



深圳市天磁通科技有限公司  
Shenzhen Tianci technology Co. LTD  
**Specification For Approval**

Date: 2018/02/24

File No.: 18022701

Version: 1.0

Customer: 视晶无线技术有限公司

Customer P/N: /

INVAX P/N: TCTQ5800-4V58Z

Description : **5.8G 4dBi**橡皮天线

Checked By:

Customer Approved By:

深圳市天磁通科技有限公司  
Shenzhen Tianci technology Co. LTD

地址: 深圳市宝安区西乡九尾愉盛工业区D 栋5 楼  
Address: Building 8, Factory Building, Fuan No.2 Industrial City, Dayang  
Development Zone, Fuhai Street, Baoan District, Shenzhen, China



# 深圳市天磁通科技有限公司

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# 深圳市天磁通科技有限公司

## 3. Revision History

| Revision | Date       | Change Notification | Description |
|----------|------------|---------------------|-------------|
| 1.0      | 2018/02/24 |                     |             |
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#### 4. Specification

| <b>A.Electrical Properties</b> |                                                          |
|--------------------------------|----------------------------------------------------------|
| <b>Frequency Rang</b><br>频段范围  | <b>4900~5850MHz</b>                                      |
| <b>Impedance</b><br>特性阻抗       | <b>50Ω Nominal</b>                                       |
| <b>VSWR</b><br>电压驻波比           | <b>2.0 Max.</b>                                          |
| <b>Gain(peak)</b><br>增益（峰值）    | <b>4.5 dBi</b>                                           |
| <b>Out of roundness</b><br>不圆度 | <b>3.0 dBi（Max.）</b>                                     |
| <b>Radiation</b><br>辐射方式       | <b>Omni-Directional</b><br>全向                            |
| <b>Polarization</b><br>极化方式    | <b>Linear Vertical</b><br>垂直                             |
| <b>B.Physical Properties</b>   |                                                          |
| <b>Connector Type</b><br>连接方式  | 剥线镀锡                                                     |
| <b>Cable Type</b><br>线材        | <b>Ø1.78mmCABLE</b>                                      |
| <b>Antenna Plastic</b><br>天线塑胶 | <b>Body:TPE</b><br><b>Hinge:ABS</b><br><b>Holder:ABS</b> |
| <b>C.Environmental</b>         |                                                          |
| <b>Operating Temp</b><br>工作环境  | <b>-40℃ ~ +65℃</b>                                       |
| <b>Storage Temp</b><br>存储环境    | <b>-40℃ ~ +80℃</b>                                       |

**Product Number:** TCTQ5800-4V58Z

**Product Name:** Antenna

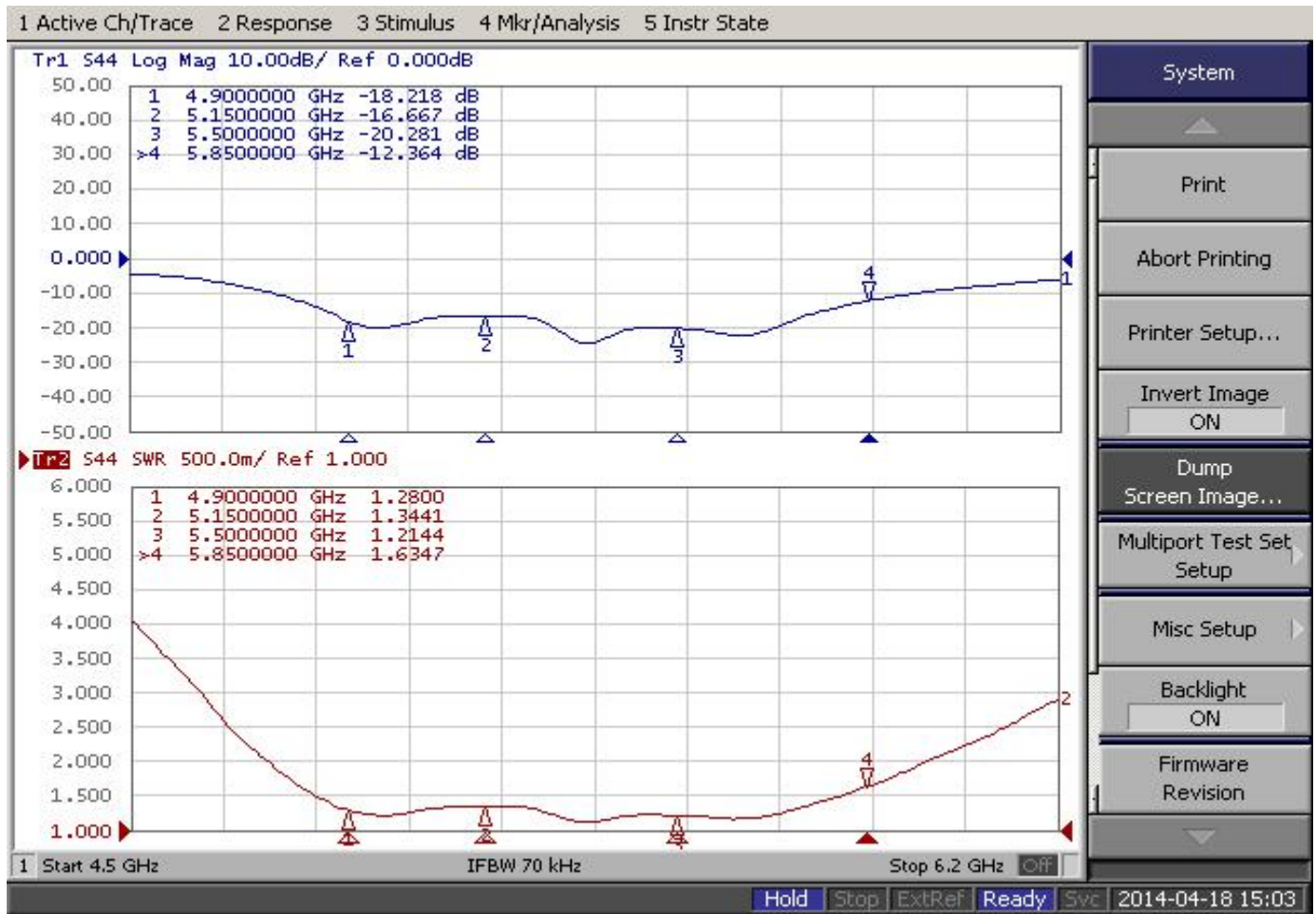
| Test Items 測試項目 |                               | Test Condition and Procedure 測試方法                                                                                                                             | Requirements 要求                                                                               | Result 結果 |
|-----------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------|
| C1              | V.S.W.R.<br>電壓駐波比             | Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試                                                                                | Directive DUT specification<br>符合待測物規範                                                        | PASS      |
| C2              | Insertion Loss<br>插入損失        | Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試                                                                                | Directive DUT specification<br>符合待測物規範                                                        | N/A       |
| C3              | Antenna Gain<br>天線增益          | Set DUT on Antenna Chamber; make individual calibration to test 設置天線暗室參數進行測試                                                                                  | Directive DUT specification<br>符合待測物規範                                                        | PASS      |
| C4              | Voltage Breakdown<br>耐電壓      | Test voltage should be applied between insulated portions, or between ground as specified.<br>在绝缘部分测试电压,或指定接地面之间                                              | Max Voltage $\geq$ 500 V or directive material specification 最大電壓 $\geq$ 500V<br>或符合材料規範      | N/A       |
| C5              | Insulation Resistance<br>絕緣阻抗 | Set Voltage: 500 $\pm$ 50V; between the insulated portions, or between ground as specified.<br>設置電壓 500 $\pm$ 50V,在绝缘部份測試或指定接地面之间                             | Resistance $\geq$ 500 M ohm or directive material specification 阻抗 $\geq$ 500M ohm<br>或符合材料規範 | N/A       |
| C6              | Contact Resistance<br>接觸阻抗    | Air Temp: 26°C; measured with test equipment<br>室溫 26°C, 指定量測設備                                                                                               | Directive material specification<br>符合材料規範                                                    | N/A       |
| M1              | Vibration<br>震動               | GB / T2423.48-2008<br>Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz<br>3 directions; 2 hours for each direction<br>振幅 1.5mm; 頻率 20~80~20Hz; 3 個方向各 2H | 1. No Visual Damage<br>2. Frequency Tol. $\leq$ 5%<br>無明顯外觀不良;頻率偏移 $\leq$ 5%                  | PASS      |
| M2              | Random Drop<br>跌落             | GB / T2423.8-1995<br>Single: Height: 1.0 Meter; 3 directions; 1 time for each direction 單支天線, 高 1m; 3 個方向各 1 次                                                | 1. No parts separated、fracture<br>2. Frequency Tol. $\leq$ 5%<br>產品無脫落、斷裂;頻率偏移 $\leq$ 5%      | PASS      |
|                 |                               | Packing: Height: 0.76 Meter; 1 corner, 3 edges, 6 surface<br>包裝: 高 0.76m, 一角、三棱、六面各一次                                                                         |                                                                                               | PASS      |
|                 |                               | Antenna+Machine:Height: 0.76 Meter; 1 corner, 3 edges, 6 surface.整機: 高 0.76m, 一角、三棱、六面各一次                                                                     |                                                                                               | N/A       |
| M3              | Solderability                 | GB / T2423.28-2005                                                                                                                                            | Tin evenly on full                                                                            | N/A       |

**Product Number:** TCTQ5800-4V58Z

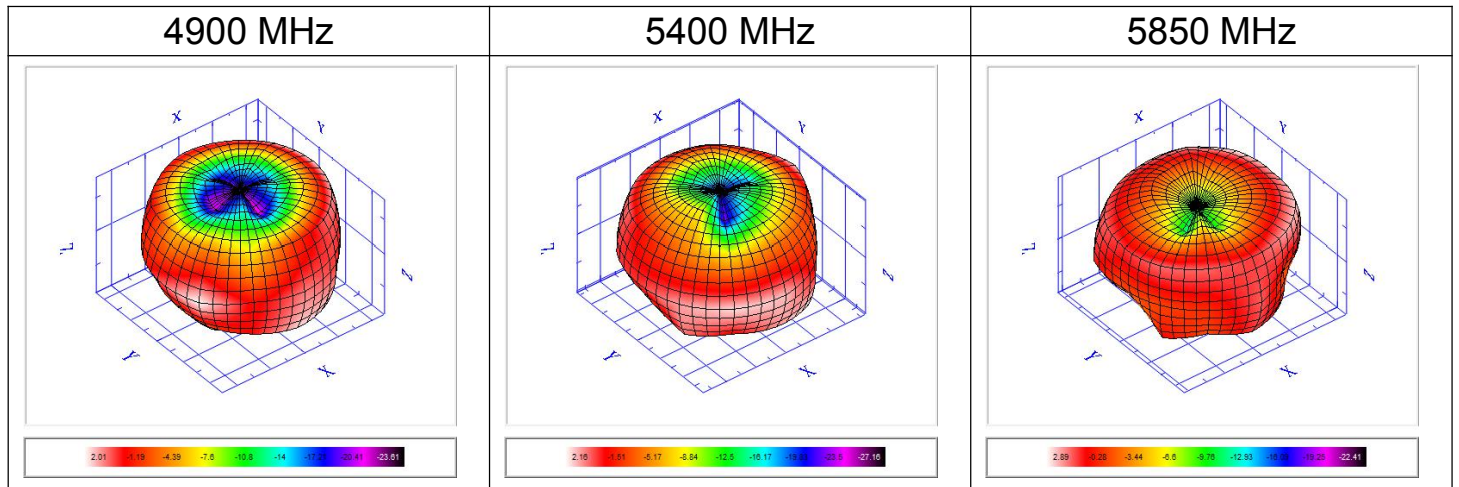
**Product Name:** Antenna

|    |                                          |                                                                                                                                  |                                                                                                   |      |
|----|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------|
|    | 可焊性                                      | Temp: 260±5 °C; Duration: 5 seconds 溫度 260±5 °C; 持續 5 秒                                                                          | 上錫均勻飽滿                                                                                            |      |
| M4 | Pull Test<br>拉力                          | Holding with individual specification; force applied to axis of terminal .單獨定義產品端子拉力                                             | 1. Directive DUT specification<br>2. Frequency Tol.≤5%<br>符合待測物規範;頻率偏移≤5%                         | PASS |
| M5 | Torque Test<br>扭力                        | Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal 單獨定義產品端子之順時針及逆時針扭力         | 1. Directive DUT specification<br>2. Frequency Tol.≤ 5%<br>符合待測物規範;頻率偏移≤5%                        | N/A  |
| M6 | Dimension<br>尺寸                          | Inspection of dimension, color, material, package, surface process. 检查尺寸, 颜色, 材料, 包装, 表面處理                                       | Directive DUT specification<br>符合待測物規範                                                            | PASS |
| E1 | Waterproof<br>防水                         | With Reference to IEC 60529 // IP Code Definition<br>參考 IEC60529 IP 定義                                                           | Directive DUT specification<br>符合待測物規範                                                            | N/A  |
| E2 | Salt Spray 鹽霧                            | GB / T 2423.17-2008<br>Temp: 35°C; RH: ≥ 95%; NaCl solution: ≥ 5%; Time: 24H<br>溫度 35°C; 濕度≥95%; 鹽水濃度≥5%; 測試 24H                 | 1. No Visual Damage<br>2. Frequency Tol.≤5%<br>無明顯外觀不良;頻率偏移≤5%                                    | PASS |
| E3 | Temperature and Humidity Chamber<br>恒溫恒濕 | GB / T 2423.3-2006<br>Temp: 80°C / 12 H; -40°C / 12H RH: ≥ 90%; Time: 24H<br>溫度 80°C 測試 12H 轉 -40°C 測試 12H; 濕度≥90%; 時間 24H       | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol.≤5%<br>恢復 2H 后, 無明顯外觀不良;頻率偏移≤5% | PASS |
| E4 | Thermal Shock<br>冷熱衝擊                    | GB / T 2423.22 - 2008<br>- 40°C (30 minutes) to + 80°C (30 minutes);<br>Cycles: 24<br>- 40°C 測試 30 分轉 80°C 測試 30 分為一個週期; 共 24 週期 | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol.≤5%<br>恢復 2H 后, 無明顯外觀不良;頻率偏移≤5% | PASS |
| E5 | Aging test<br>老化                         | GB / T 2423.2 - 2008<br>Temp: 80°C; Time: 24 hours<br>溫度 80°C, 測試 24H                                                            | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol.≤5%<br>恢復 2H 后, 無明顯外觀不良;頻率偏移≤5% | PASS |
| E6 | High Temp.<br>高溫                         | Temp. 270±10°C; Times: 120 seconds<br>溫度 270±10°C, 測試時間 120 秒                                                                    | No Visual Damage<br>無明顯外觀不良                                                                       | N/A  |
| R1 | RoHS                                     | With Reference to IEC 62321:2008 with flow chart<br>參考 IEC 62321 測試流程                                                            | Directive RoHS 2011/65/EU<br>符合 RoHS 2011/65/EU 標準                                                | PASS |
| R2 | PFOS                                     | With Reference to USA EPA 3550C:1996 by LC/MS<br>參考 USA EPA 3550C 測試流程                                                           | Directive RoHS 2006/122/EC<br>符合 RoHS 2011/65/EU 標準                                               | PASS |

## 6. Antenna - S Parameter Test Data



## 7. Antenna - Radiation Pattern Test Data



|                         |       |       |       |       |        |
|-------------------------|-------|-------|-------|-------|--------|
| Frequency               | 4900  | 5150  | 5400  | 5700  | 5850   |
| TRP (dBm)               | -1.24 | -1.18 | -1.14 | -0.99 | -1.31  |
| Peak EIRP (dBm)         | 2.01  | 2.07  | 2.16  | 3.31  | 2.89   |
| NHPRP +/- 45 (degree)   | -1.51 | -1.45 | -1.48 | -1.75 | -1.91  |
| NHPRP +/- 30 (degree)   | -1.58 | -1.52 | -1.56 | -1.66 | -1.75  |
| E-Theta Peak Gain (dBi) | -9.2  | -9.14 | -9.19 | -9.6  | -11.33 |
| E-Phi Peak Gain (dBi)   | 1.99  | 2.05  | 2.02  | 3.26  | 2.83   |
| E-Total Peak Gain (dBi) | 2.01  | 2.07  | 2.16  | 3.31  | 2.89   |
| Directivity (dBi)       | 3.25  | 3.25  | 3.3   | 4.3   | 4.19   |
| Efficiency (%)          | 75.23 | 76.28 | 76.85 | 79.57 | 74     |

## 8. Mechanical Drawing

See attached files

| SIGN | DATE | DESCRIPTION | APPROVER |
|------|------|-------------|----------|
| A    |      |             |          |
| A    |      |             |          |
| A    |      |             |          |

Note:  
1. Dimension: Take \* is the important dimension  
2. Tolerance: Unmarked tolerance refer to the standard tolerance please

|                             |        |                 |        |
|-----------------------------|--------|-----------------|--------|
| 深圳市天磁通科技有限公司                |        |                 |        |
| TITLE: 5G Antenna           |        |                 |        |
| PART NO.: AN5000B-92-178U50 |        | CUSTOMER P/N: / |        |
| APP BY                      | CHK BY | RF BY           | DES BY |
| LQ                          |        |                 | DJC    |
| UNITS: mm                   |        | Tolerance       |        |
| SCALE: 1/1                  |        | X.X ±0.3        |        |
| REVISION: A                 |        | X.XX ±0.2       |        |
|                             |        | X° ±1           |        |

| No. | Part Number | Description | Material | Finished | Q'ty |
|-----|-------------|-------------|----------|----------|------|
| 4   |             | Cable       |          |          | 1    |
| 3   | AN2403-06B  | Body2       | PA+ABS   | Black    | 1    |
| 2   | AN9201-02B  | Body3       | ABS      | Black    | 1    |
| 1   | AN9201-04B  | Body1       | TPE      | Black    | 1    |

# 產品包裝規範

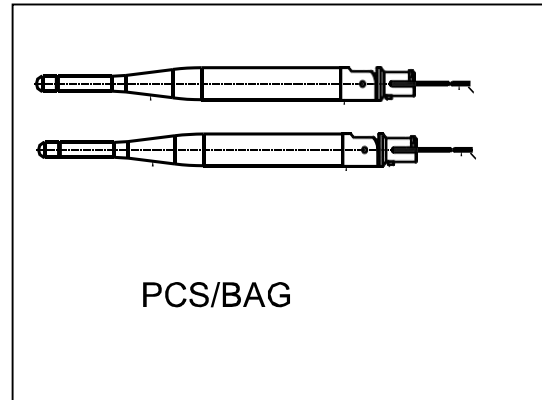
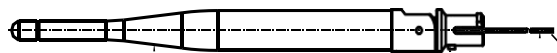
## PACKING CRITERION



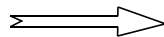
2018/02/24

|                              |          |
|------------------------------|----------|
| Part Number : TCTQ5800-4V58Z |          |
| ame:                         | Customer |

1 . Enter PE bag。

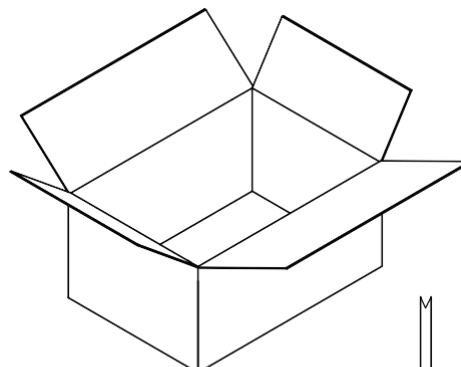


PCS/BAG



R-PE-BAG-

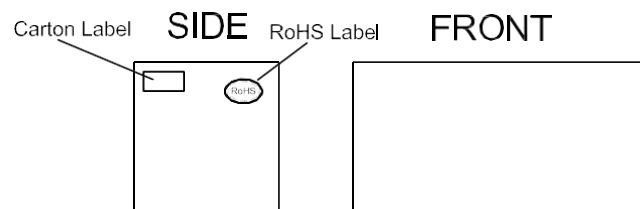
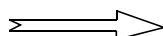
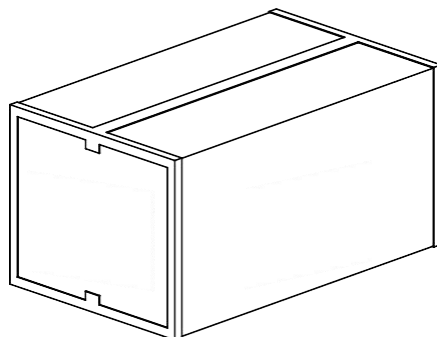
2.PACKING 。



SIZE:29.0x23.0x32.5cm  
PCS/BOX



3 . SEALING。



APPROVED BY : \_\_\_\_\_ CHECKED BY : \_\_\_\_\_ DESIGNED BY : \_\_\_\_\_