968 |

3.4. 天线增益

| Channel      | 0                                                                                  | 39                                                                                  | 78                                                                                   |
|--------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Gain         | -2.4dBi                                                                            | -2.94dBi                                                                            | -3.01dBi                                                                             |
| Gain diagram |  |  |  |

| Passive Test For |          |           |            |            |         |         |          |          |                   |                 |
|------------------|----------|-----------|------------|------------|---------|---------|----------|----------|-------------------|-----------------|
| Freq (MHz)       | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | UHS (%) | DHS (%) | Max (dB) | Min (dB) | Directivity (dBi) | Beamwidth (3dB) |
| 2400             | 31.3     | -5.04     | -2.4       | -4.68      | 15.467  | 15.835  | -2.53    | -16.07   | 5.04              | 120             |
| 2410             | 31.07    | -5.08     | -2.53      | -4.78      | 15.095  | 15.976  | -2.63    | -16.43   | 5.08              | 60              |
| 2420             | 32.54    | -4.88     | -2.37      | -4.36      | 15.512  | 17.029  | -2.21    | -16.48   | 4.88              | 120             |
| 2430             | 31.42    | -5.03     | -2.42      | -4.38      | 14.769  | 16.651  | -2.23    | -16.59   | 5.03              | 60              |
| 2440             | 30.62    | -5.14     | -2.75      | -4.59      | 14.404  | 16.211  | -2.44    | -16.81   | 5.14              | 120             |
| 2450             | 29.69    | -5.27     | -2.94      | -4.75      | 13.975  | 15.714  | -2.6     | -16.55   | 5.27              | 120             |
| 2460             | 29.8     | -5.26     | -2.9       | -4.55      | 13.993  | 15.802  | -2.4     | -15.22   | 5.26              | 120             |
| 2470             | 27.04    | -5.68     | -3.03      | -4.76      | 12.475  | 14.563  | -2.61    | -14.58   | 5.68              | 120             |
| 2480             | 28.01    | -5.53     | -3.01      | -4.12      | 12.664  | 15.35   | -1.97    | -14.35   | 5.53              | 90              |
| 2490             | 22.8     | -6.42     | -3.35      | -4.48      | 10.035  | 12.766  | -2.33    | -15.17   | 6.42              | 30              |
| 2500             | 21.53    | -6.67     | -3.42      | -4.53      | 9.013   | 12.512  | -2.38    | -15.05   | 6.67              | 30              |

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#### 4. 外观结构

##### 4.1. FPC 天线材质 FPC

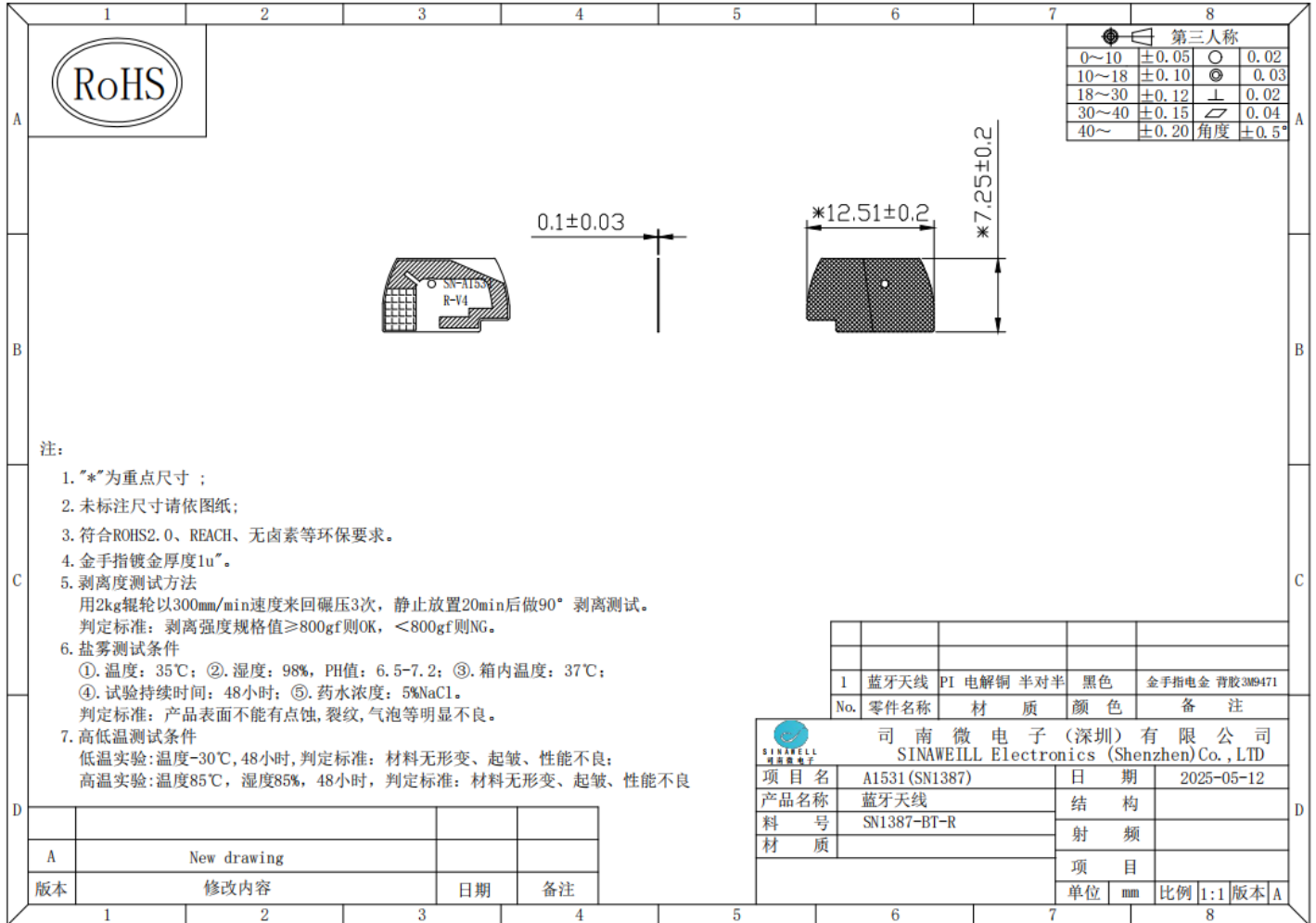
#### 5. 备注

(电性能测试报告)  
电性能测试报告中，为厂家提供的 3D 暗室数据，  
如下表格格式

附录一：结构图纸

附录二(电性能测试报告)

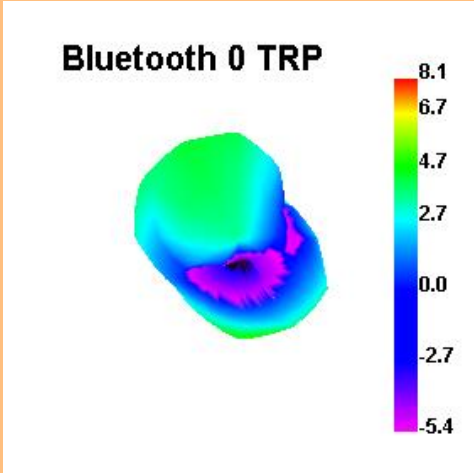
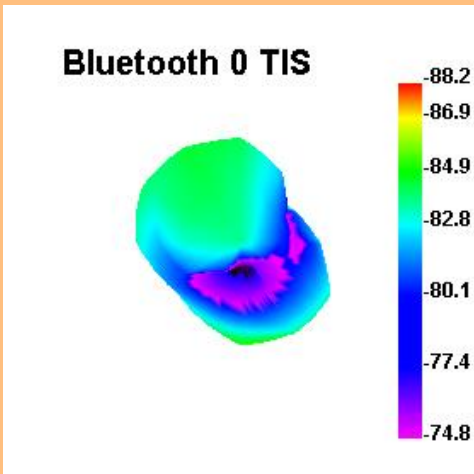
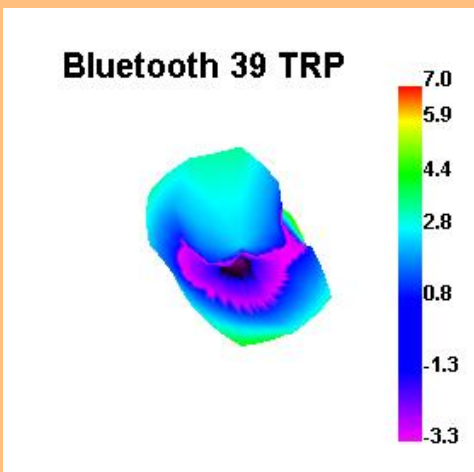
## FPC 结构图纸

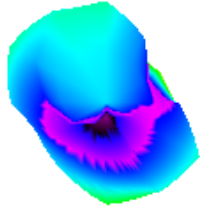
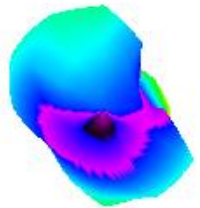
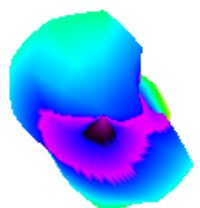


## 重点尺寸

| NO | 尺寸    | 公差    |  |
|----|-------|-------|--|
| 1  | 12.51 | ±0.2  |  |
| 2  | 7.25  | ±0.2  |  |
| 3  | 0.1   | ±0.03 |  |
| 4  | 0.1   | ±0.03 |  |

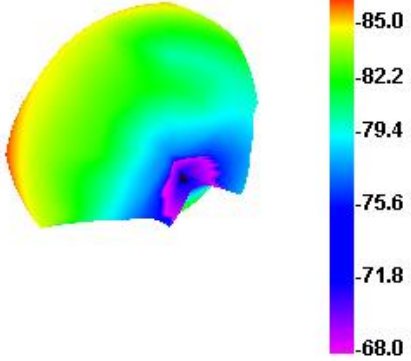
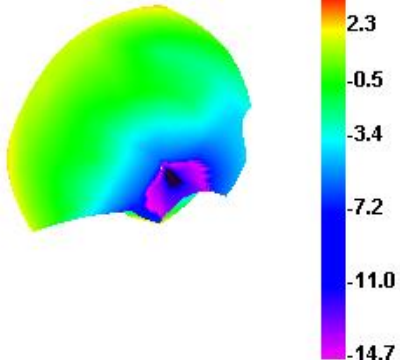
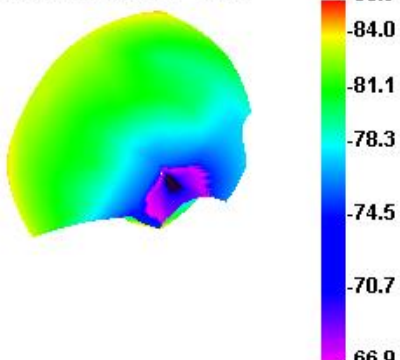
3D 测试报告

| BT  | Channel | 3D 耦合测试 | 场强图                                                                                                          |
|-----|---------|---------|--------------------------------------------------------------------------------------------------------------|
| TRP | 0       | 2.27    |  <p>Bluetooth 0 TRP</p>    |
| TIS | 0       | -87.39  |  <p>Bluetooth 0 TIS</p>  |
| TRP | 39      | 3.33    |  <p>Bluetooth 39 TRP</p> |

|     |    |        |                                                                                                                   |
|-----|----|--------|-------------------------------------------------------------------------------------------------------------------|
| TIS | 39 | -86.55 | <div>Bluetooth 39 TIS</div>    |
| TRP | 78 | 3.96   | <div>Bluetooth 78 TRP</div>   |
| TIS | 78 | -86.76 | <div>Bluetooth 78 TIS</div>  |



| BT  | Channel | 3D 耦合测试 | 场强图                     |
|-----|---------|---------|-------------------------|
| TRP | 0       | -2.13   | <p>Bluetooth 0 TRP</p>  |
| TIS | 0       | -80.4   | <p>Bluetooth 0 TIS</p>  |
| TRP | 39      | -1.95   | <p>Bluetooth 39 TRP</p> |

|     |    |        |                                                                                                                   |
|-----|----|--------|-------------------------------------------------------------------------------------------------------------------|
| TIS | 39 | -82.18 | <div>Bluetooth 39 TIS</div>    |
| TRP | 78 | -0.96  | <div>Bluetooth 78 TRP</div>   |
| TIS | 78 | -80.72 | <div>Bluetooth 78 TIS</div>  |