



深圳市宇鸿实业有限公司

Part Approval Sheet

| | |
|----------------|--|
| Customer name: | hele |
| Product Model: | QT21 |
| Risuntek P/N: | 10.157.000094 |
| Version: | A |
| Product Name: | FPC ANT |
| Description: | ANT FPC QT21-L T ANT Antenna BT+Touch 宇鸿 |
| Date: | 2022/9/9 |

(Customer Signatures)

| | | |
|------|------|------|
| (PM) | (ME) | (QE) |
| | | |

(Inner Signatures)

| | | |
|------|------|------|
| (QE) | (ME) | (RF) |
| 杨进 | 张清花 | 梁通平 |

地址：深圳市龙华新区民治大道与工业西路交汇展滔科技大厦A座1308

电话：0755-21031946

<http://www.yuhong-co.com/>

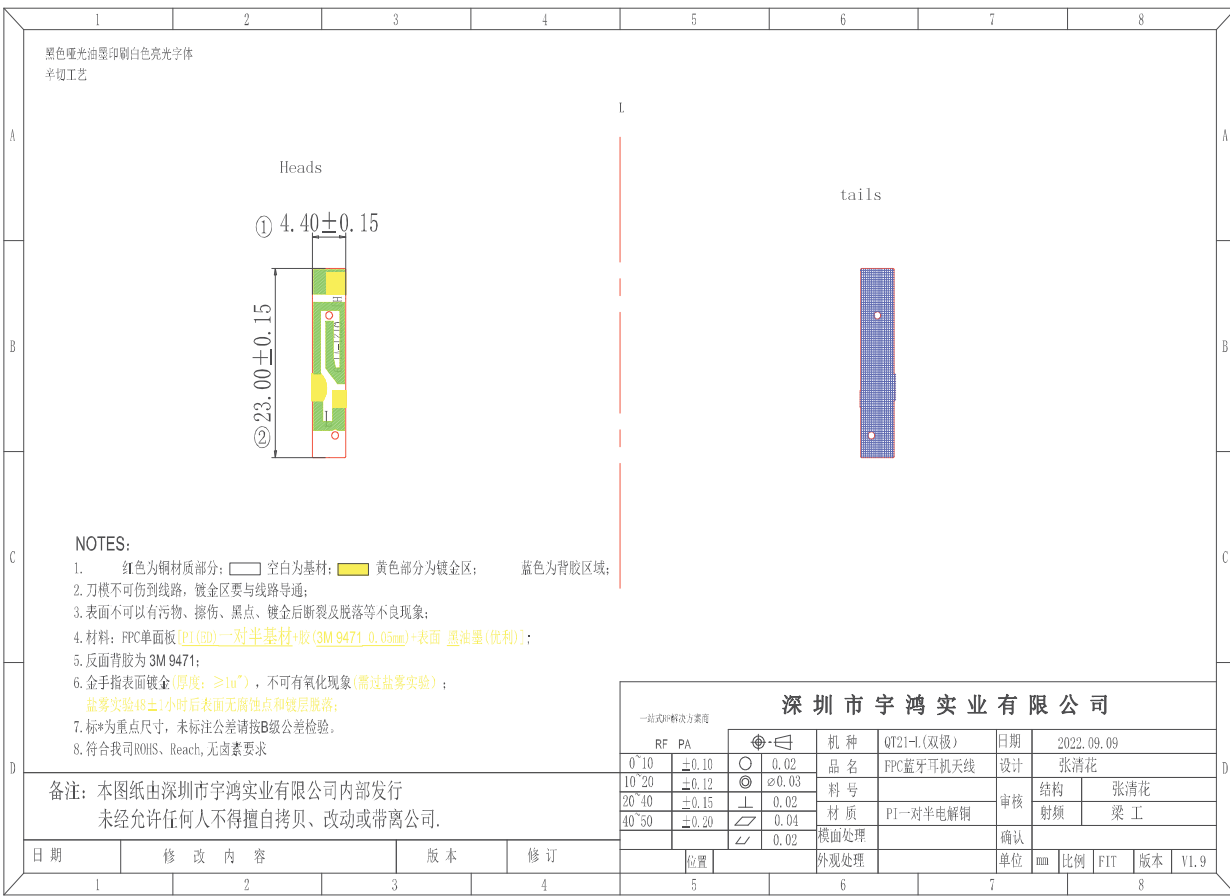
directory

- 一、 Make/revise and change the resume
- 二、 Product drawings
- 三、 Description of electrical and mechanical properties
- 四、 Full scale measurement report
- 五、 CPK report
- 六、 Expansion table of environmental Management material components
- 七、 Reliability test report
- 八、 Packing specification

1. Make/revise and change your resume

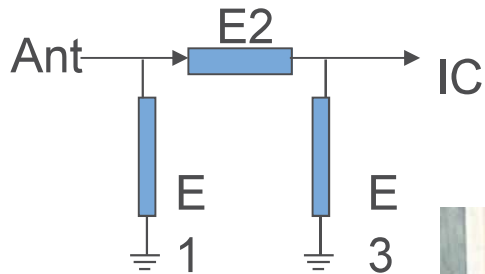
| V | page | Change the time | Change a person | Reasons and contents of changes | note |
|----|------|-----------------|-----------------|-----------------------------------|------|
| A0 | — | 2022/9/9 | zqh | First version of the antenna form | |
| A1 | | | | | |
| A2 | | | | | |
| A3 | | | | | |
| A4 | | | | | |
| A5 | | | | | |
| A6 | | | | | |

2、Second, product drawings

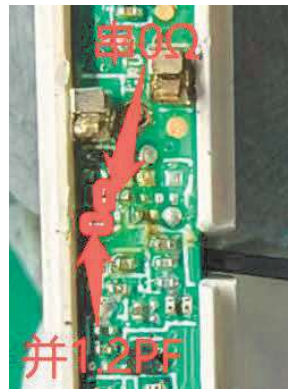


3、Description of electrical and mechanical properties

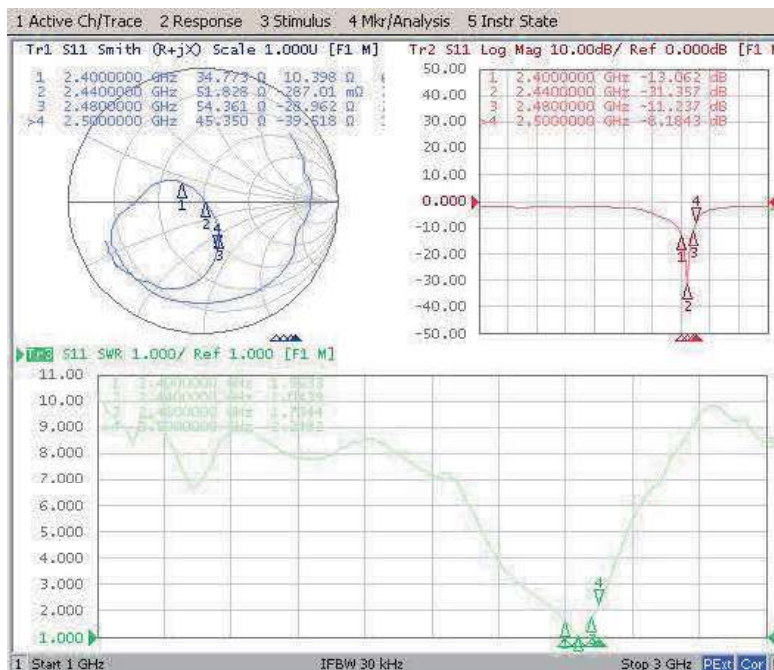
1、Match the circuit diagram



| Element | Value |
|---------|-------|
| E1 | N/A |
| E2 | 0Ω |
| E3 | 1.2PF |

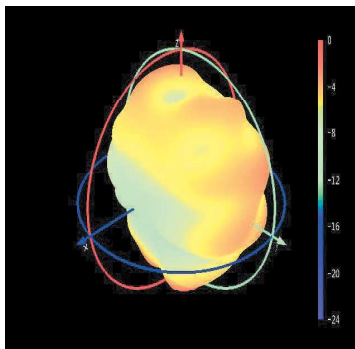


2、S11 parameter

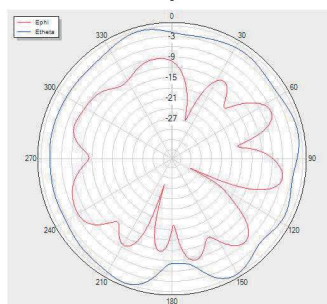


3、efficiency of passive

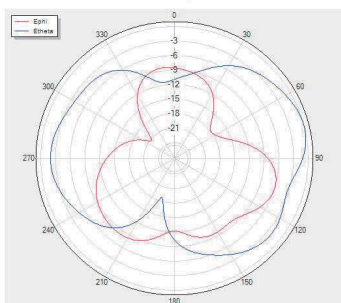
| Freq[MHz] | Gain(dBi) | Effic value (dB) | Efficiency |
|-----------|------------|------------------|------------|
| | Free space | Free space | Free space |
| 2400 | -0.21 | -4.85 | 32.74 |
| 2410 | -0.28 | -4.93 | 32.17 |
| 2420 | -0.27 | -4.94 | 32.07 |
| 2430 | -0.23 | -4.88 | 32.52 |
| 2440 | -0.15 | -4.79 | 33.22 |
| 2450 | -0.09 | -4.69 | 33.95 |
| 2460 | 0 | -4.64 | 34.37 |
| 2470 | 0.03 | -4.67 | 34.14 |
| 2480 | -0.09 | -4.83 | 32.87 |



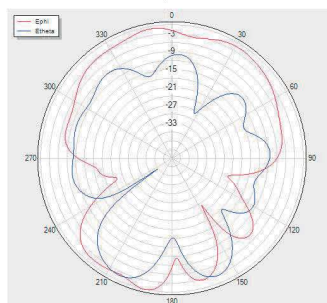
Phi=90 freq=2440MHz



Theta=90 freq=2440MHz



Phi=0 freq=2440MHz



4、 Active OTA data

| L | channel | TRP (dbm) | TRP (dBm) |
|-----------------------------|---------|-----------|-----------|
| Free space | 0 | 6.88 | -88.85 |
| | 39 | 7.55 | -90.09 |
| | 78 | 7.57 | -90.94 |
| L | channel | TRP (dbm) | TIS (dbm) |
| second generation head mold | 0 | -5.63 | -79.33 |
| | 39 | -5.43 | -80.65 |
| | 78 | -5.65 | -80.74 |

5、 measured results

test phone Samsung S6/ Apple 5S
distance 15M/15M
Test site Huawei Sidewalk
tester Liang Tong flat

4、Full scale measurement report

| 4、Full scale measurement report | | | | | | | | | | | | | | | |
|---------------------------------|-------------------|-------|--------|---------|-----------------|-----------|-----------|--------------|-----------|---------------|-----------|-----------|--------------|--------------|--|
| 编码 | 10.157.000094 | | 零件名称 | FPC天线 | | | 规格 | QT21-L FPC天线 | | | | | 材料 | FPC (一对半) | |
| 供应商 | 宇鸿 | | 测量工具 | 二次元、千分尺 | | | 测量单位 | MM | | | | | 测量日期 | 2022.09.09 | |
| NO. | 尺寸 (DIMENSION) | 上限 | + TOL. | - TOL. | 下限 | measured1 | measured2 | measured3 | measured4 | measured5 | measured6 | measured7 | UPPER ≤ 100% | LOWER ≤ 100% | |
| QT21-L | 4.40 | 4.55 | 0.15 | 0.15 | 4.25 | 4.420 | 4.430 | 4.370 | 4.420 | 4.370 | 4.420 | 4.380 | 20% | 20% | |
| | 23.00 | 23.15 | 0.15 | 0.15 | 22.85 | 23.020 | 22.960 | 22.970 | 23.040 | 23.050 | 22.950 | 22.960 | 33% | 33% | |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| Prepared by: yangjin | | | | | Checked by: zqh | | | | | data:2022/9/9 | | | | | |

5、CPK Report

| | | | | | | | | |
|----------------|------------------------------|--------------|--|-------------|------------|--|--|--|
| Project name) | QT21-L | | | Customer | hele | | | |
| Description(| antenna | | | Inspected(| Cindy | | | |
| Material(| One half electrolytic copper | | | Inches/MM() | mm | | | |
| Revision(| A | | | Date(| 2022/09/09 | | | |
| m. Designator(| 4.40 | 23.00 | | | | | | |
| Upper Limit() | 4.55 | 23.15 | | | | | | |
| Lower Limit() | 4.25 | 22.85 | | | | | | |
| 1 | 4.37 | 23.00 | | | | | | |
| 2 | 4.38 | 22.98 | | | | | | |
| 3 | 4.44 | 22.97 | | | | | | |
| 4 | 4.39 | 22.99 | | | | | | |
| 5 | 4.41 | 23.04 | | | | | | |
| 6 | 4.42 | 22.99 | | | | | | |
| 7 | 4.44 | 23.01 | | | | | | |
| 8 | 4.43 | 22.99 | | | | | | |
| 9 | 4.38 | 23.04 | | | | | | |
| 10 | 4.36 | 22.99 | | | | | | |
| 11 | 4.38 | 23.02 | | | | | | |
| 12 | 4.37 | 22.98 | | | | | | |
| 13 | 4.40 | 23.00 | | | | | | |
| 14 | 4.40 | 23.03 | | | | | | |
| 15 | 4.38 | 23.02 | | | | | | |
| 16 | 4.36 | 23.01 | | | | | | |
| 17 | 4.43 | 23.01 | | | | | | |
| 18 | 4.37 | 23.04 | | | | | | |
| 19 | 4.44 | 22.99 | | | | | | |
| 20 | 4.36 | 23.02 | | | | | | |
| 21 | 4.39 | 22.96 | | | | | | |
| 22 | 4.39 | 22.98 | | | | | | |
| 23 | 4.39 | 23.04 | | | | | | |
| 24 | 4.41 | 22.97 | | | | | | |
| 25 | 4.44 | 23.05 | | | | | | |
| 26 | 4.38 | 23.03 | | | | | | |
| 27 | 4.45 | 23.03 | | | | | | |
| 28 | 4.40 | 22.96 | | | | | | |
| 29 | 4.37 | 23.02 | | | | | | |
| 30 | 4.41 | 22.99 | | | | | | |
| 31 | 4.42 | 23.04 | | | | | | |
| 32 | 4.40 | 23.01 | | | | | | |
| MAX. | 4.45 | 23.05 | | | | | | |
| MIN. | 4.36 | 22.96 | | | | | | |
| AVERAGE | 4.40 | 23.01 | | | | | | |
| STDEV | 0.03 | 0.03 | | | | | | |
| CP | 1.86 | 1.96 | | | | | | |
| Cpk | 1.84 | 1.88 | | | | | | |
| TOOLING | 卡尺 | 卡尺 | | | | | | |

Prepared by () : yangjin Checked by () : cindy Approved by () : longtao

6、The Parts List of Enviromental Management Substances

| Product Information | | Supplier Contact Information | | 报告类型 | | 确认结果 | | 备注 | |
|----------------------|---------------|------------------------------|-------------|-------------------------------------|----------|--------------------------|--|----|--|
| Part name | FPC天线 | Compony Name | 深圳市宇鸿实业有限公司 | <input checked="" type="checkbox"/> | RoHS 2.0 | <input type="checkbox"/> | | | |
| Risuntek P/N | 10.157.000094 | Contact Name/Title | yangjin | <input checked="" type="checkbox"/> | HF | <input type="checkbox"/> | | | |
| Supplier's P/N | QT21-L | Date:YY/MM/DD | 2022/9/9 | <input checked="" type="checkbox"/> | CP65 | / | | | |
| Manufacturering site | dongguang | E-mail address | | <input checked="" type="checkbox"/> | REACH | / | | | |
| Total weight (g) | | Tel. No. | 13714345069 | <input checked="" type="checkbox"/> | 其它 () | / | | | |
| | | | | <input checked="" type="checkbox"/> | MSDS | <input type="checkbox"/> | | | |

| No. | Customer item number | Part name | Homogeneous material | Test Report No. | Test Date (YY/MM/DD) | Test result (ppm) | | | | | | | | | | | | Test report | MSDS | | | |
|-----|----------------------|---------------|-------------------------|---|----------------------|-------------------|----|----|------|-----|------|-----|----|------|-----|-----|------|-------------|------|------------------------------|--------------------------------|----------------------|
| | | | | | | Pb | Cd | Hg | Cr6+ | PBB | PBDE | Cl | Br | DEHP | DBP | BBP | DIBP | | | | | |
| 1 | 10.157.000094 | Base material | | SHAEC2202460504 | 2022. 2. 21 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 电通中文RoHS (Y).PDF | 扫描MSDS.pdf | |
| 2 | | ink | High interest black oil | ETR22705905 | 2022/8/5 | ND | ND | ND | ND | ND | ND | 253 | ND | ND | ND | ND | ND | ND | ND | ETR22705905 PSM-800黑色油墨.pdf | ETR22705913 PSM-800黑色油墨.pdf | MSDS_PS-800黑色油墨.pdf |
| 3 | | Gummed paper | 3M9471LE | CANEC2200386501 | 2022/1/12 | ND | ND | ND | ND | ND | ND | 152 | ND | ND | ND | ND | ND | ND | ND | CANEC2200386501 3M9471LE.pdf | CANEC2200386502 3M9471LE.pdf | MSDS_3M9471白色.pdf |
| 4 | | Gold plated | | A2210513116101001E / A2210513116102001E | 2021/12/10 | ND | ND | ND | ND | ND | ND | 185 | ND | ND | ND | ND | ND | ND | ND | ND | 电通中文RoHS (Y).PDF | 电通中文RoHS (Y).PDF |
| 5 | | White ink | | ETR21A04957M01 | 2021/10/29 | ND | ND | ND | ND | ND | ND | 625 | ND | ND | ND | ND | ND | ND | ND | ND | ETR21A04957M01 ZSR-150白色油墨.pdf | MSDS_ZSR-150白色油墨.pdf |

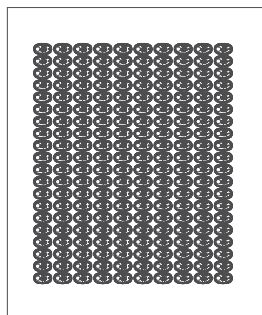
7. Reliability test report

| | | | | | |
|--------------|--------------------|---------------------------------------|--|---|-------------------------|
| customer | | hele | | project name | QT21-L FPC天线 |
| test of time | | 2022/09/06---2022/09/08 | | Number of tests | 5PCS for each test item |
| | project | Test equipment | test method | Decision criteria | |
| 1 | Salt spray test | Salt spray test machine | The tested products were placed in the salt spray testing machine containing 5%±1%Nacl solution. The laboratory temperature was 35° , the pressure barrel temperature was 47° , and the pressure was 1kgf/cm2. The test lasted for 48 hours.The product shall be placed at 45° . After the test, the product shall be taken out, washed and dried for inspection | Appearance after test: The appearance is intact without significant change.Coating: no peeling, no corrosion.Surface spraying, screen printing: no off, no bubbles to determine qualified | |
| 2 | Cold and hot shock | Constant temperature and humidity boX | Put the test product flat in the testing machine, set the test conditions, high temperature is 85℃, a cycle test for 24 hours;The low temperature was -30℃, and the test was conducted for 2 cycles. The test was started after setting.At the end of the test, the product was removed for inspection after 2 hours of recovery. | There is no change in color, gloss, surface appearance, hardness, scratch, crack, warping or electrical damage. Be judged as qualified | |
| : | | | | | |

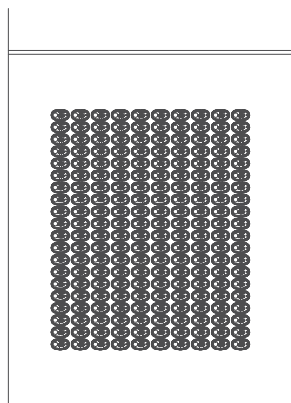
8. (Packing)

| | | | |
|---|---------------|--------------|--|
| | 10.157.000094 | : | FPC ANT |
| | QT21-L FPC天线 | | Packaging materials: Seal pockets, cartons |
| : | 5000PCS/包 | packing way: | 5000pcs/ package, one box of 1-16 packages |
| : | 80000PCS | | |

1、Small package

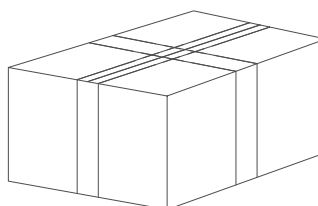
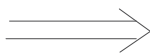
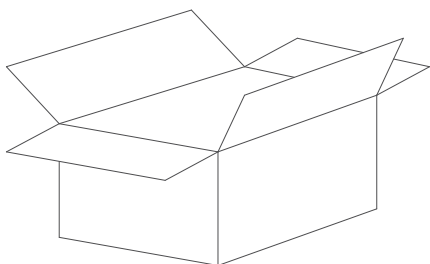


FPC天线(整版半切出货): 250*200



PE袋一袋 5000PCS

2、big package



一箱 1-8袋 (5000-80000PCS天线)

3. Remarks: FPC products are manufactured by half-cut shipment, small package quantity: 5000PCS/ bag; Large package quantity: 5000-80,000pcs/box.

4. Precautions

4.1 The storage of products shall ensure that the ambient temperature is $-10^{\circ}\text{C} \sim +24^{\circ}\text{C}$, the humidity is less than 90%, there is no leakage in the warehouse, the ground shall be moisture-proof, and acid mist and salt mist erosion shall be avoided around the warehouse. The storage life of the product is 180 days;

4.2 The products can be transported by land, water or air, and should be protected from rain during transportation;

4.3 Stacking requirements: XXX;

拟制: 杨进

审核: 张清花

核准: 龙滔