



# 深圳市拓频物联技术有限公司

Shenzhen Top Frequency IOT Technology Co., Ltd.

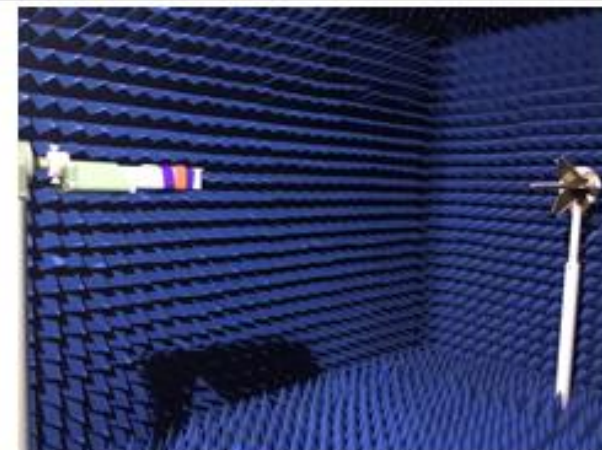
Manufacturer: PuJiang KBJOY Technology Co., Ltd

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# 测试环境

|                      | 测试项目TEST ITEM                            | 设备 EQUIPMENT                                                                                                                                          |
|----------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. S参数 (S-parameter) | 1. 回波损耗 (Return Loss)<br>2. 电压驻波比 (VSWR) | 网络分析仪Network analyzer: Agilent E5071B, HP 8753D                                                                                                       |
| 2. 有源测试 (Active)     | 1. 发射功率 (TRP)<br>2. 接收灵敏度 (TIS)          | 1. 暗室Chamber: ETS 7x4x3 m (3D) Chamber<br>ETS 5x3x3 m (3D) Chamber<br>2. 综合测试仪Comprehensive test instrument: Agilent 8960 E5515B × 2 StarPoint SP6011 |
| 3. 无源测试 (Passive)    | 1. 天线增益 (Gain)<br>2. 天线效率 (Efficiency)   | 1. 暗室Chamber: ETS 7x4x3 m (3D) Chamber<br>ETS 5x3x3 m (3D) Chamber<br>2. 网络分析仪Network analyzer: Agilent E5071B HP 8753D                               |



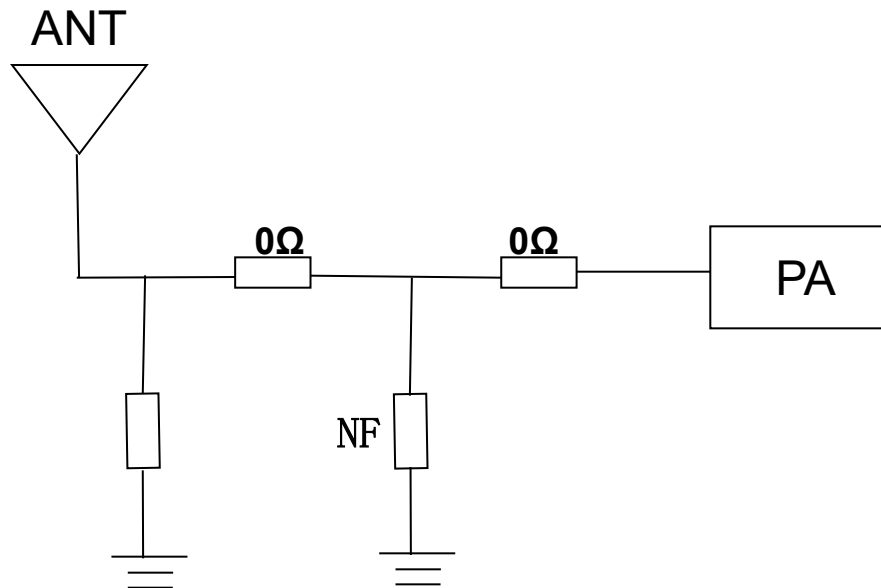
# Description of previous commissioning records

| Date       | Edition | Description of commissioning records |
|------------|---------|--------------------------------------|
| 2025-05-26 | A1      | Bluetooth 2.4GHz test prototype      |

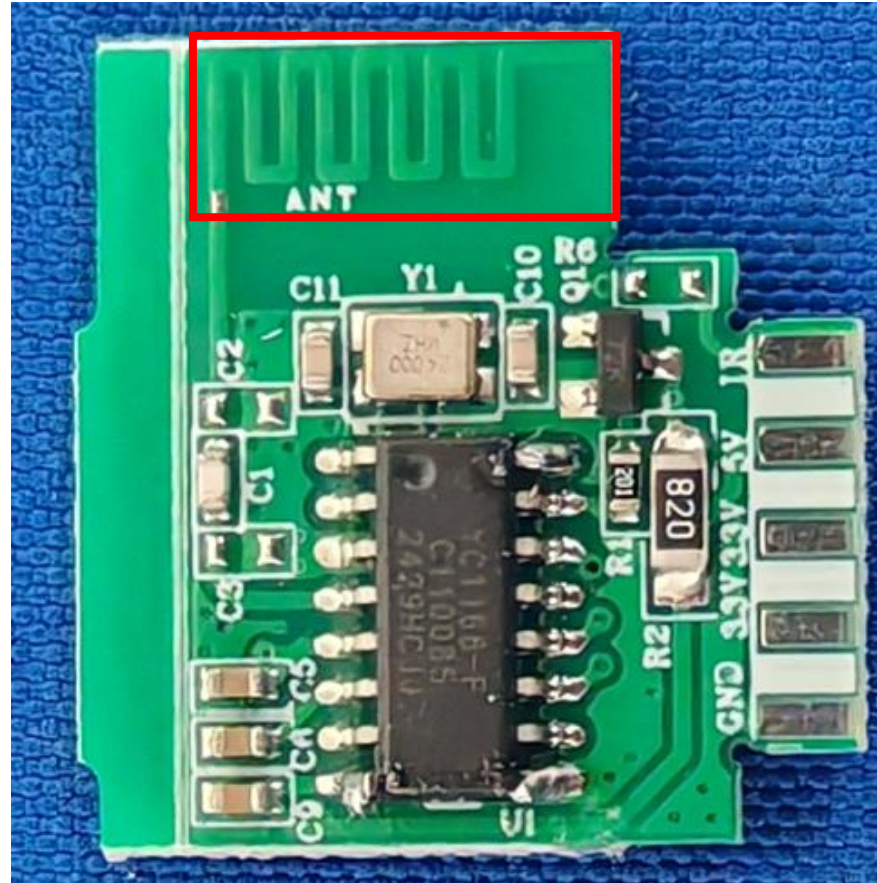
# Complete machine debugging instructions

|                  |                               |                |        |                                   |                    |             |               |
|------------------|-------------------------------|----------------|--------|-----------------------------------|--------------------|-------------|---------------|
| Model            | JT-DC Series JT-DC300V0400-L4 |                |        |                                   |                    |             |               |
| Typography       | A main board                  |                |        |                                   |                    |             |               |
| Antenna overview |                               | Antenna status |        | Antenna status                    | Antenna form       | Design area | Match Changes |
|                  | antenna                       | 2.4GHz         | 2.4GHz | 2.4GHz cable<br>D:0.6mm<br>L:24mm | PCB                | 支架          | 无             |
|                  |                               |                |        |                                   |                    |             |               |
| Prototype status | Commissioning the machine     |                |        | Environmental treatment           | Multiple locations |             |               |

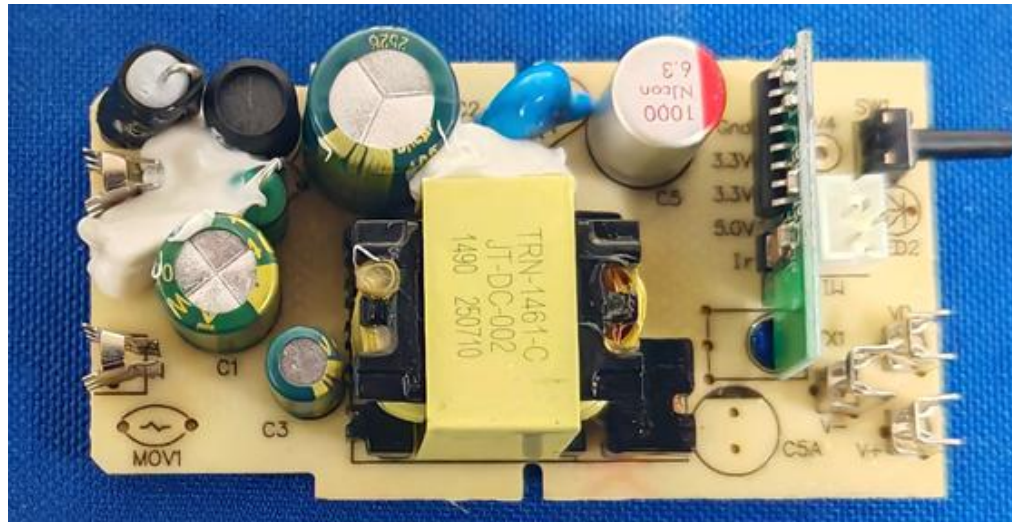
# Matching circuit - BT antenna



## Environmental treatment:



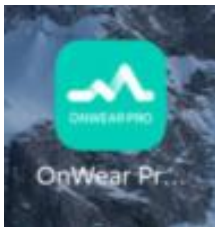
## Environmental treatment:



Follow the sample environment provided by your company

## Actual measurement of BT antenna:

1. Remote control connects to the LED controller, and the remote control plays multi-functions (Indoor) The straight-line distance of the front test is 30m when there is no obstacle. The straight distance of back to back test is 26m when there is no obstacle.
2. Remote control connects to the LED controller, and the remote control plays multi-functions (Outdoor) The straight-line distance of the front test is 30m when there is no obstacle. The straight distance of back to back test is 25m when there is no obstacle.
3. Remote control connects to the LED controller, and the remote control plays multi-functions (Indoor) The straight-line distance of the front test is 40m when there is no obstacle. The straight distance of back to back test is 30m when there is no obstacle.



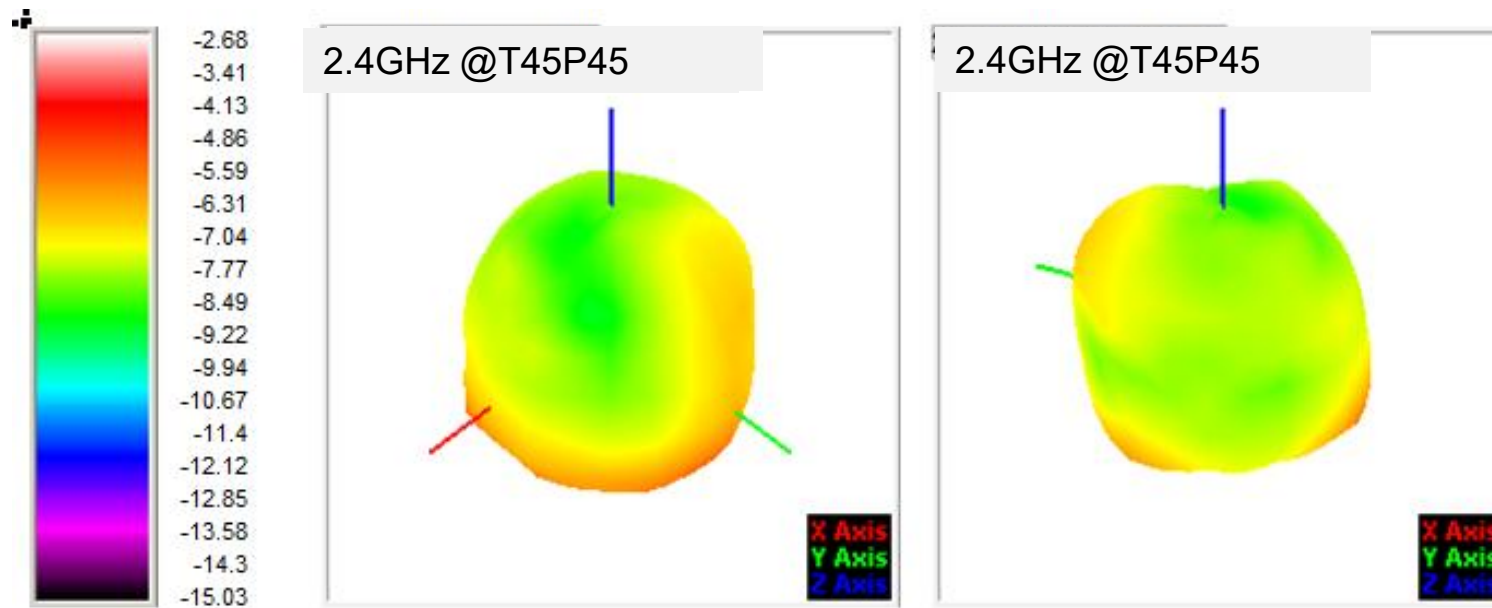
测试软件



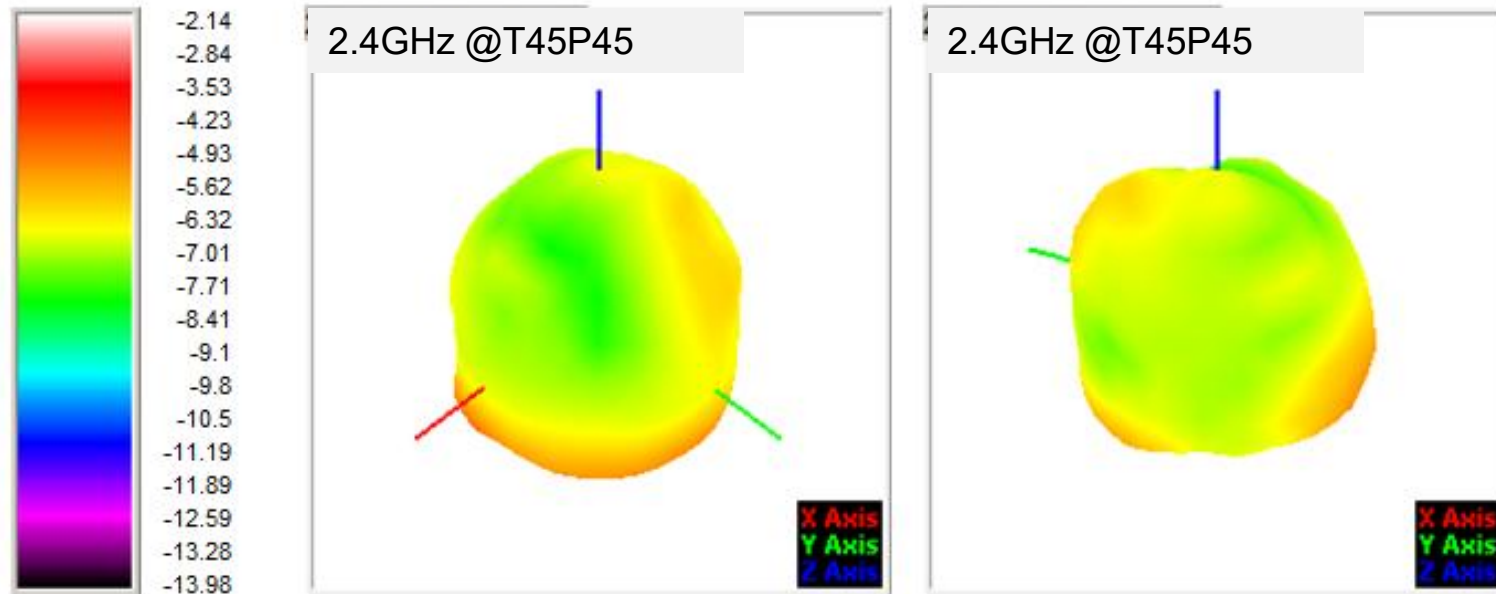
## Antenna Passive Efficiency Gain Data

| Frequency ID               | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Frequency (MHz)            | 2400.0 | 2410.0 | 2420.0 | 2430.0 | 2440.0 | 2450.0 | 2460.0 | 2470.0 | 2480.0 | 2490.0 | 2500.0 |
| Point Values               |        |        |        |        |        |        |        |        |        |        |        |
| Ant. Port Input Pwr. (dBm) | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| Tot. Rad. Pwr. (dBm)       | -7.55  | -7.70  | -7.81  | -7.66  | -7.78  | -7.52  | -7.65  | -7.84  | -7.83  | -7.63  | -7.61  |
| Peak EIRP (dBm)            | -2.68  | -2.69  | -2.77  | -2.59  | -2.49  | -2.14  | -2.30  | -2.55  | -2.63  | -2.48  | -2.39  |
| Directivity (dBi)          | 4.86   | 5.01   | 5.04   | 5.07   | 5.29   | 5.38   | 5.35   | 5.28   | 5.21   | 5.15   | 5.22   |
| Efficiency (dB)            | -7.55  | -7.70  | -7.81  | -7.66  | -7.78  | -7.52  | -7.65  | -7.84  | -7.83  | -7.63  | -7.61  |
| Efficiency (%)             | 17.60  | 17.00  | 16.50  | 17.20  | 16.70  | 17.70  | 17.20  | 16.50  | 16.50  | 17.30  | 17.30  |
| Gain (dBi)                 | -2.68  | -2.69  | -2.77  | -2.59  | -2.49  | -2.14  | -2.30  | -2.55  | -2.63  | -2.48  | -2.39  |
| NHPRP $\pm\pi/4$ (dBm)     | -9.03  | -9.20  | -9.35  | -9.22  | -9.35  | -9.09  | -9.21  | -9.40  | -9.41  | -9.24  | -9.28  |
| NHPRP $\pm\pi/6$ (dBm)     | -10.63 | -10.78 | -10.91 | -10.76 | -10.90 | -10.63 | -10.74 | -10.93 | -10.99 | -10.89 | -10.98 |
| NHPRP $\pm\pi/8$ (dBm)     | -11.89 | -12.00 | -12.11 | -11.94 | -12.07 | -11.81 | -11.93 | -12.15 | -12.25 | -12.19 | -12.33 |
| Upper Hem. PRP (dBm)       | -12.40 | -12.50 | -12.59 | -12.41 | -12.48 | -12.14 | -12.18 | -12.28 | -12.19 | -11.93 | -11.83 |
| Lower Hem. PRP (dBm)       | -9.27  | -9.45  | -9.57  | -9.42  | -9.58  | -9.35  | -9.53  | -9.77  | -9.82  | -9.64  | -9.68  |
| Upper Hem. PRP (%)         | 5.76   | 5.63   | 5.51   | 5.74   | 5.65   | 6.11   | 6.05   | 5.91   | 6.04   | 6.42   | 6.57   |
| Lower Hem. PRP (%)         | 11.84  | 11.36  | 11.03  | 11.42  | 11.02  | 11.61  | 11.14  | 10.54  | 10.43  | 10.86  | 10.77  |

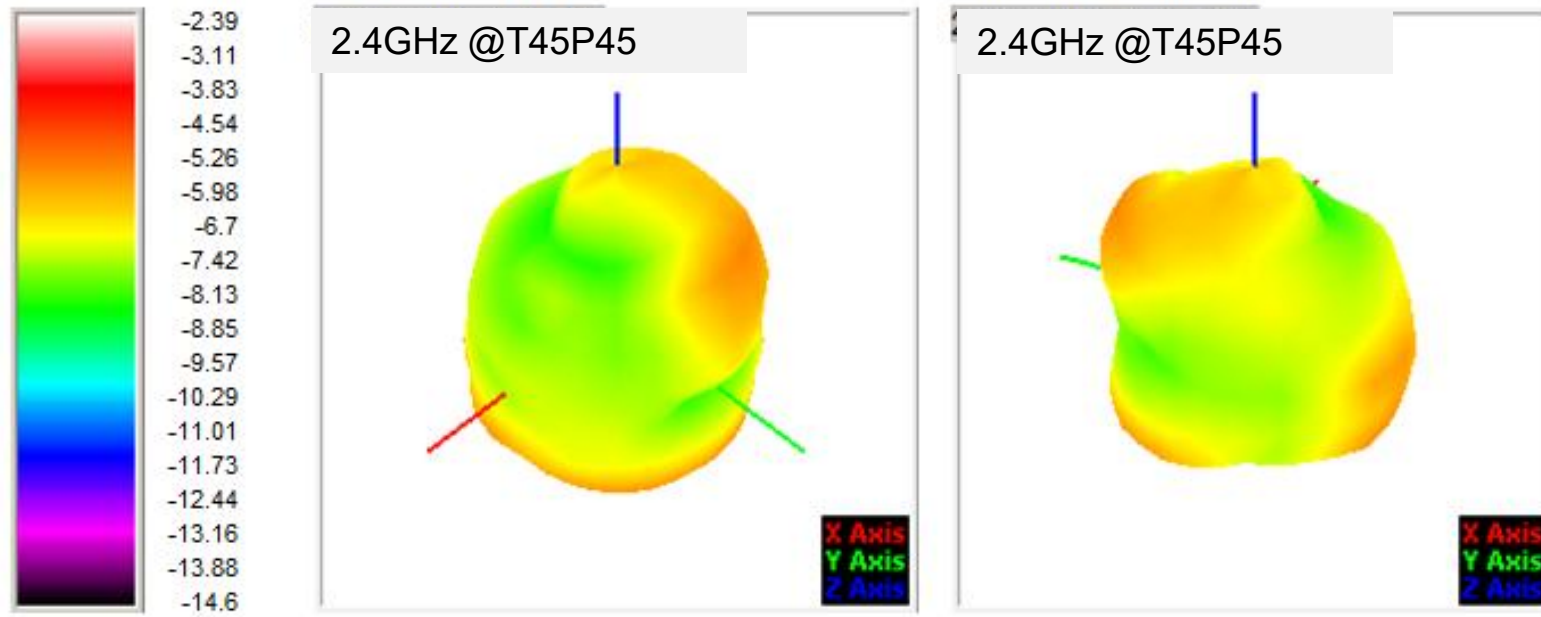
## Antenna pattern and apple chart



## Antenna pattern and apple chart



## Antenna pattern and apple chart





# Prompt description

## Tips:

- 1、 This data is only for the data generated by the prototype provided by the customer, and does not represent the customer's final mass production status;
- 2、 The customer is requested to carefully confirm the description of matching circuit modification and environmental treatment in our report;
- 3、 Before mass production, please provide trial production prototype to our company for secondary verification; Please inform us in advance if there are material changes, software updates and environmental treatment;
- 4、 If the customer needs a third party to retest or send it to the customer for testing, please come to our company for verification before sending the prototype; Prevent the machine from being different from the commissioning machine;
- 5: We do not accept the machine data other than our debugging and other darkroom test data, but you can refer to it, except for the certified darkroom. If there is any difference in the data, the debugging machine shall prevail to find the reason.