# Antenna Acknowledgement

## Dongguan Hanyi Electronics Co., Ltd

Company address： No. 25, Puxin Lake Center 2nd Road, Tangxia Town, Dongguan City

Hanyi Item No：5G-330mm-4.4mm-tail 9.5mm antenna buckle

Specification Description：5G copper tube antenna, line length L: 330mm

Customer Name：

Customer Item Number：

Factory signature：

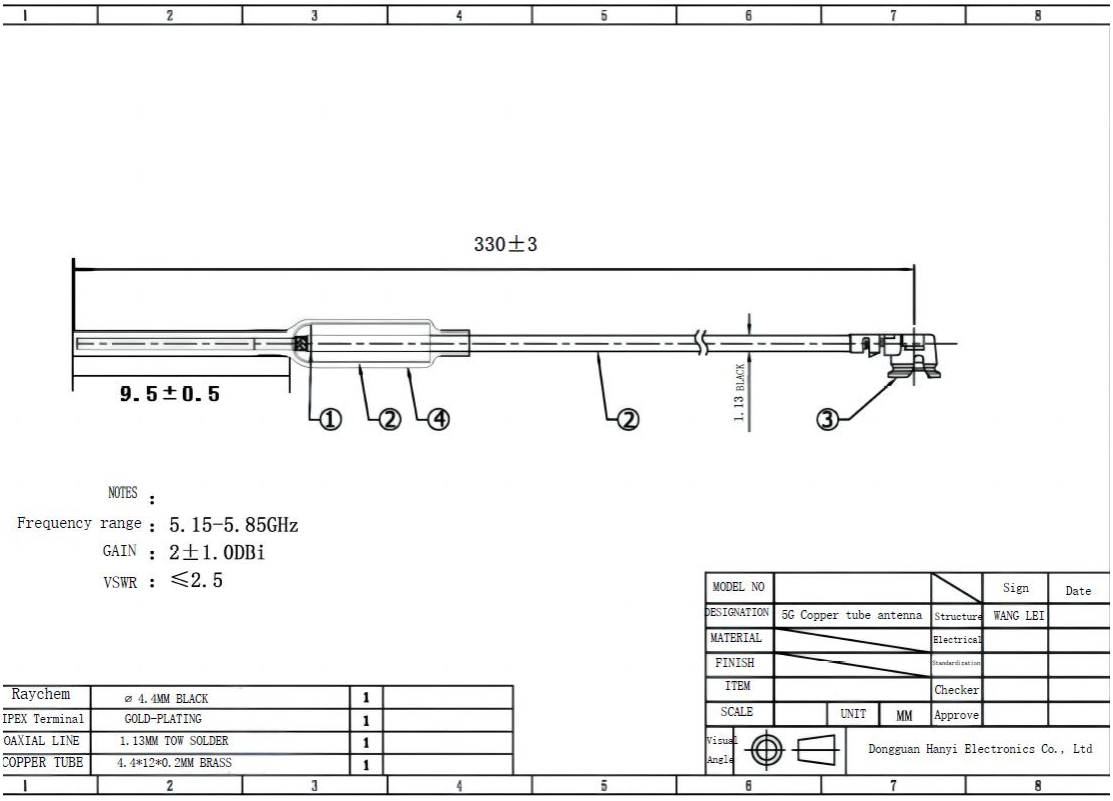
| Write | Examine | Approval |
|---|---|---|
| Guo Wu | Yan Mei | Xiaofang Wang |

Customer Acknowledgement Signature：

| Check | Examine | Approval |
|---|---|---|
| Shun Chen | Ying Liao | xia Ying Gong |

# Content

## 3 Product Picture



4 Specification)

| Parameter | |
|---|---|
| Frequency | 5015-5800MHz |
| Impedance | 50Ω |
| VSWR | ≤2.5 |
| Connector | Generation 1 terminal |
| Gain | ≥1.88dBi |
| Mechanical Parameter | |
| Length | 330±3mm |
| Cable | / |
| Salt Spray Test | 24H |
| Environment Parameter | |
| Operation Temperature | -20℃~65℃ |
| Storage Temperature | -30℃~75℃ |

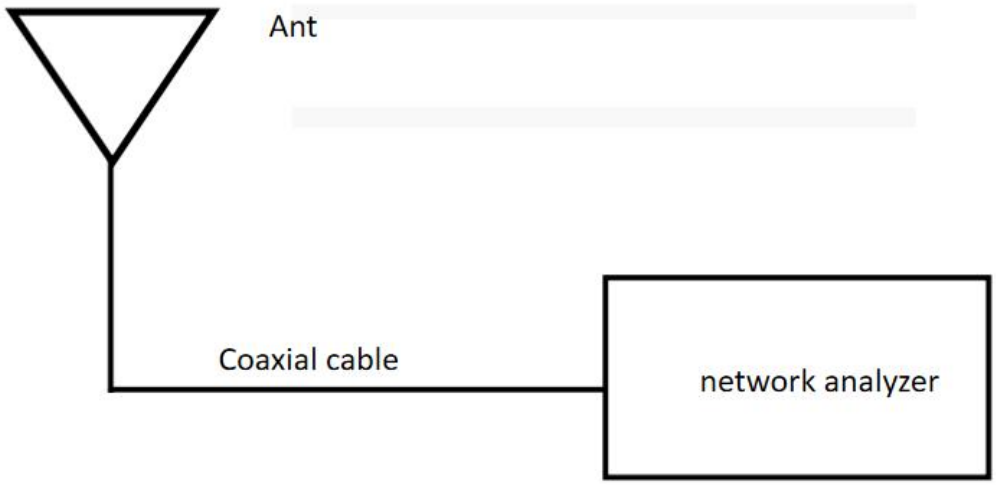
**5 Test Equipment & Conditions**

**5.1 VSWR Test**

**5.1.1 Test equipment**

Agilent5071C Network Analyzer.

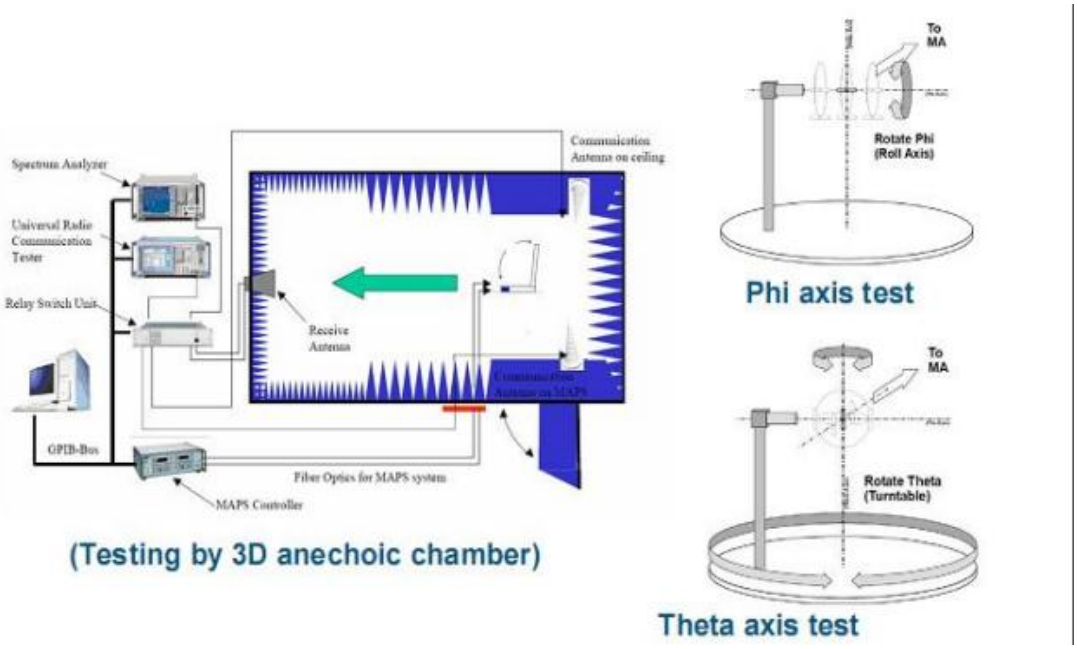
**5.1.2 Test system**



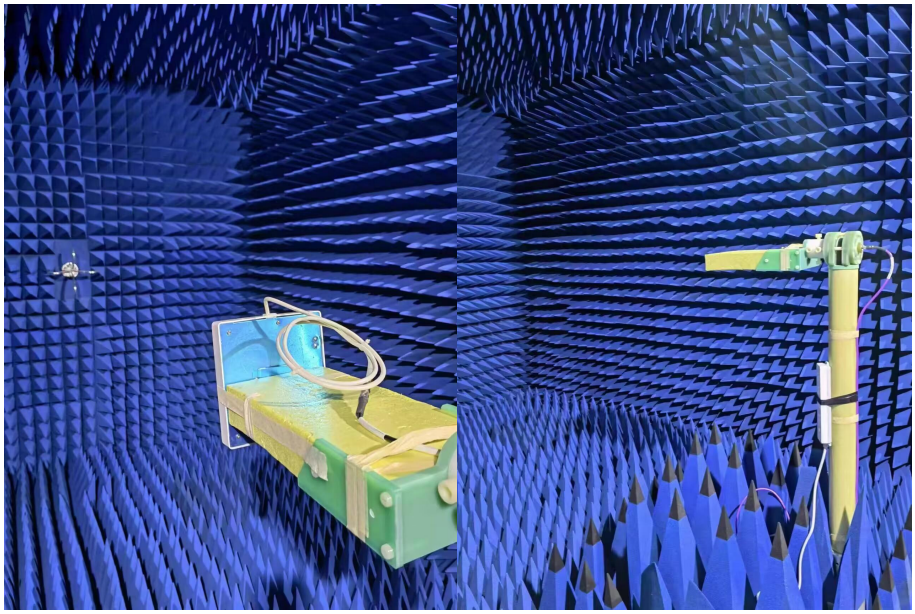

Antenna standing wave test equipment is connected in sequence: Agilent 5071C network analyzer → test cable → antenna.

**5.2 Radiation Pattern test**

**5.2.1 3D Chamber Test System**



### 5.2.2 Radiation Pattern test environment

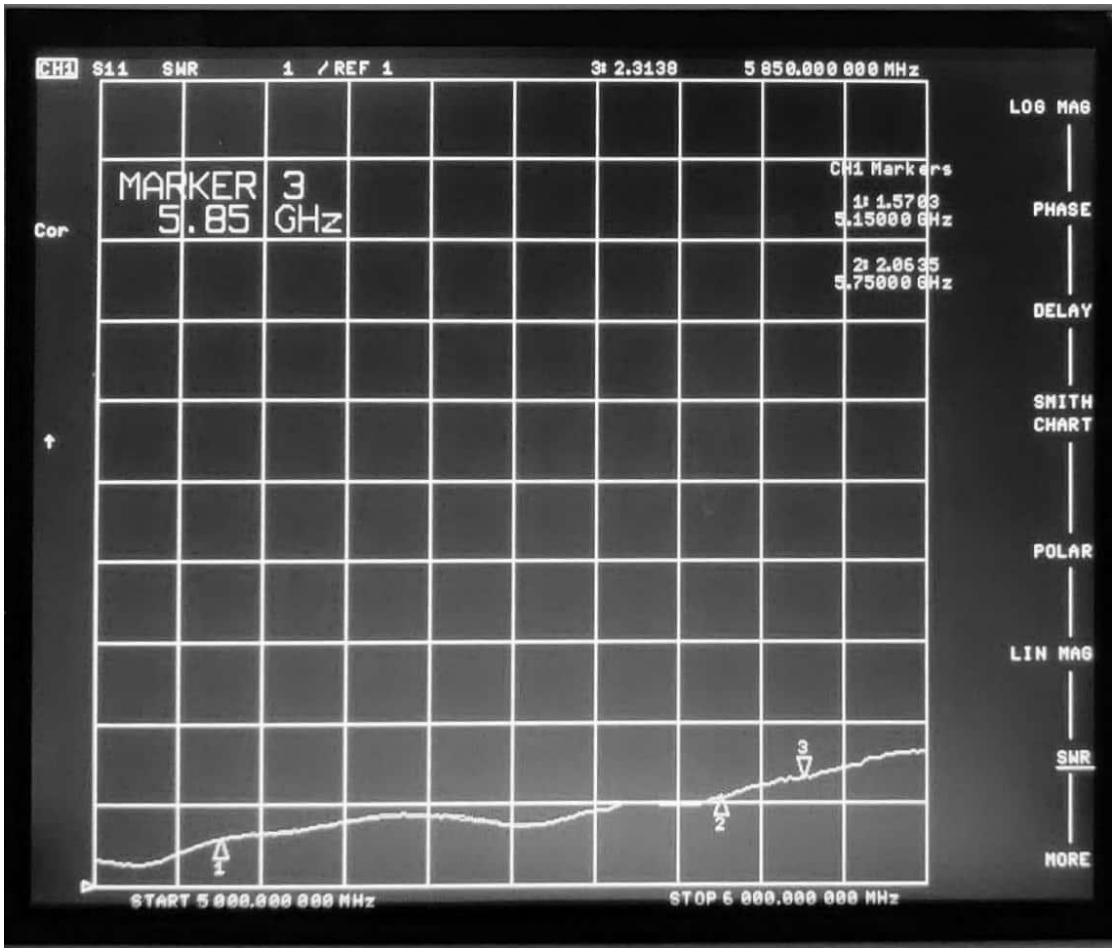



LR microwave anechoic chamber: The test frequency range is 400MHz to 6GHz, and in a spherical quiet zone with a diameter of 40cm, the anechoic chamber provides a reflectivity of less than - 90dB in the range of 400MHz to 6GHz.

6.Radiation Report

6.1 VSWR

6.1.1 VSWR Test waveform

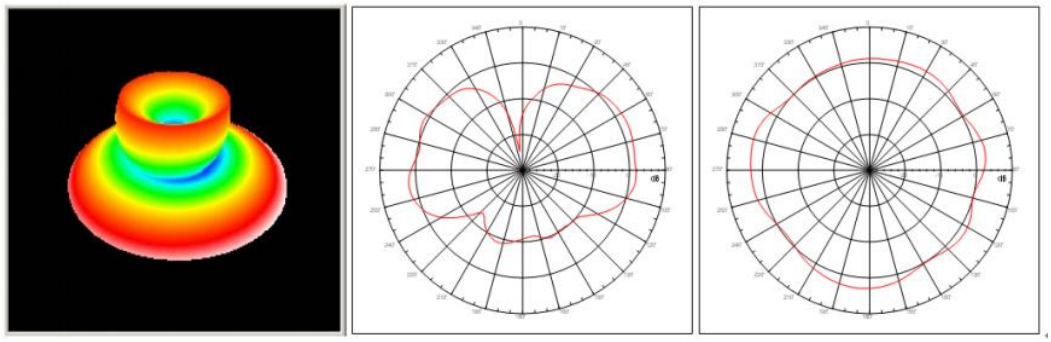



6.1.2 VSWR test result

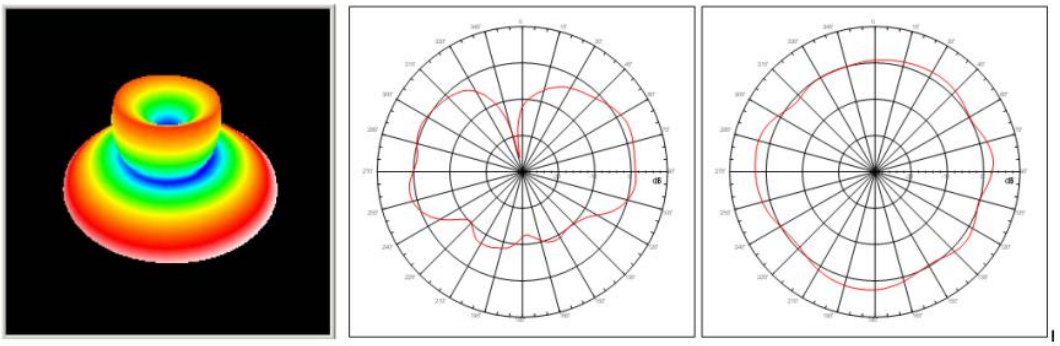
| | |
|---|---|
| Frequency | 5015-5800MHz |
| VSWR | ≤2.5 |

6.2 Radiation Pattern

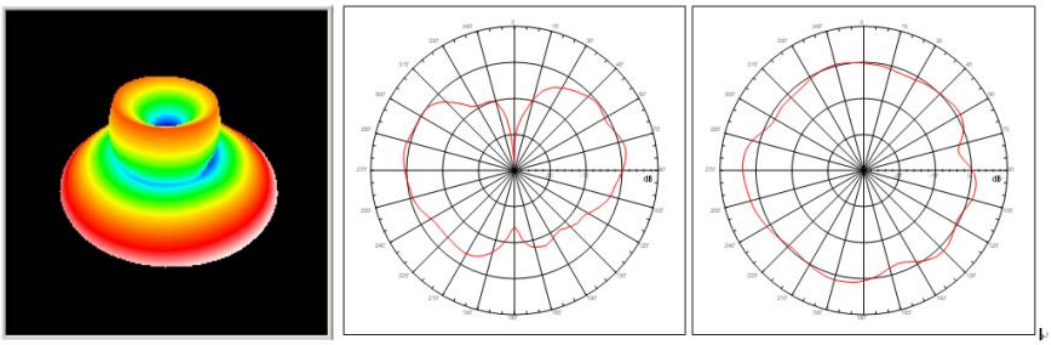
6.2.1 Radiation Pattern



5.15GHz Gain:2.16 Efficiency:108.0%



5.35GHz Gain:1.96dBi Efficiency:95.0%



5.85GHz Gain:1.88 Efficiency:94.0%

6.2.2 Radiation Pattern test result

| Frequency<br>MHz | Gain<br>dBi | Effi<br>% |
|---|---|---|
| 5150 | 2.16 | 108 |
| 5350 | 1.96 | 95 |
| 5850 | 1.88 | 94 |

## 7 Reliability Report

### 7.1 Constant Temperature and Humidity Test

| | | |
|---|---|---|
| Project | Constant Temperature and Humidity Test | Check ID |
| Product Name | Copper tube antenna | quantity:5PCS |
| Date Of Test: 2022-05-24 | | Date of Complete: 2022-05-25 |

Equipment For Test
1. Programmable Constant Temperature And Humidity Test Box.
2. 8753ES Network Analyser.

Condition For Test
1. Under room temperature, 65% humidity.
2. Under 80° , 85%~90% humidity , 2 hour per circulation, total 24 hours.

Test Result

Standard
1、Shedding-free, Non-cracking, No separation on the surface of metal ;Non-fading, Non-cracking, Non-deforming on the surface of nonmetal.
2、Test result meet the technical requirements.

| Project | Before Test | After Test | Problem | Result |
|---|---|---|---|---|
| Appearance | shedding-free, Non-cracking, No separation | Non-fading, Non-cracking, Non-deforming | Void | Pass |
| performance | VSWR Pass | VSWR Pass | Void | Pass |

Result: ■ PASS FAIL Unable to judge

Tested by: Liu Jie Reviewed by: Li Fei Approved by: Zhang Yunchun

**7.2 Salt Spray Test**

| | | |
|---|---|---|
| Project | Salt Spray Test | Test ID |
| Project Name | Copper tube antenna | quantity： 5PCS |
| Date of test: 2021-05-26 | | Date of complete:2022-05-28 |

Test equipment:
1.HL-60-SS Salt Spray Test Tester.

Test Condition:
1.35±2℃ in the salt spray test box; 22~30℃ in the laboratory
2.PH=6.5/7.2, the concentration of the sodium chloride decade to 50 ±10g/L after 24 hours on per 80 square centimeter.

Result：Pass

| Number | (Result | Problem |
|---|---|---|
| 1 | Pass | Void |
| 2 | Pass | Void |
| 3 | Pass | Void |
| 4 | Pass | Void |
| 5 | Pass | Void |

Result: ■ PASS FAIL Unable to judge

Tested by: Liu Jie Reviewed by: Li Fei Approved by: Zhang Yunchun