

RG-300T-LA

# Antenna Test Report

Model: RG-300T-LA

---

Antenna type: External PCB

---

manufacturer: Dongguan RF Electronic Technology Co., Ltd

---

Versions: V1.0

---

Adress: No. 1, Qinghuotou Sanqing Industrial Zone, Tangxia Town,  
Dongguan City.

November 11th, 2025

# 1 Antenna placement position and axial definition

## 1.1 Test environment description

| project              | configuration            | remark |
|----------------------|--------------------------|--------|
| Laboratory Name      | RenFeng                  |        |
| Darkroom system      | ETS 6*3*3                |        |
| test instrumentation | E5071C                   |        |
| relative coordinates | See the attached picture |        |
| Passive test points  | See the attached picture |        |

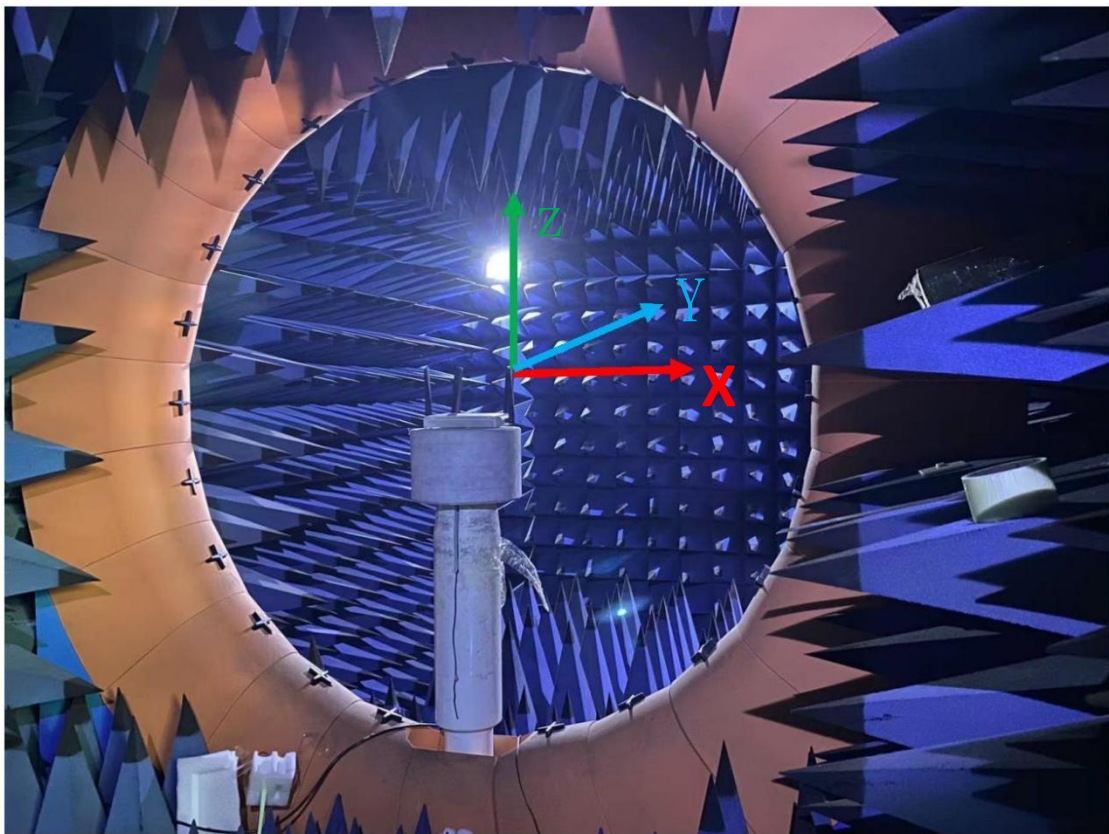


Figure 1 - Relative Coordinate Explanation Diagram

H plane: XY    E1 plane: XZ    E2 plane: YZ

### 1.3 Description of the Antenna to be Tested

| Antenna | name   | pattern       | modality   | Line         | Length |
|---------|--------|---------------|------------|--------------|--------|
| WIFI    | 2.4G-1 | <i>DIPOLE</i> | <i>PCB</i> | <i>42MM</i>  |        |
| WIFI    | 2.4G-2 | <i>DIPOLE</i> | <i>PCB</i> | <i>185MM</i> |        |
| WIFI    | 4G-1   | <i>DIPOLE</i> | <i>PCB</i> | <i>SMA</i>   |        |
| WIFI    | 4G-2   | <i>DIPOLE</i> | <i>PCB</i> | <i>SMA</i>   |        |

## 2 WIFI Antenna passive testing

### 2.1 2.4G WIFI Antenna 1

#### 2.1.1 Operating frequency, return loss and VSWR

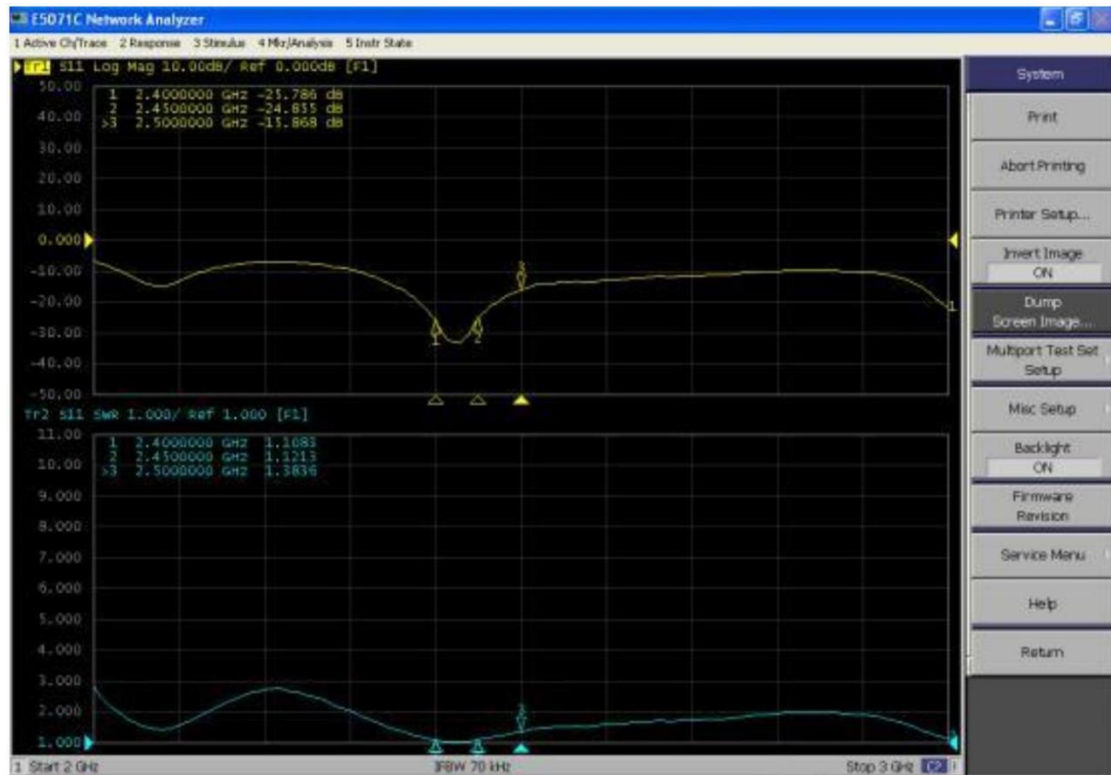


Figure 3 Antenna 1 (2.4G WIFI) Operating Frequency VSWR

## 2.1.2 Isolation

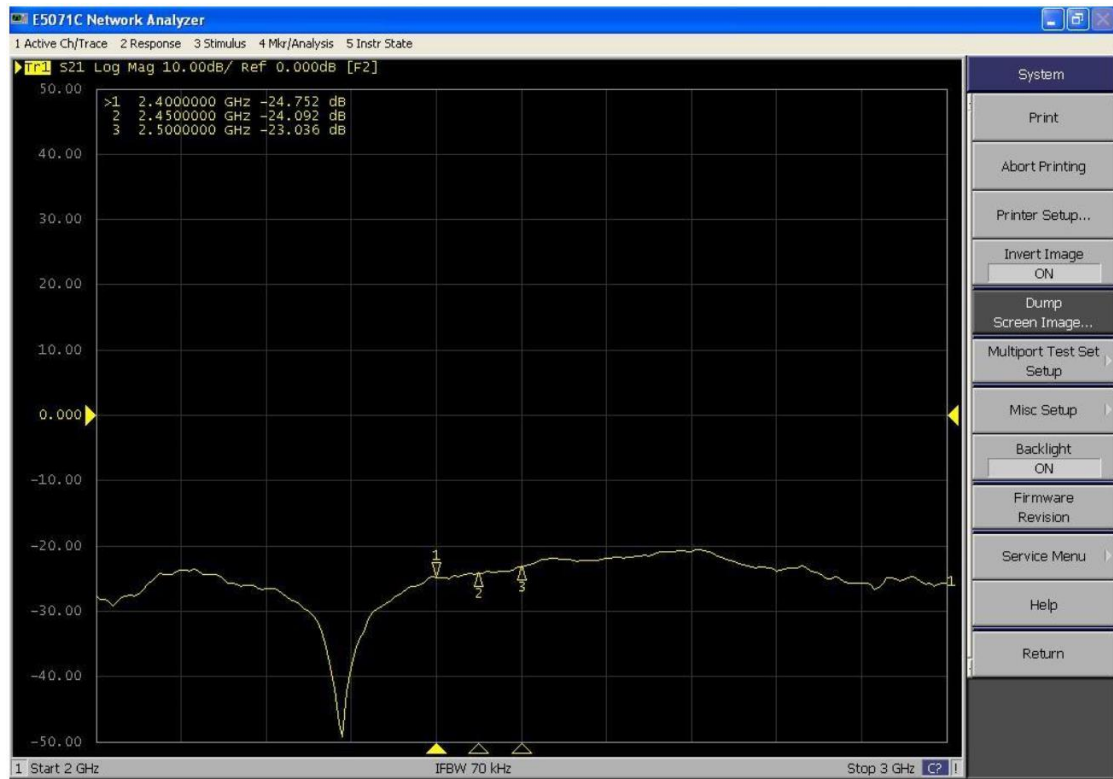


Figure 4 Isolation between Antenna 1 (2.4G WIFI) and Antenna 2 (2.4G WIFI)

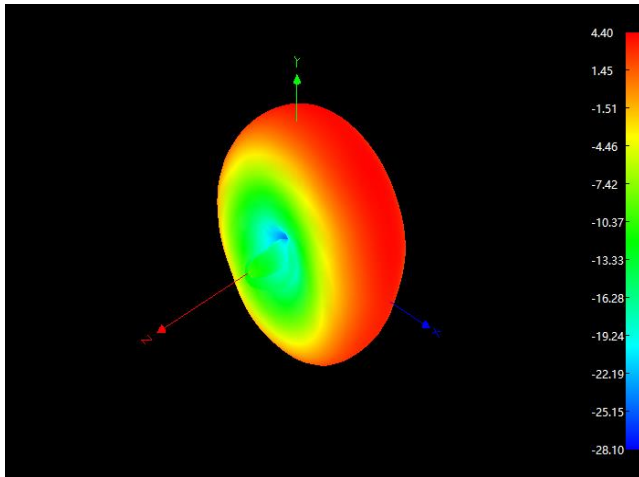
## 2.1.3 Efficiency and Gain

| Freq<br>(MHz) | Effi<br>(%) | Gain<br>(dBi) |
|---------------|-------------|---------------|
| 2400          | 73.75       | 4.4           |
| 2410          | 74.53       | 4.51          |
| 2420          | 73.18       | 4.53          |
| 2430          | 71.1        | 4.57          |
| 2440          | 75.11       | 4.52          |
| 2450          | 75.9        | 4.46          |
| 2460          | 70.72       | 4.58          |
| 2470          | 75.34       | 4.56          |
| 2480          | 76.03       | 4.66          |
| 2490          | 72.11       | 4.82          |
| 2500          | 73.18       | 4.8           |

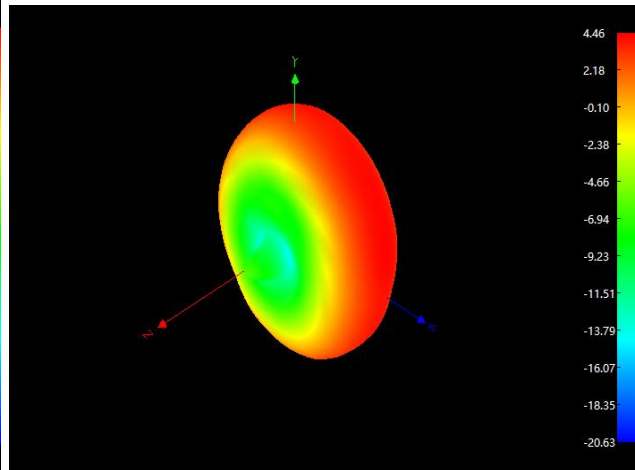
Figure 5 Efficiency and Gain of Antenna 1 (2.4G WIFI)

### 2.1.4 Antenna pattern

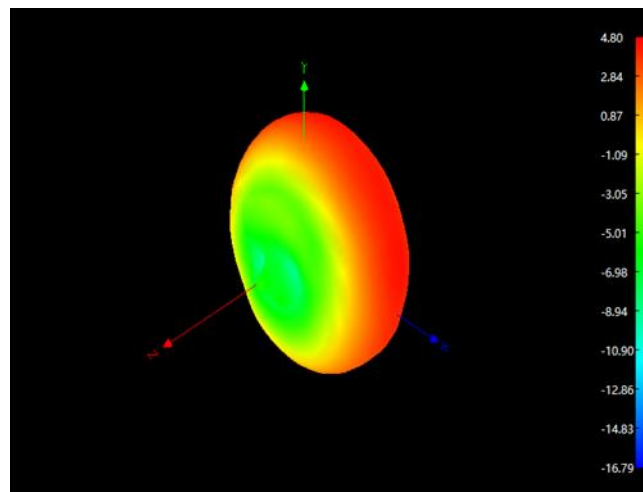
2400MHz



2450MHz



2500MHz



## 2.2 2.4G WIFI Antenna 2

### 2.21 Operating frequency, return loss and VSWR

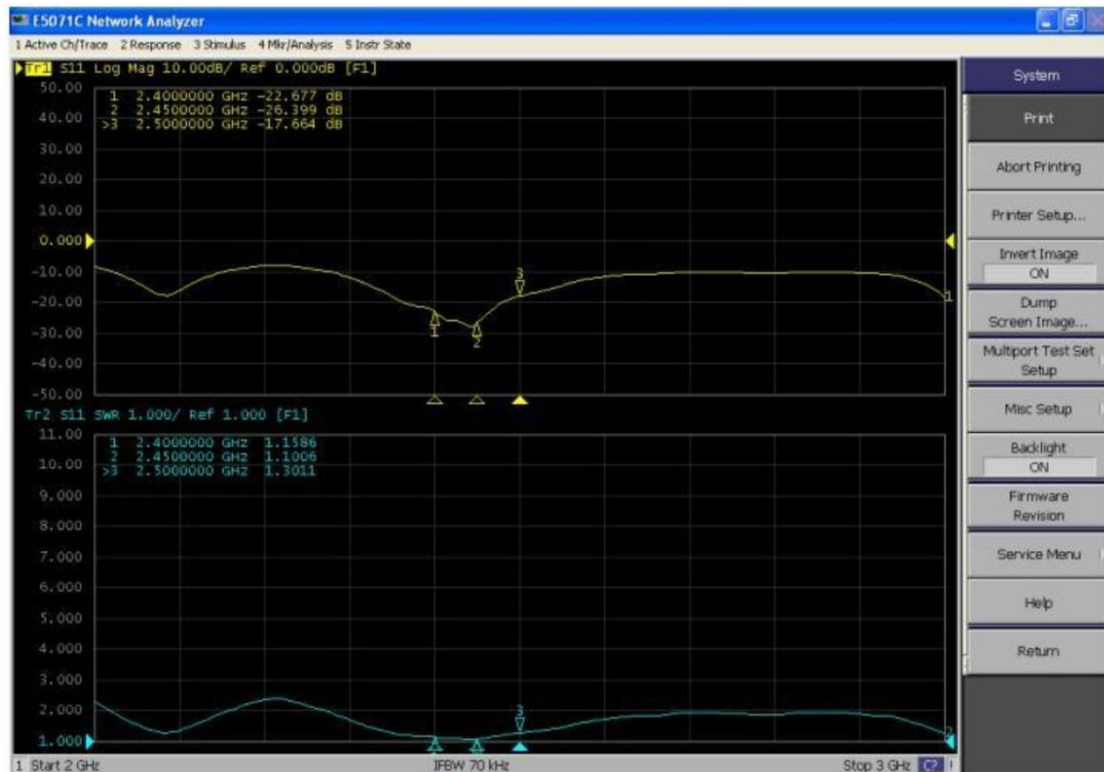


Figure 7 Working Frequency and VSWR of Antenna 2 (2.4G WIFI)

## 2.2.2 Isolation

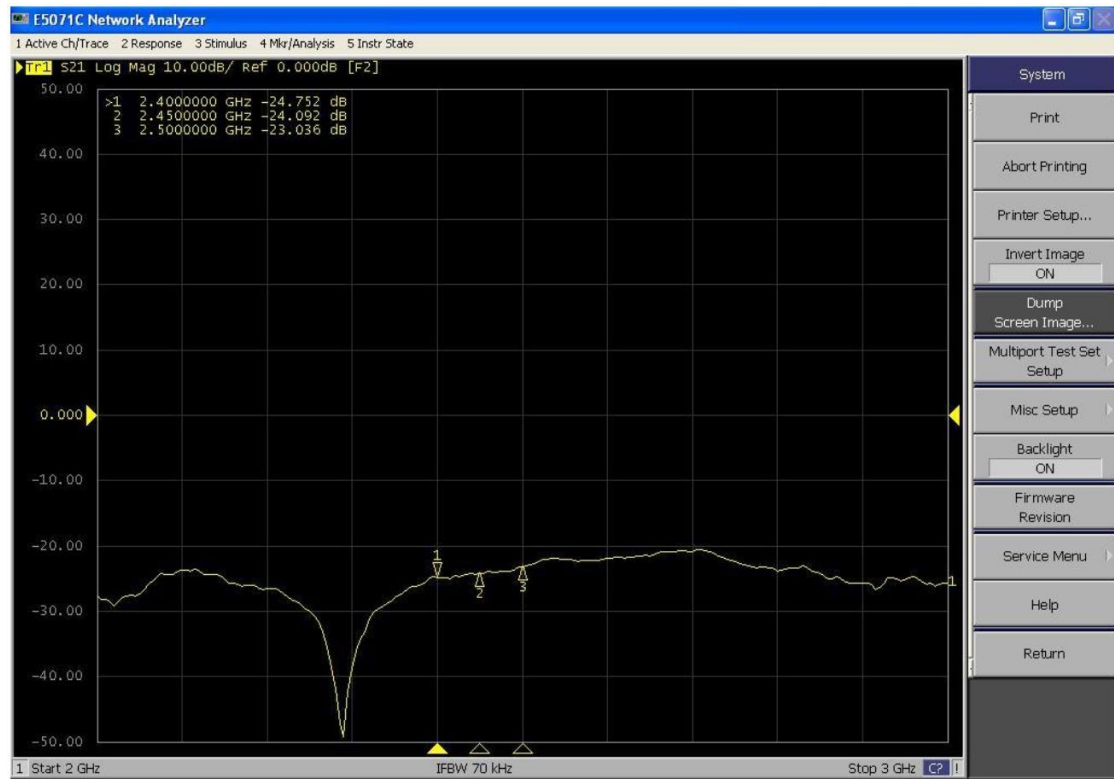


Figure 8: Isolation between Antenna 2 (2.4G WIFI) and Antenna 1 (2.4G WIFI)

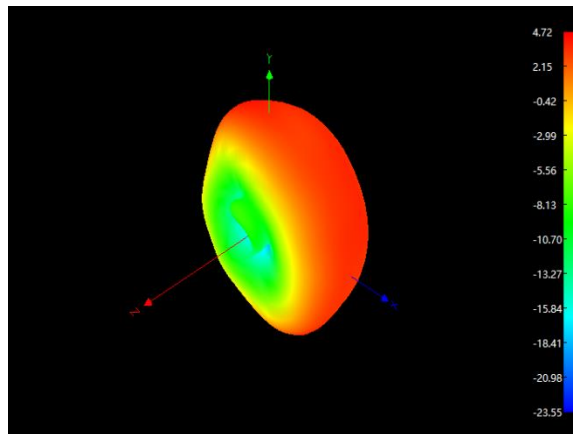
## 2.2.3 Efficiency and Gain

| Freq<br>(MHz) | Effi<br>(%) | Gain<br>(dBi) |
|---------------|-------------|---------------|
| 2400          | 71.45       | 4.72          |
| 2410          | 72.11       | 4.61          |
| 2420          | 71.12       | 4.43          |
| 2430          | 72.18       | 4.27          |
| 2440          | 72.78       | 4.58          |
| 2450          | 73.96       | 4.72          |
| 2460          | 70.15       | 4.62          |
| 2470          | 75.61       | 4.51          |
| 2480          | 76.45       | 4.78          |
| 2490          | 75.92       | 5             |
| 2500          | 74.71       | 4.56          |

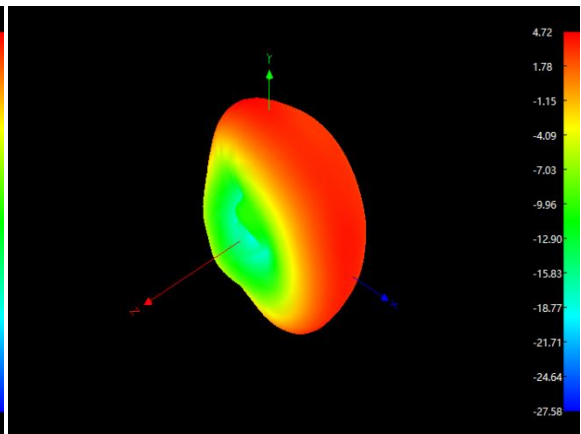
Figure 9 Efficiency and Gain of Antenna 2 (2.4G WIFI)

## 2.2.4 Antenna pattern

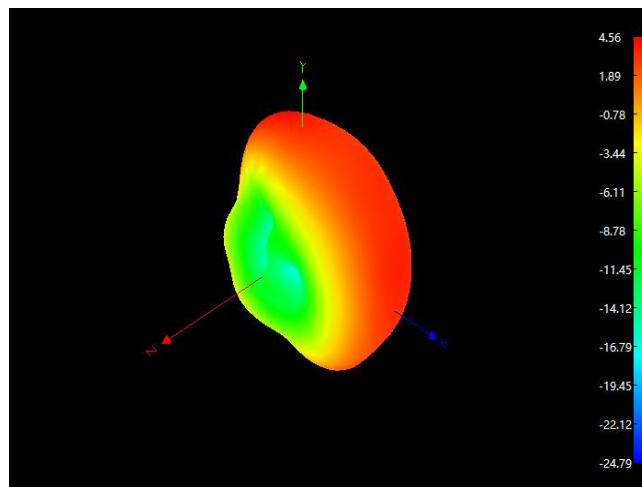
2400MHz



2450MHz



2500MHz



## 2.4 4G WIFI antenna 1

### 2.4.1 Operating frequency, return loss and VSWR

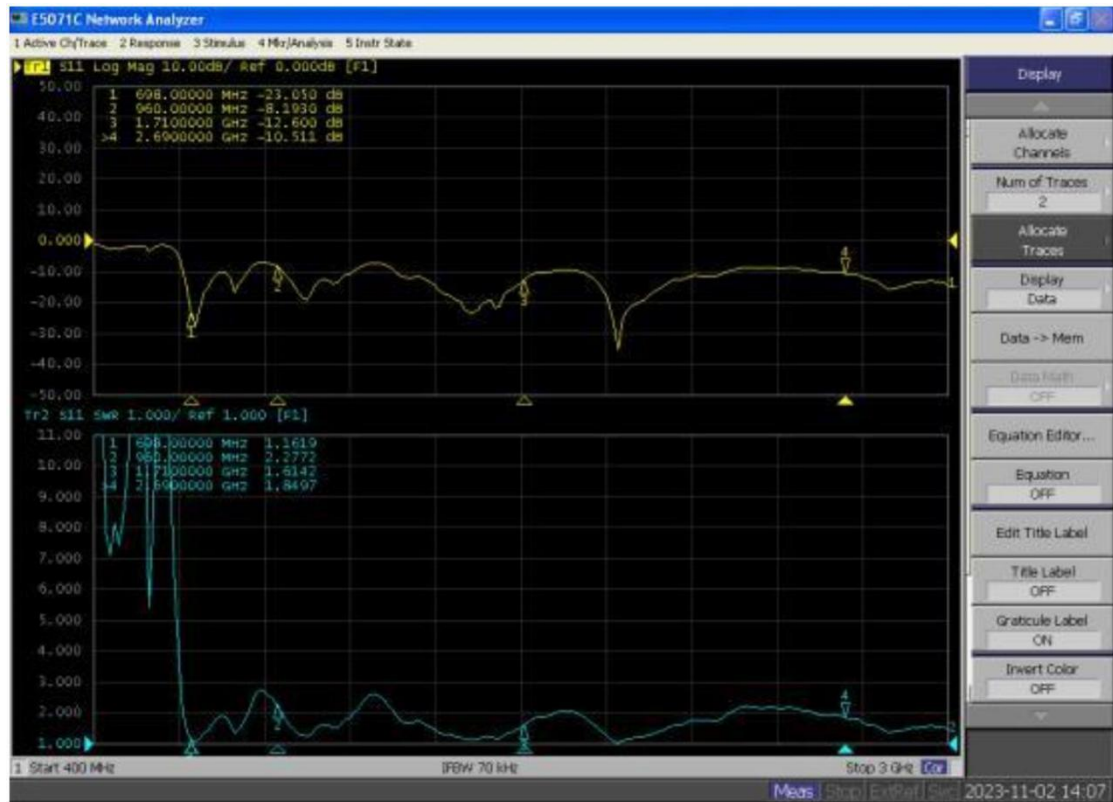


Figure 11 Antenna 1 (LTE WIFI) Working Frequency VSWR

## 2.4.2 Isolation

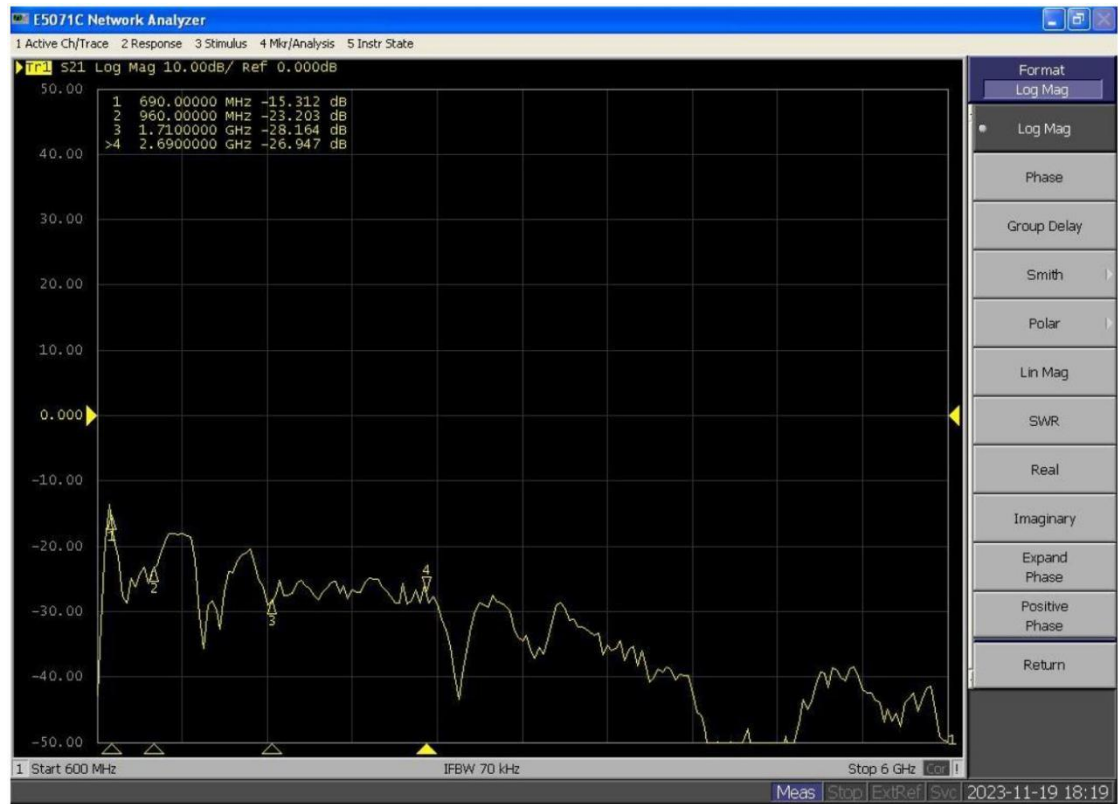


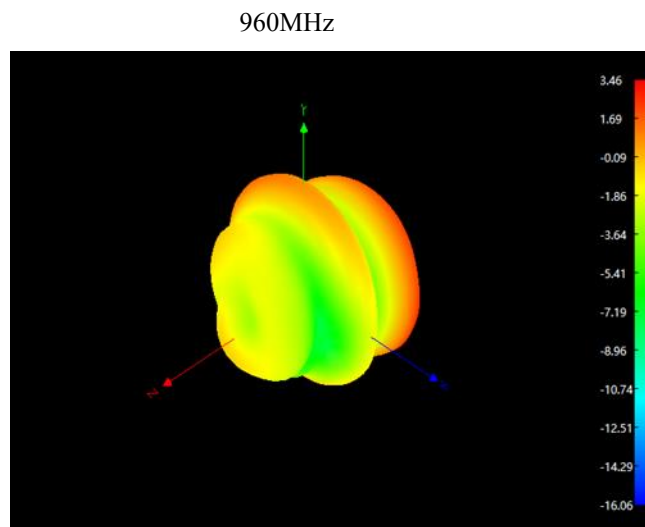
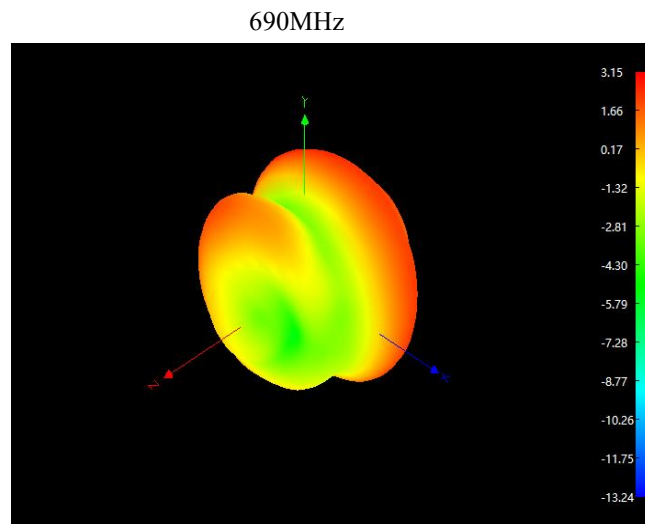
Figure 12 Isolation between Antenna 1 (LTE WIFI) and Antenna 2 (LTE WIFI)

### 2.4.3 Efficiency and Gain

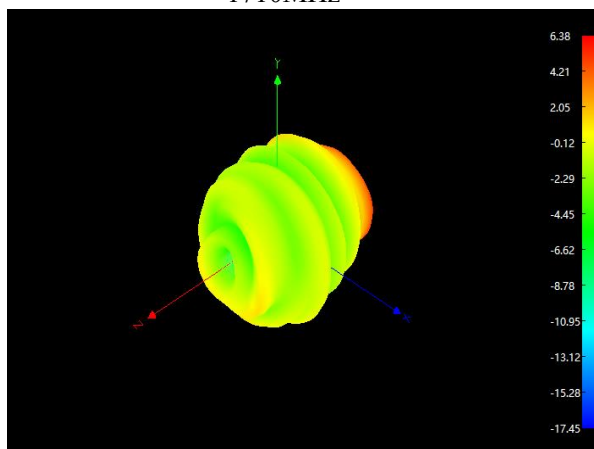
| Freq<br>(MHz) | Effi<br>(%) | Gain<br>(dBi) |
|---------------|-------------|---------------|
| 690           | 43.75       | 3.15          |
| 700           | 43.85       | 3.62          |
| 710           | 43.55       | 3.32          |
| 720           | 43.65       | 2.99          |
| 730           | 42.46       | 2.42          |
| 740           | 46.03       | 2.85          |
| 750           | 47.64       | 3.29          |
| 760           | 47.53       | 3.36          |
| 770           | 46.56       | 2.93          |
| 780           | 48.87       | 3.19          |
| 790           | 51.4        | 3.47          |
| 800           | 47.86       | 1.52          |
| 810           | 46.99       | 1.61          |
| 820           | 47.21       | 1.31          |
| 830           | 46.99       | 0.9           |
| 840           | 46.99       | 0.75          |
| 850           | 47.42       | 0.91          |
| 860           | 48.19       | 0.9           |
| 870           | 49.32       | 1.01          |
| 880           | 50.58       | 1.26          |
| 890           | 53.58       | 1.63          |
| 900           | 55.98       | 1.84          |
| 910           | 55.85       | 1.93          |
| 920           | 57.81       | 2.29          |
| 930           | 62.23       | 2.92          |
| 940           | 64.27       | 3.32          |
| 950           | 61.52       | 3.31          |
| 960           | 61.24       | 3.46          |
| 1710          | 65.77       | 6.38          |
| 1730          | 67.92       | 6.72          |
| 1750          | 65.92       | 6.6           |
| 1770          | 65.77       | 6.53          |
| 1790          | 65.46       | 6.25          |
| 1810          | 62.37       | 5.98          |
| 1830          | 62.81       | 6.08          |
| 1850          | 58.48       | 5.8           |
| 1870          | 59.57       | 5.75          |
| 1890          | 61.24       | 5.86          |

|      |       |      |
|------|-------|------|
| 1910 | 60.53 | 5.57 |
| 1930 | 60.12 | 5.09 |
| 1950 | 58.34 | 4.96 |
| 1970 | 57.02 | 4.91 |
| 1990 | 55.21 | 4.79 |
| 2010 | 53.21 | 4.56 |
| 2030 | 53.09 | 4.42 |
| 2050 | 56.1  | 4.46 |
| 2070 | 58.34 | 4.55 |
| 2090 | 59.7  | 4.43 |
| 2110 | 66.53 | 4.7  |
| 2130 | 60.53 | 3.96 |
| 2150 | 60.95 | 3.9  |
| 2170 | 56.1  | 3.31 |
| 2190 | 56.62 | 2.94 |
| 2210 | 54.7  | 2.71 |
| 2230 | 53.83 | 2.37 |
| 2250 | 52    | 1.92 |
| 2270 | 54.58 | 1.97 |
| 2290 | 53.7  | 1.77 |
| 2310 | 63.39 | 1.96 |
| 2330 | 60.81 | 1.78 |
| 2350 | 60.95 | 2.01 |
| 2370 | 58.34 | 2.14 |
| 2390 | 57.28 | 2.34 |
| 2410 | 58.48 | 3.06 |
| 2430 | 56.49 | 2.54 |
| 2450 | 61.38 | 3.01 |
| 2470 | 54.83 | 3.04 |
| 2490 | 56.75 | 3.71 |
| 2510 | 60.95 | 3.04 |
| 2530 | 63.68 | 3.25 |
| 2550 | 67.45 | 3.32 |
| 2570 | 70.63 | 3.22 |
| 2590 | 71.29 | 3.42 |
| 2610 | 62.37 | 3.51 |
| 2630 | 64.12 | 3.89 |
| 2650 | 62.81 | 3.91 |
| 2670 | 64.42 | 3.49 |
| 2690 | 62.23 | 2.81 |
|      |       |      |
|      |       |      |
|      |       |      |

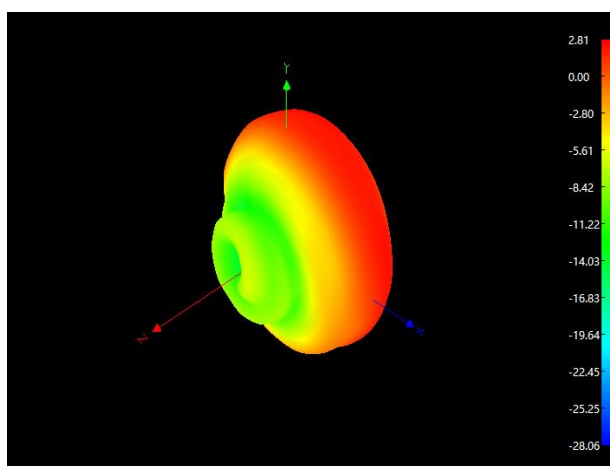
Figure 14 Efficiency and Gain of Antenna 1 (LTE WIFI)



1710MHz



2690 MHz



| A |  | B |  | C |  | D |  | E |  | F   |            | G           |  |
|---|--|---|--|---|--|---|--|---|--|-----|------------|-------------|--|
|   |  |   |  |   |  |   |  |   |  | REV | DATE       | DESCRIPTION |  |
|   |  |   |  |   |  |   |  |   |  | A   | 2023-11-10 | NEW ISSUE   |  |
|   |  |   |  |   |  |   |  |   |  | B   | 2024-03-12 | 变更PCB       |  |

|   |  |  |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|--|--|
| 1 |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |  |  |

|                  |       |             |             |     |        |
|------------------|-------|-------------|-------------|-----|--------|
| 1                | 泡沫    | 1           | EVA; Black  |     |        |
| 2                | PCB   | 1           | FR-4;       |     |        |
| 3                | 杆套    | 1           | ABS; Black  |     |        |
| 4                | 线材    | 1           | φ1.78 Brown |     |        |
| 5                | 铆钉    | 2           | POM; Black  |     |        |
| 6                | 上固定座  | 1           | ABS; Black  |     |        |
| 7                | 下固定座  | 1           | PC; Black   |     |        |
| 8                | SMA接头 | 1           | 黑色筒易大S      |     |        |
| NO.              |       | DESCRIPTION |             | QTY | REMARK |
| 带公差尺寸为检验尺寸       |       |             |             |     |        |
| 产品符合环保RoHS2.0之要求 |       |             |             |     |        |

|           |  |         |  |          |  |                             |  |           |  |                                |  |
|-----------|--|---------|--|----------|--|-----------------------------|--|-----------|--|--------------------------------|--|
| A         |  | B       |  | C        |  | D                           |  | E         |  | F                              |  |
| 尺寸范围 (mm) |  | 公差 (mm) |  | APPROVED |  | COSTOMER:                   |  | PART NO : |  | PARTNAME : RF Antenna Assembly |  |
| 0<L≤6     |  | ±0.10   |  | CHECKED  |  | R.F P/NO : U00T01S173N04509 |  | REV       |  | SCALE                          |  |
| 6<L≤30    |  | ±0.10   |  | DRAWING  |  | B                           |  | mm        |  | 1:1                            |  |
| 30<L≤90   |  | ±0.15   |  |          |  |                             |  | A4        |  | SHEET                          |  |
| 90<L≤180  |  | ±0.20   |  |          |  |                             |  |           |  |                                |  |
| 180<L≤315 |  | ±0.25   |  |          |  |                             |  |           |  |                                |  |
| 315<L≤800 |  | ±0.35   |  |          |  |                             |  |           |  |                                |  |
| 角度        |  | ±0.5°   |  |          |  |                             |  |           |  |                                |  |

规格 (Specification) :

频率 (Frequency Range) : 690-960/1710-2690MHz

回波损耗 (Return loss) : -9.5dB or less

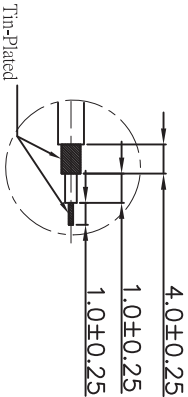
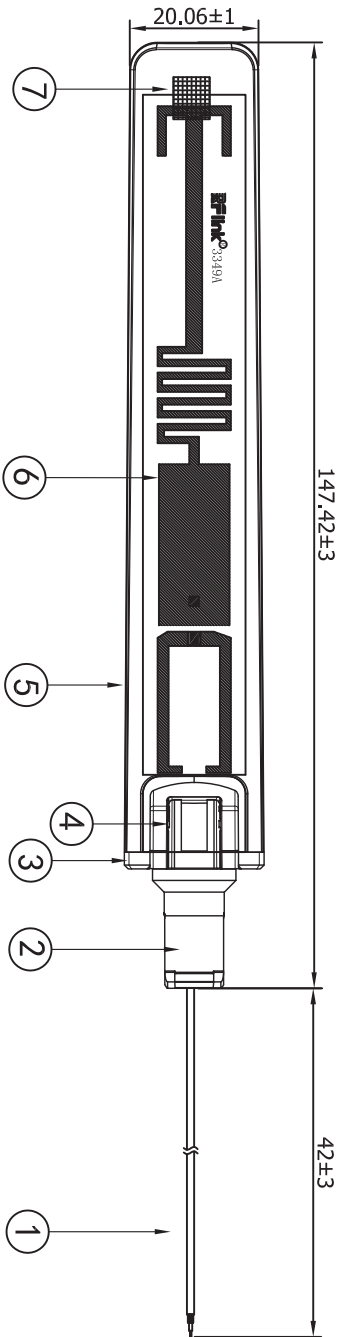
驻波比 (VSWR) : 2.5max

**RF link**

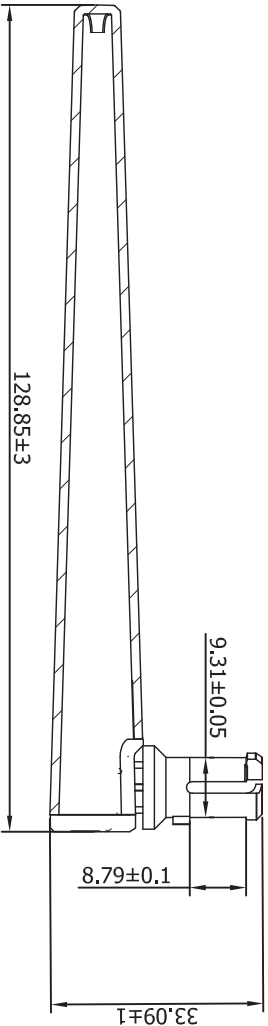
东莞市仁丰电子科技有限公司

RenFeng Electronic technology Co., LTD.

| F   |            | G           |  |
|-----|------------|-------------|--|
| REV | DATE       | DESCRIPTION |  |
| A   | 2024-01-19 | NEW ISSUE   |  |



DETAIL A  
SCALE:2.5/1



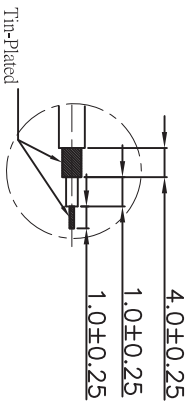
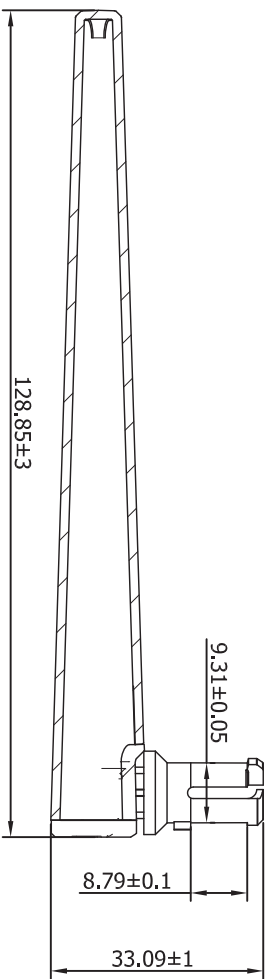
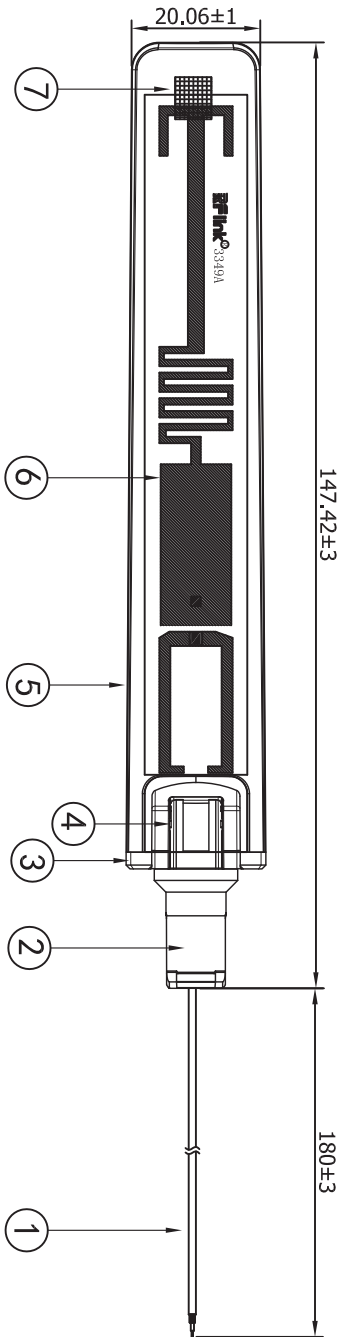
规格 (Specification) :  
频率 (Frequency Range) : 2.4G~2.5GHz  
回波损耗 (Return loss) : -9.5dB or less  
驻波比 (VSWR) : 2.0max

|                  |             |     |            |
|------------------|-------------|-----|------------|
| 7                | 泡棉          | 1   | EVA; Black |
| 6                | POB         | 1   | FR-4;      |
| 5                | 杆套          | 1   | ABS; Black |
| 4                | 铆钉          | 2   | POM; Black |
| 3                | 上固定座        | 1   | ABS; Black |
| 2                | 下固定座        | 1   | PC;Black   |
| 1                | 线材          | 1   | φ1.37 Gray |
| NO.              | DESCRIPTION | QTY | REMARK     |
| 带公差尺寸为检验尺寸       |             |     |            |
| 产品符合环保RoHS2.0之要求 |             |     |            |
| A                |             | B   | C          |

| A         |  | B       |  | C        |  | D         |  | E         |  | F                              |  | G                           |  |
|-----------|--|---------|--|----------|--|-----------|--|-----------|--|--------------------------------|--|-----------------------------|--|
| 尺寸范围 (mm) |  | 公差 (mm) |  | APPROVED |  | COSTOMER: |  | PART NO : |  | PARTNAME : RF Antenna Assembly |  | R.F P/NO : U00T01S173N04507 |  |
| 0<L≤6     |  | ±0.10   |  | CHECKED  |  | REV       |  | UNIT      |  | SCALE                          |  | SIZE                        |  |
| 6<L≤30    |  | ±0.10   |  | DRAWING  |  | A         |  | mm        |  | 1:1                            |  | A4                          |  |
| 30<L≤90   |  | ±0.15   |  |          |  |           |  |           |  |                                |  | SHEET                       |  |
| 90<L≤180  |  | ±0.20   |  |          |  |           |  |           |  |                                |  | 10F1                        |  |
| 180<L≤315 |  | ±0.25   |  |          |  |           |  |           |  |                                |  |                             |  |
| 315<L≤800 |  | ±0.35   |  |          |  |           |  |           |  |                                |  |                             |  |
| 角度        |  | ±0.5°   |  |          |  |           |  |           |  |                                |  |                             |  |

**RFlink**  
东莞市仁丰电子科技有限公司  
Renfeng Electronic technology  
Co., LTD.

| REV |            | DATE      | DESCRIPTION |
|-----|------------|-----------|-------------|
| A   | 2024-01-19 | NEW ISSUE |             |



DETAIL A  
SCALE:2.5/1

规格 (Specification) :  
频率 (Frequency Range) : 2.4G~2.5GHz  
回波损耗 (Return loss) : -9.5dB or less  
驻波比 (VSWR) : 2.0max

|                  |             |     |            |
|------------------|-------------|-----|------------|
| 7                | 泡棉          | 1   | EVA; Black |
| 6                | PCB         | 1   | FR-4;      |
| 5                | 杆套          | 1   | ABS; Black |
| 4                | 铆钉          | 2   | POM; Black |
| 3                | 上固定座        | 1   | ABS; Black |
| 2                | 下固定座        | 1   | PC; Black  |
| 1                | 线材          | 1   | φ1.37 Gray |
| NO.              | DESCRIPTION | QTY | REMARK     |
| 带公差尺寸为检验尺寸       |             |     |            |
| 产品符合环保RoHS2.0之要求 |             |     |            |

|                                                                                   |  |         |          |                                          |  |   |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------|--|---------|----------|------------------------------------------|--|---|--|--|--|--|--|--|--|--|
| 尺寸范围 (mm)                                                                         |  | 公差 (mm) | APPROVED | COSTOMER:                                |  |   |  |  |  |  |  |  |  |  |
| 0<L≤6                                                                             |  | ±0.10   |          |                                          |  |   |  |  |  |  |  |  |  |  |
| 6<L≤30                                                                            |  | ±0.10   |          |                                          |  |   |  |  |  |  |  |  |  |  |
| 30<L≤90                                                                           |  | ±0.15   |          |                                          |  |   |  |  |  |  |  |  |  |  |
| 90<L≤180                                                                          |  | ±0.20   |          |                                          |  |   |  |  |  |  |  |  |  |  |
| 180<L≤315                                                                         |  | ±0.25   | CHECKED  | PARTNAME : RF Antenna Assembly           |  |   |  |  |  |  |  |  |  |  |
| 315<L≤800                                                                         |  | ±0.35   |          |                                          |  |   |  |  |  |  |  |  |  |  |
| 角度                                                                                |  | ±0.5°   |          |                                          |  |   |  |  |  |  |  |  |  |  |
|  |  |         | DRAWING  | PART NO :<br>R.F P/NO : U00T01S173N04508 |  |   |  |  |  |  |  |  |  |  |
|  |  |         |          |                                          |  |   |  |  |  |  |  |  |  |  |
|                                                                                   |  |         |          |                                          |  |   |  |  |  |  |  |  |  |  |
|                                                                                   |  |         |          |                                          |  |   |  |  |  |  |  |  |  |  |
| A                                                                                 |  |         | B        |                                          |  | C |  |  |  |  |  |  |  |  |
| D                                                                                 |  |         | E        |                                          |  | F |  |  |  |  |  |  |  |  |
| G                                                                                 |  |         | H        |                                          |  | I |  |  |  |  |  |  |  |  |

**RF link**  
东莞市仁丰电子科技有限公司  
RenFeng Electronic technology  
Co., LTD.