# SPECIFICATION

Daxian Communication Technology Limited

## Shenzhen Daxian Technology Co., Ltd.

## Unimax Q3205 BT/WIFI/GPS antenna

# Product specification

| | | | |
|---|---|---|---|
| Guest households | Unimax | frequency band | BT/WIFI/GPS |
| Project name | Q3205 | version | V10 |
| Material No. | 3Q-3205X-019 | color | Black |
| R F design | Xitian.Chen | structure design | Yezhi.Bi |
| Quality Manager | Ziyin.Hu | R & D director | Lei.Zhang |
| Date | 2023-05-31 | | |

client confirmation：

Whether the assembly meets your requirements：☐OK ☐NG

Shenzhen Topant Technology Co., Ltd.

Shangshuijing Village, No. 513, ihua Road, BujiTown, Longgang District, Shenzhen (opposite to theNational Defense Training Base)reached the 7thfloor of the Industrial Park Complex
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# Change resume

| version number | Change content | Reason for change | Initiate change Party | date | Modifier |
|---|---|---|---|---|---|
| V1.0 | create | | | 2023.5.31 | |
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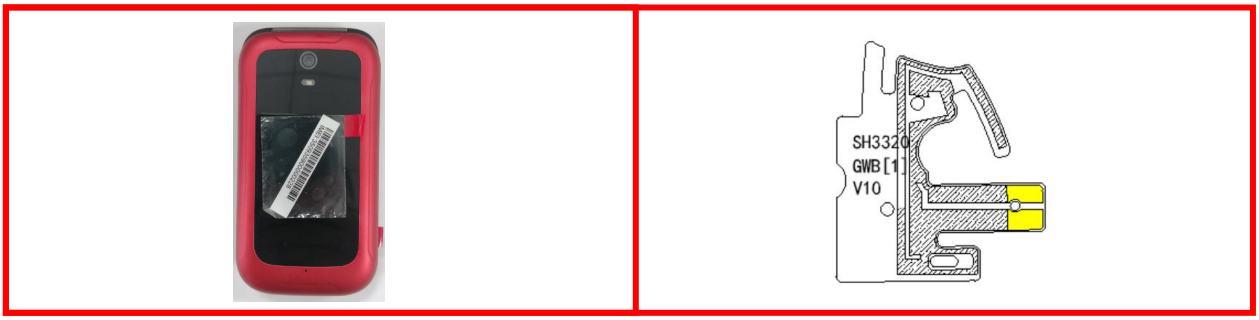
# Index

# 一 Project description

| | |
|---|---|
| **Customer name：** | Unimax |
| **Whole machine type：** | mobile phone |
| **Antenna band：** | BT/WIFI/GPS |
| **Antenna form：** | FPC |
| **Feed form：** | welding |
| **Number of feed feet：** | 2 left and right ears |
| **Hardware version：** | motherboard： |

# 一、BT/WIFI/GPS Antenna

**This report provides a variety of measurements of the electrical performance of the Q3205 antenna. Figure 1 shows the antenna designed by the display.**




**Whole machine appearance chart** **antenna appearing diagram**

**Figure 1**

## 1.1 Electrical specification standard

**The frequency range of the antenna is 2400MHz~2500MHz,GPS：1575MHz. The following table indicates the electrical performance specifications of the antenna. The antenna is designed and manufactured by a large display.**

| Frequency Range | Frequency (MHz) | VSWR |
|---|---|---|
| **BT** | **2400 ~ 2500** | **≤ 2** |
| **WIFI** | **2400 ~ 2500** | **≤ 2** |
| **GPS** | **1575MHz** | **≤ 2** |

## 1.2 Antenna composition

The antenna is mainly composed of FPC.

# 2、 The Equipment of Active Test

Satimo 3D Chamber 6×4×4( m )

Agilent 8960 E5515c

Network analyzer-R&S ZVL

**Figure 2**

# 3 test

## 3.1 The Test of standing Wave (VSWR)

**3.1.1 The Test of standing Wave (VSWR)：** In turn, the connection of the VSWR testing device is as follows: RES ZVL Network Analyzer / testing Line / testing tool

**Actual measurement (with diagram)**

## 3.2 Measurement of Efficiency, Power (TRP) and Sensitivity (TIS)

### 3.2.1 Test site：

Large-scale microwave darkroom. The test frequency range is 400MHz / 6GHz, the static range is 50cm circumferential and the reflectivity is less than-50 dB..

### 3.2.2 Test instrument：

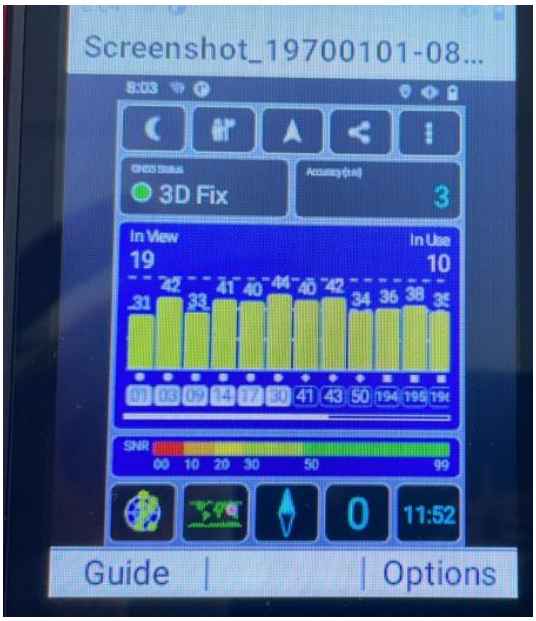
Rs ZVL Network Analyzer, Agilent8960 E5515C, Standard Horn Antenna, French SATIMO-SG24SYSTEM system, Printer, etc.

**3.2.3 test data ：In microwave anechoic chambers, the power and sensitivity values measured are shown in the following table:**

## OTA Passive Efficiency&Gain Test:

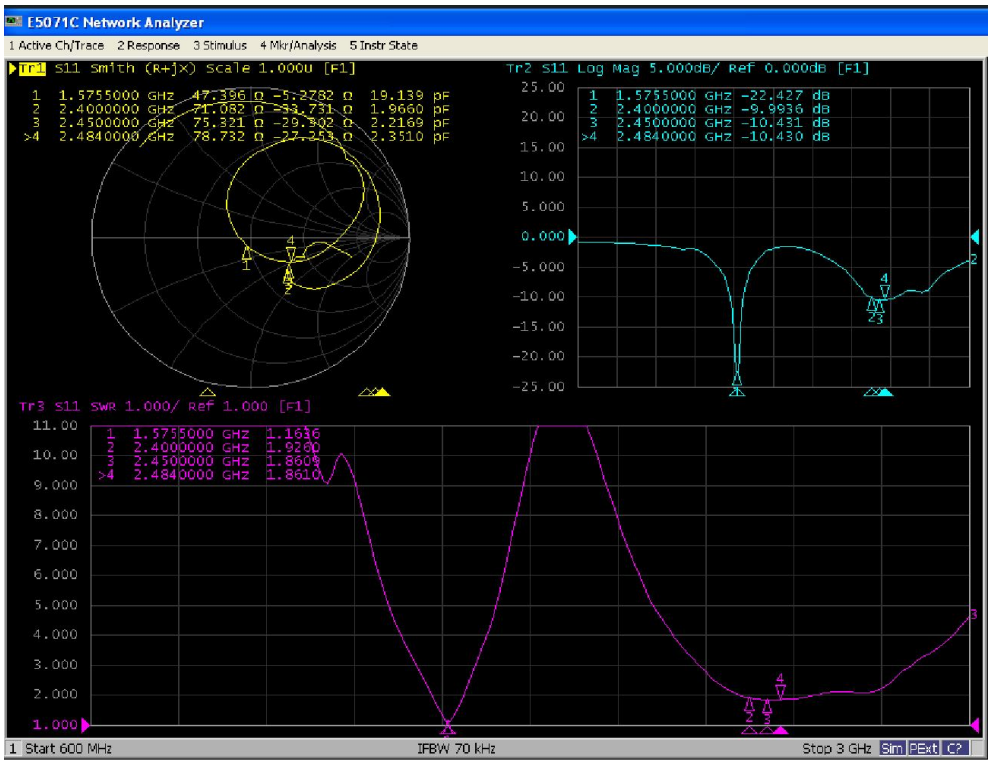
| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
|---|---|---|---|---|---|---|---|
| 1530 | 38.04 | -4.2 | 0.66 | 2400 | 54.69 | -2.27 | 3.84 |
| 1540 | 38.32 | -4.17 | 0.4 | 2410 | 55.53 | -2.22 | 3.84 |
| 1550 | 39.34 | -4.05 | 0.35 | 2420 | 55.65 | -2.21 | 3.81 |
| 1560 | 39.76 | -4.01 | 0.21 | 2430 | 56.23 | -2.18 | 3.78 |
| 1570 | 41.12 | -3.86 | 0.71 | 2440 | 57.81 | -2.09 | 3.86 |
| 1580 | 40.71 | -3.9 | 0.89 | 2450 | 57.99 | -2.08 | 3.86 |
| 1590 | 39.19 | -4.07 | 0.88 | 2460 | 59.46 | -2 | 3.97 |
| 1600 | 36.46 | -4.38 | 0.73 | 2470 | 60.49 | -1.94 | 4.13 |
| | | | | 2480 | 60.19 | -1.96 | 4.06 |
| | | | | 2490 | 59.06 | -2.02 | 4.16 |
| | | | | 2500 | 59.73 | -1.98 | 4.18 |

# GPS measurement：

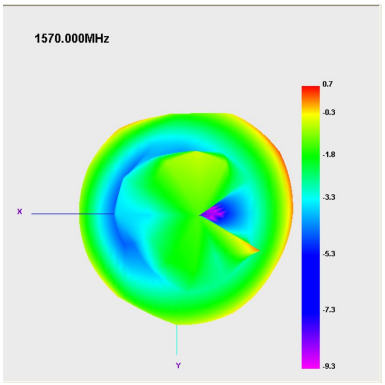


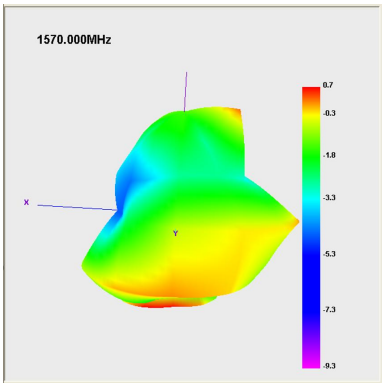

# 4、Attachment chart

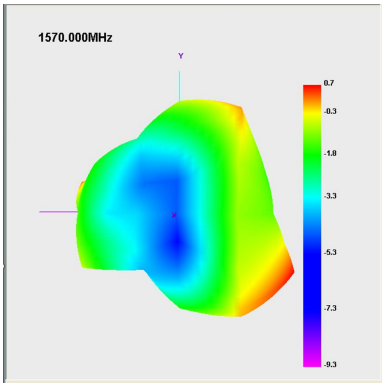
## 4.1 VSWR parameter diagram



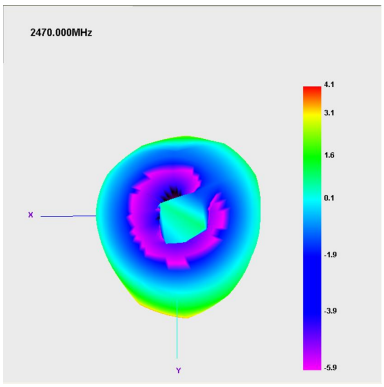
# 5、GPS passive field pattern diagram

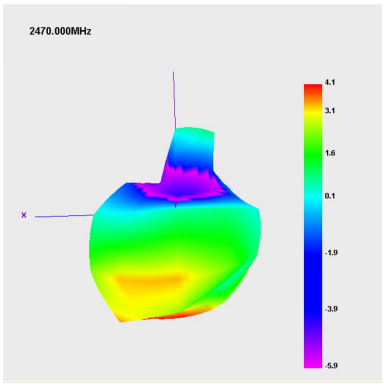


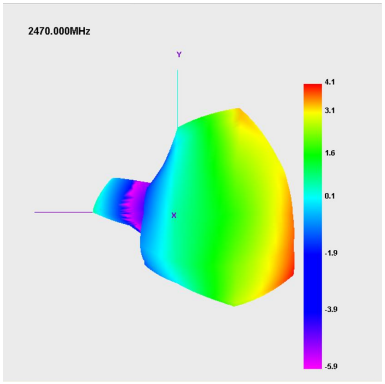



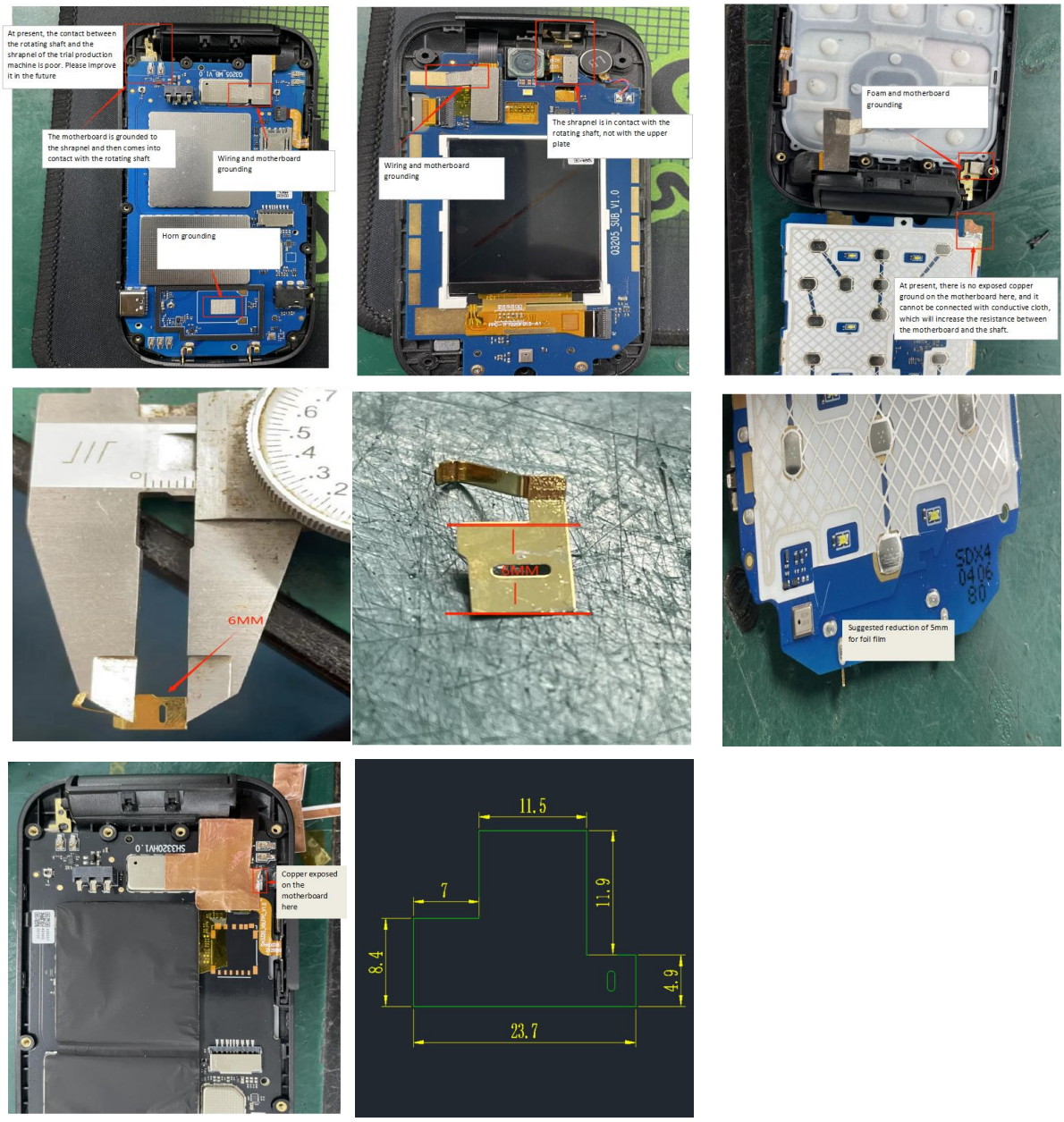

# 5.1、WiFi passive field pattern diagram



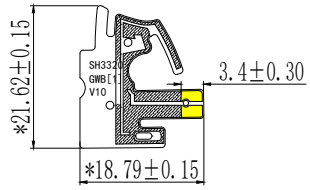
# 5、environmental treatment




# 6、conclusion：

This antenna is designed on the basis of the prototype provided by the customer, electrical parameters and structural performance have reached the technical requirements, please confirm!

| 0~10 | 10~30 | 30~50 | 50~ | 角度 | ○ | ◎ | ⊥ | ▱ |
|---|---|---|---|---|---|---|---|---|
| 0.05 | 0.10 | 0.15 | 0.20 | 1° | 0.02 | 0.02 | 0.03 | 0.05 |

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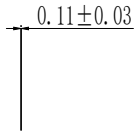


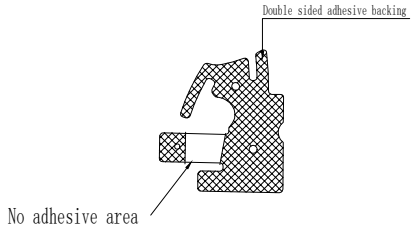


Delivery without release paper

BOT

technical requirement:

1. "*" is the key dimension;
2. Please refer to the drawing for unspecified dimensions;
3. Meet RoHS requirements.

| edition | describe | date | Note |
|---|---|---|---|
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| | | | |
| A | Initial Issue | 2023.05.27 | |

TOPANT

Shenzhen Topant Technology Co., Ltd.

| | | | | | |
|---|---|---|---|---|---|
| Machine model | Q3205 | Product Color | black | date | 2023/05/27 |
| Project Code | BQ-3205X-019 | Mold surface treatment | NA | MD | BI YE ZHI |
| Part Name | 3IN1 antenna | unit mm | scale 1:1 | RF | CHEN XI TIAN |
| Part Number | 3Q-3205X-019-1 | Third perspective | | check | ZHOU KANG |
| material | Electrolytic copper PI | | | ratify | ZHANG LEI |
| Save Path | | | current version | | A |

# SPECIFICATION

Daxian Communication Technology Limited

## Shenzhen Daxian Technology Co., Ltd.

## Unimax Q3205 Main

# Product specification

| | | | |
|---|---|---|---|
| Guest households | Unimax | frequency band | LTE B2/4/5/12/66 |
| Project name | Q3205 | version | V10 |
| Material No. | 1Q-3205X-019 | color | Black |
| R F design | Xitian.Chen | structure design | Yezhi.Bi |
| Quality Manager | Ziyin.Hu | R & D director | Lei.Zhang |
| Date | 2023-05-31 | | |

client confirmation：

Whether the assembly meets your requirements：☐OK ☐NG

Shenzhen Topant Technology Co., Ltd.

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TEL:021-61630552
FAX:755-84276383

# Change resume

| version number | Change content | Reason for change | Initiate change Party | date | Modifier |
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| V1.0 | create | | | 2023.5.31 | |
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# Index

# 一 Project description

| | |
|---|---|
| **Customer name：** | Unimax |
| **Whole machine type：** | Main |
| **Antenna band：** | LTE B2/4/5/12/66 |
| **Antenna form：** | FPC |
| **Feed form：** | welding |
| **Number of feed feet：** | 2 left and right ears |
| **Hardware version：** | motherboard： |

# 一、Main

**This report provides a variety of measurements of the electrical performance of the Q3205 antenna. Figure 1 shows the antenna designed by the display.**


**Whole machine appearance chart** **antenna appearing diagram**

**Figure 1**

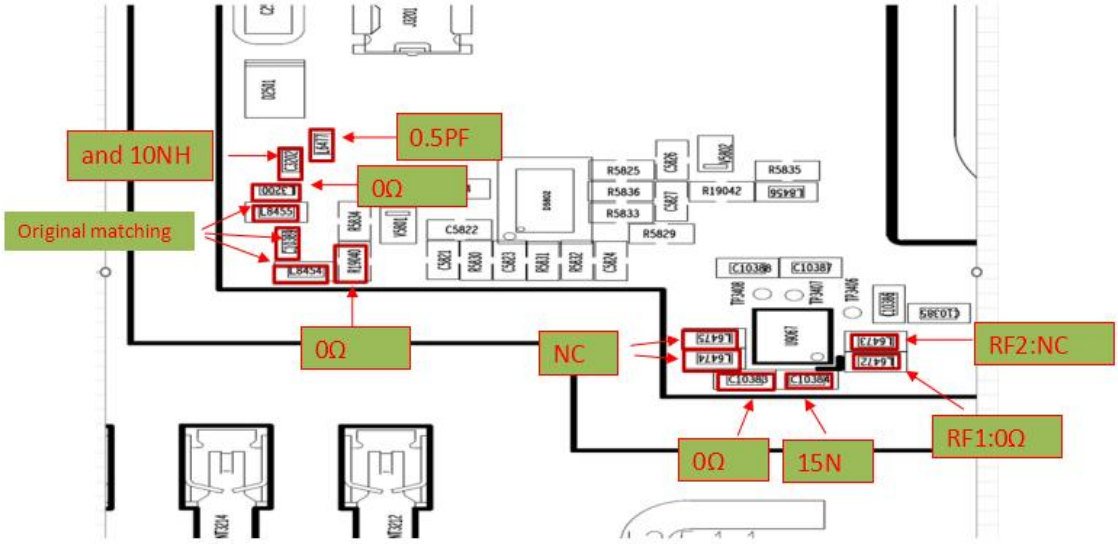
## 1.1 Electrical specification standard

**The frequency range of the antenna is 1850MHz~1990MHz,1710MHz~2155MHz,824MHz~894MHz,699MHz~746MHz,1710MHz~2200MHz. The following table indicates the electrical performance specifications of the antenna. The antenna is designed and manufactured by a large display.**

| LTE -band B2 | | | | |
|---|---|---|---|---|
| band | **band (MHz)** **The transmit TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 2 | 1850~1910 | ≤4 | 1930~1990 | ≤4 |
| LTE -band B4 | | | | |
| band | **band (MHz)** **The transmit TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 4 | 1710~1755 | ≤4 | 2110~2155 | ≤4 |
| LTE -band B5 | | | | |
| band | **band (MHz)** **The transmitter TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 5 | 824~849 | ≤4 | 869~894 | ≤4 |
| LTE -band B12 | | | | |
| band | **band (MHz)** **The transmitter TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 12 | 699~716 | ≤4 | 729~746 | ≤4 |
| LTE -band B66 | | | | |
| band | **band (MHz)** **The transmitter TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 66 | 1710~1780 | ≤4 | 2110~2200 | ≤4 |

## 1.2 antenna matching

| Main antenna switch logic | | | |
|---|---|---|---|
| Element | Number | value | Band |
| RF1 | | 0Ω | GSM850/1900 LTE B2/4/5/66 WCDMA 2/4/5 |
| RF2 | | NC | LTE B12 |
| RF3 | | | |
| RF4 | | | |




## 1.3 Antenna composition

The antenna is mainly composed of FPC.

# 2、 The Equipment of Active Test

Satimo 3D Chamber　6×4×4( m )

Agilent 8960 E5515c

Network analyzer-R&S ZVL

**Figure 2**

# 3 test

## 3.1 The Test of standing Wave (VSWR)

**3.1.1 The Test of standing Wave (VSWR)：** In turn, the connection of the VSWR testing device is as follows: RES ZVL Network Analyzer / testing Line / testing tool

**Actual measurement (with diagram)**

## 3.2 Measurement of Efficiency, Power (TRP) and Sensitivity (TIS)

### 3.2.1 Test site：

Large-scale microwave darkroom. The test frequency range is 400MHz / 6GHz, the static range is 50cm circumferential and the reflectivity is less than-50 dB..

### 3.2.2 Test instrument：

Rs ZVL Network Analyzer, Agilent8960 E5515C, Standard Horn Antenna, French SATIMO-SG24SYSTEM system, Printer, etc.

**3.2.3 test data ：In microwave anechoic chambers, the power and sensitivity values measured are shown in the following table:**

OTA Active Test:

| FRE-Band | Channel | TRP | TIS |
|---|---|---|---|
| LTE-B2 | 18650 | 22.39 | |
| | 18900 | 22.01 | |
| | 19150 | 21.26 | -100.15 |
| LTE-B4 | 20000 | 19.98 | |
| | 20175 | 21.39 | |
| | 20350 | 21.83 | -98.06 |
| LTE-B5 | 20450 | 17.78 | |
| | 20525 | 18.33 | |
| | 20600 | 17.52 | -94.01 |
| LTE-B12 | 23035 | 17.46 | |
| | 23095 | 18.18 | |
| | 23155 | 18.34 | -98.04 |
| LTE-B66 | 132022 | 21.5 | |
| | 132322 | 22.11 | |
| | 132622 | 21.59 | -98.36 |

## OTA Passive Efficiency&Gain Test--RF1:B5/medium-high frequency:

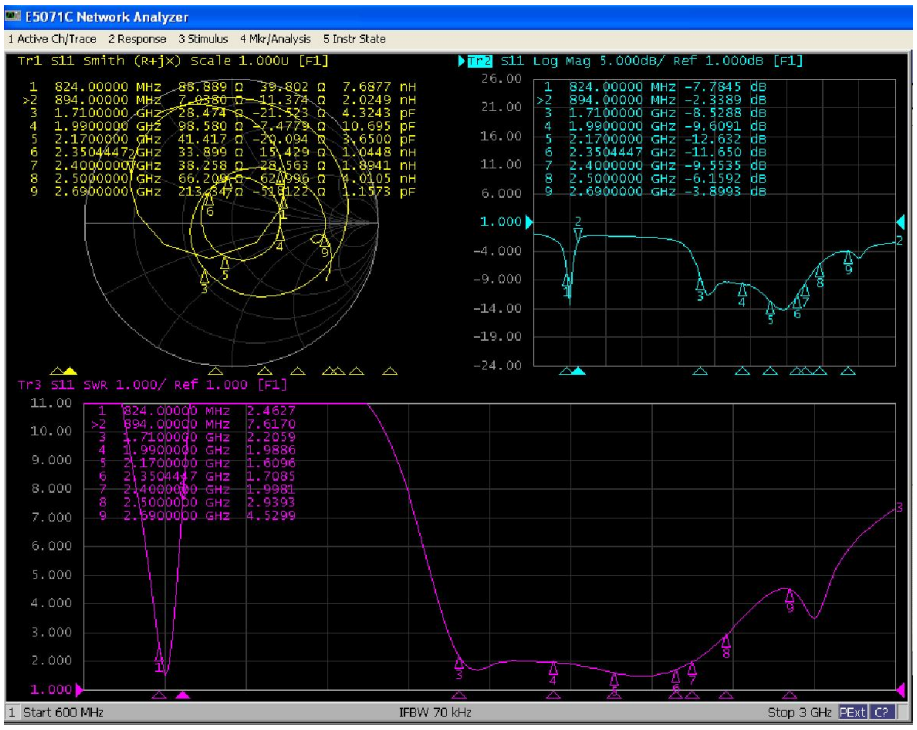
| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
|---|---|---|---|---|---|---|---|
| 820 | 12.19 | -9.14 | -3.42 | 1910 | 47.08 | -3.27 | 2.06 |
| 830 | 16.6 | -7.8 | -2.61 | 1920 | 48.02 | -3.19 | 2.18 |
| 840 | 21.01 | -6.78 | -2.43 | 1930 | 45.24 | -3.44 | 1.92 |
| 850 | 25.22 | -5.98 | -2.39 | 1940 | 44.29 | -3.54 | 1.79 |
| 860 | 26.14 | -5.83 | -2.95 | 1950 | 44.32 | -3.53 | 1.75 |
| 870 | 25.02 | -6.02 | -2.85 | 1960 | 42 | -3.77 | 1.62 |
| 880 | 21.04 | -6.77 | -3.64 | 1970 | 41.18 | -3.85 | 1.49 |
| 890 | 18 | -7.45 | -4.17 | 1980 | 40.42 | -3.93 | 1.45 |
| 900 | 15.65 | -8.06 | -4.37 | 1990 | 40.38 | -3.94 | 1.22 |
| 1700 | 42.22 | -4.29 | 0.23 | 2000 | 41.01 | -3.87 | 1.13 |
| 1710 | 43.96 | -4.09 | 0.13 | 2010 | 41.45 | -3.82 | 1.31 |
| 1720 | 45.25 | -3.95 | 0.43 | 2020 | 42.78 | -3.69 | 1.69 |
| 1730 | 45.83 | -3.89 | 0.31 | 2030 | 42.71 | -3.69 | 1.75 |
| 1740 | 46.79 | -3.79 | 0.66 | 2040 | 42.71 | -3.69 | 1.78 |
| 1750 | 47.49 | -3.72 | 0.9 | 2050 | 43.77 | -3.59 | 2.01 |
| 1760 | 47 | -3.77 | 0.98 | 2060 | 43.78 | -3.59 | 1.96 |
| 1770 | 44.66 | -4.02 | 0.84 | 2070 | 44.02 | -3.56 | 1.96 |
| 1780 | 44.49 | -4.04 | 0.84 | 2080 | 44.22 | -3.54 | 1.95 |
| 1790 | 45.77 | -3.9 | 1.07 | 2090 | 43.81 | -3.58 | 1.88 |
| 1800 | 45.34 | -3.94 | 0.88 | 2100 | 44.04 | -3.56 | 1.88 |
| 1810 | 42.55 | -4.25 | 0.58 | 2110 | 43.22 | -3.64 | 1.76 |
| 1820 | 40.66 | -4.48 | 0.18 | 2120 | 42.89 | -3.68 | 1.72 |
| 1830 | 40.84 | -4.46 | 0.18 | 2130 | 42.87 | -3.68 | 1.63 |
| 1840 | 44.35 | -4.64 | -0.11 | 2140 | 42.54 | -3.71 | 1.55 |
| 1850 | 40.39 | -5.17 | -0.7 | 2150 | 42.38 | -3.73 | 1.4 |
| 1860 | 39.85 | -5.25 | -0.67 | 2160 | 41.65 | -3.8 | 1.23 |
| 1870 | 41.98 | -4.95 | -0.43 | 2170 | 40.35 | -3.94 | 1.06 |
| 1880 | 42.49 | -4.88 | -0.35 | 2180 | 40.78 | -3.9 | 1.01 |
| 1890 | 40.91 | -5.1 | -0.75 | 2190 | 40.37 | -3.94 | 0.88 |
| 1900 | 40.54 | -5.15 | -0.96 | 2200 | 38.88 | -4.1 | 0.56 |

## OTA Passive Efficiency&Gain Test--RF2:B12:

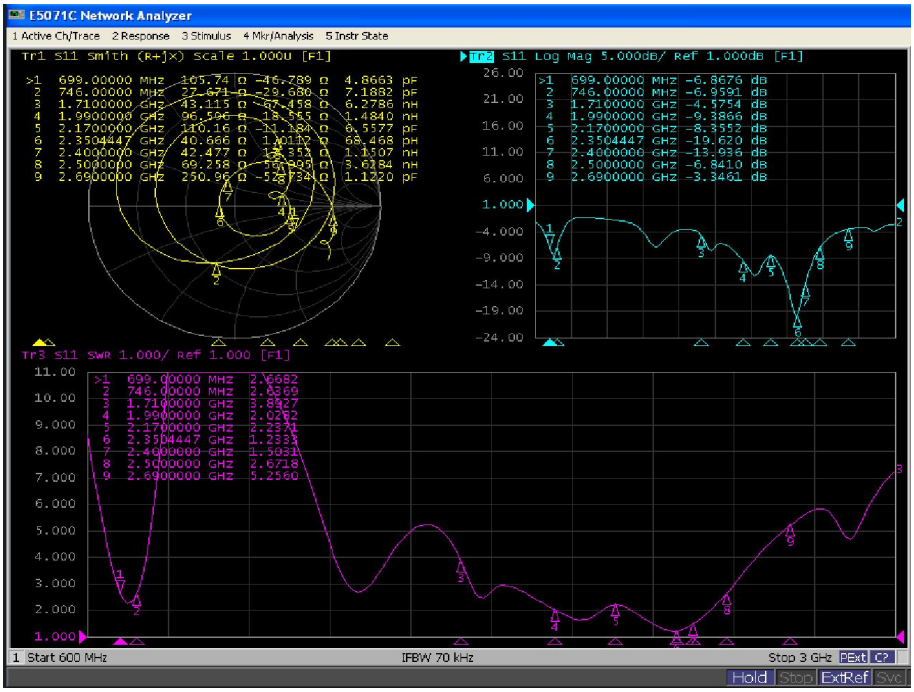
| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
|---|---|---|---|---|---|---|---|
| 690 | 14.22 | -8.3 | -4.8 | 1910 | 26.37 | -5.79 | 0.02 |
| 700 | 15.65 | -7.78 | -4.18 | 1920 | 29.06 | -5.37 | 0.32 |
| 710 | 17.62 | -7.15 | -4.33 | 1930 | 29.2 | -5.35 | 0.25 |
| 720 | 16.37 | -7.54 | -5.19 | 1940 | 29.13 | -5.36 | 0.07 |
| 730 | 24.23 | -5.53 | -3.59 | 1950 | 29.61 | -5.29 | 0.11 |
| 740 | 25.46 | -5.29 | -3.52 | 1960 | 29.93 | -5.24 | 0.16 |
| 750 | 25.02 | -5.37 | -3.73 | 1970 | 30.71 | -5.13 | 0.13 |
| 760 | 20.93 | -6.26 | -4.58 | 1980 | 29.8 | -5.26 | -0.15 |
| 1700 | 5.52 | -12.58 | -6.47 | 1990 | 29.37 | -5.32 | -0.52 |
| 1710 | 6.36 | -11.97 | -5.7 | 2000 | 31.02 | -5.08 | -0.57 |
| 1720 | 7.63 | -11.17 | -5.35 | 2010 | 31.72 | -4.99 | -0.43 |
| 1730 | 9.91 | -10.04 | -4.23 | 2020 | 31.94 | -4.96 | -0.2 |
| 1740 | 12.82 | -8.92 | -3.48 | 2030 | 31.03 | -5.08 | -0.24 |
| 1750 | 15.35 | -8.14 | -2.73 | 2040 | 31.09 | -5.07 | -0.29 |
| 1760 | 17.56 | -7.55 | -2.15 | 2050 | 32.13 | -4.93 | -0.17 |
| 1770 | 19.78 | -7.04 | -1.63 | 2060 | 30.97 | -5.09 | -0.44 |
| 1780 | 22.25 | -6.53 | -1.02 | 2070 | 30.39 | -5.17 | -0.65 |
| 1790 | 24.42 | -6.12 | -0.72 | 2080 | 31.06 | -5.08 | -0.77 |
| 1800 | 25.22 | -5.98 | -0.48 | 2090 | 31.9 | -4.96 | -0.89 |
| 1810 | 24.54 | -6.1 | -0.71 | 2100 | 32 | -4.95 | -1.08 |
| 1820 | 24.47 | -6.11 | -0.49 | 2110 | 31.21 | -5.06 | -1.22 |
| 1830 | 25.21 | -5.99 | -0.39 | 2120 | 30.79 | -5.12 | -1.29 |
| 1840 | 24.5 | -6.11 | -0.31 | 2130 | 30.28 | -5.19 | -1.05 |
| 1850 | 21.56 | -6.66 | -0.73 | 2140 | 28.23 | -5.49 | -1.02 |
| 1860 | 21.61 | -6.65 | -0.48 | 2150 | 26.37 | -5.79 | -1.03 |
| 1870 | 23.73 | -6.25 | -0.03 | 2160 | 24.61 | -6.09 | -1.03 |
| 1880 | 24.12 | -6.18 | -0.03 | 2170 | 22.3 | -6.52 | -1.26 |
| 1890 | 23.11 | -6.36 | -0.27 | 2180 | 20.55 | -6.87 | -1.59 |
| 1900 | 23.29 | -6.33 | -0.44 | 2190 | 18.71 | -7.28 | -2.02 |
| | | | | 2200 | 18.03 | -7.44 | -2.33 |

# 4、Attachment chart

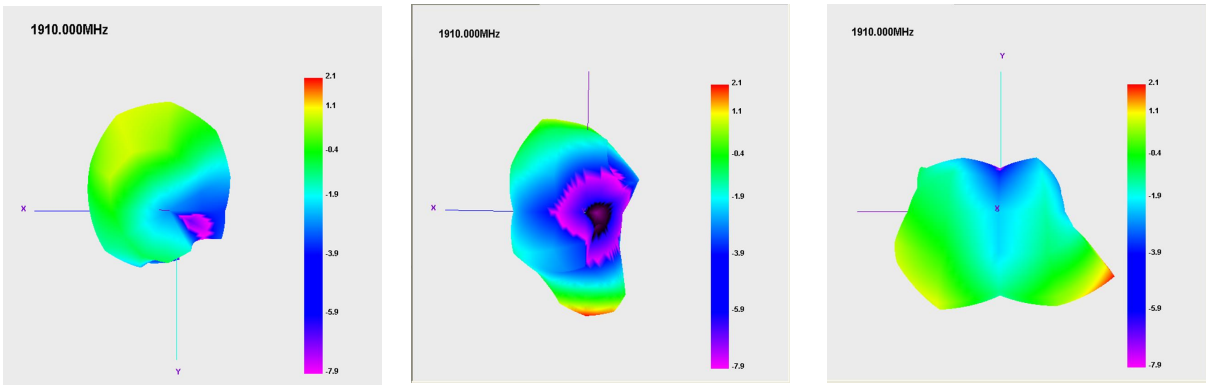
## 4.1 VSWR parameter diagram--RF1:B5/medium-high frequency



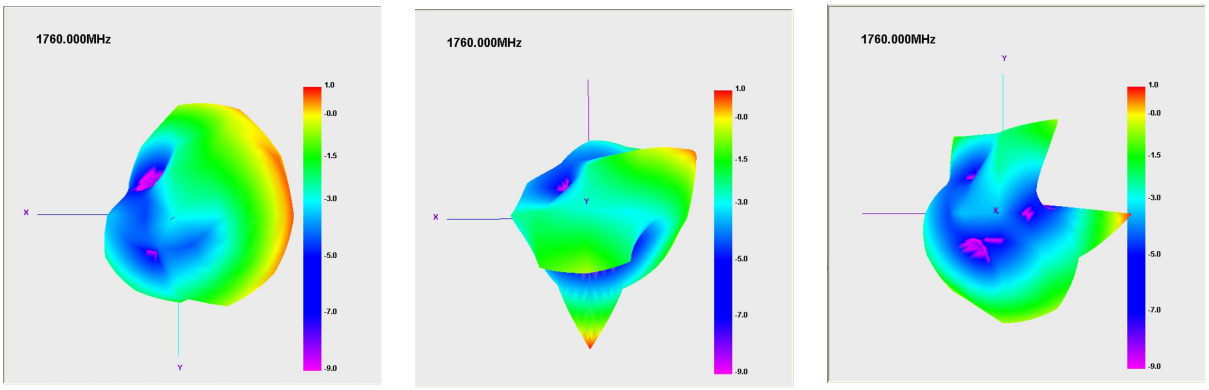

## 4.2 VSWR parameter diagram--RF2:B12



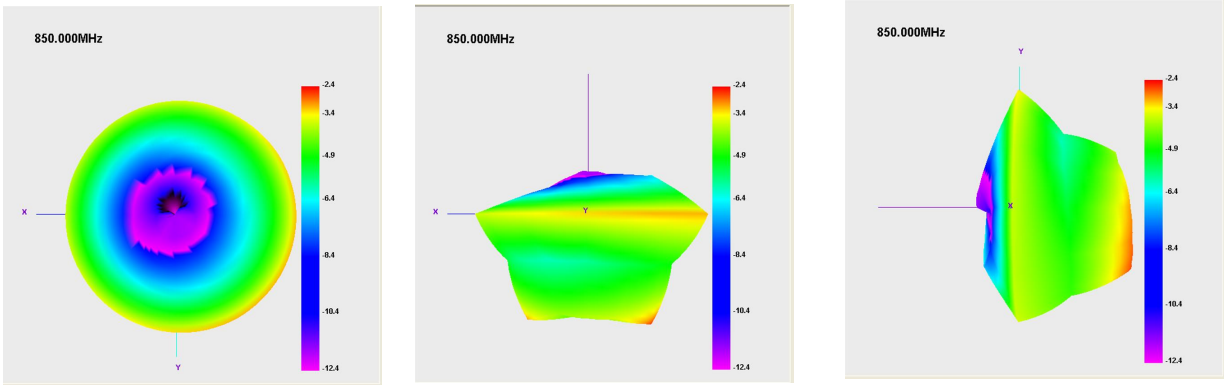
# 5、Passive field pattern diagram--B2



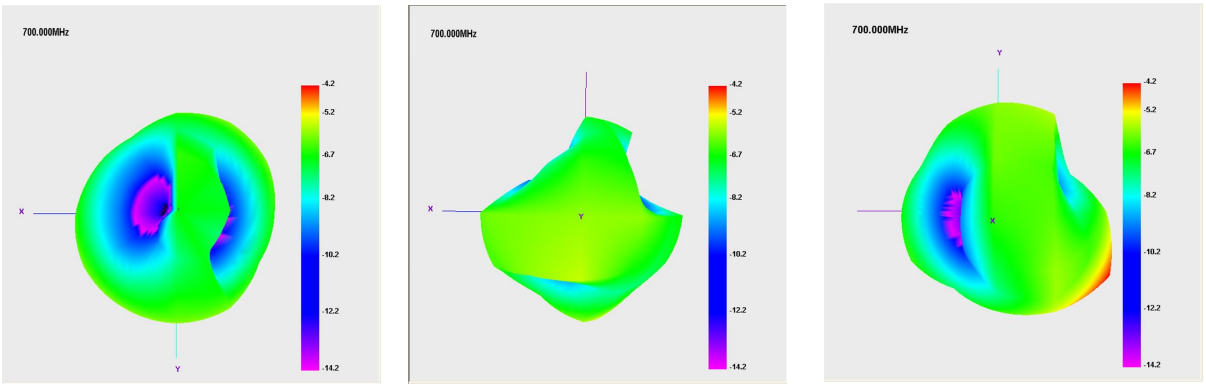

# 5.1、Passive field pattern diagram--B4



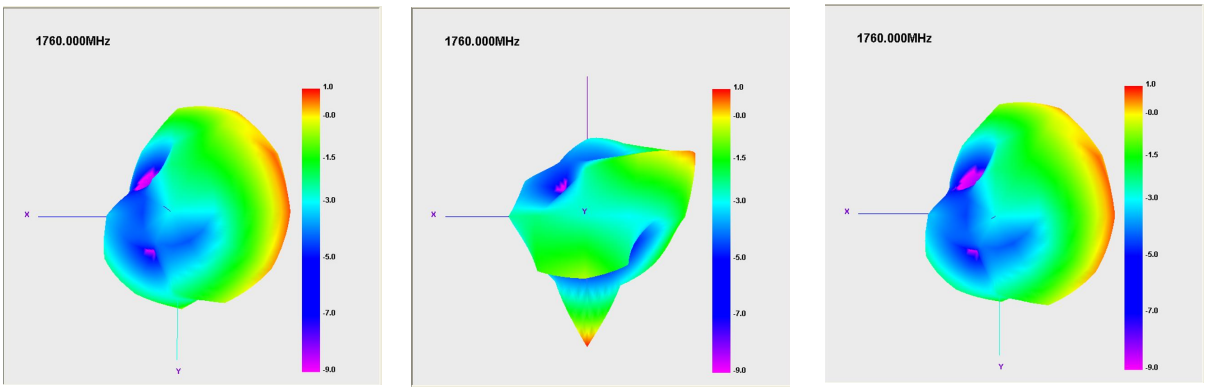

# 5.2、Passive field pattern diagram--B5



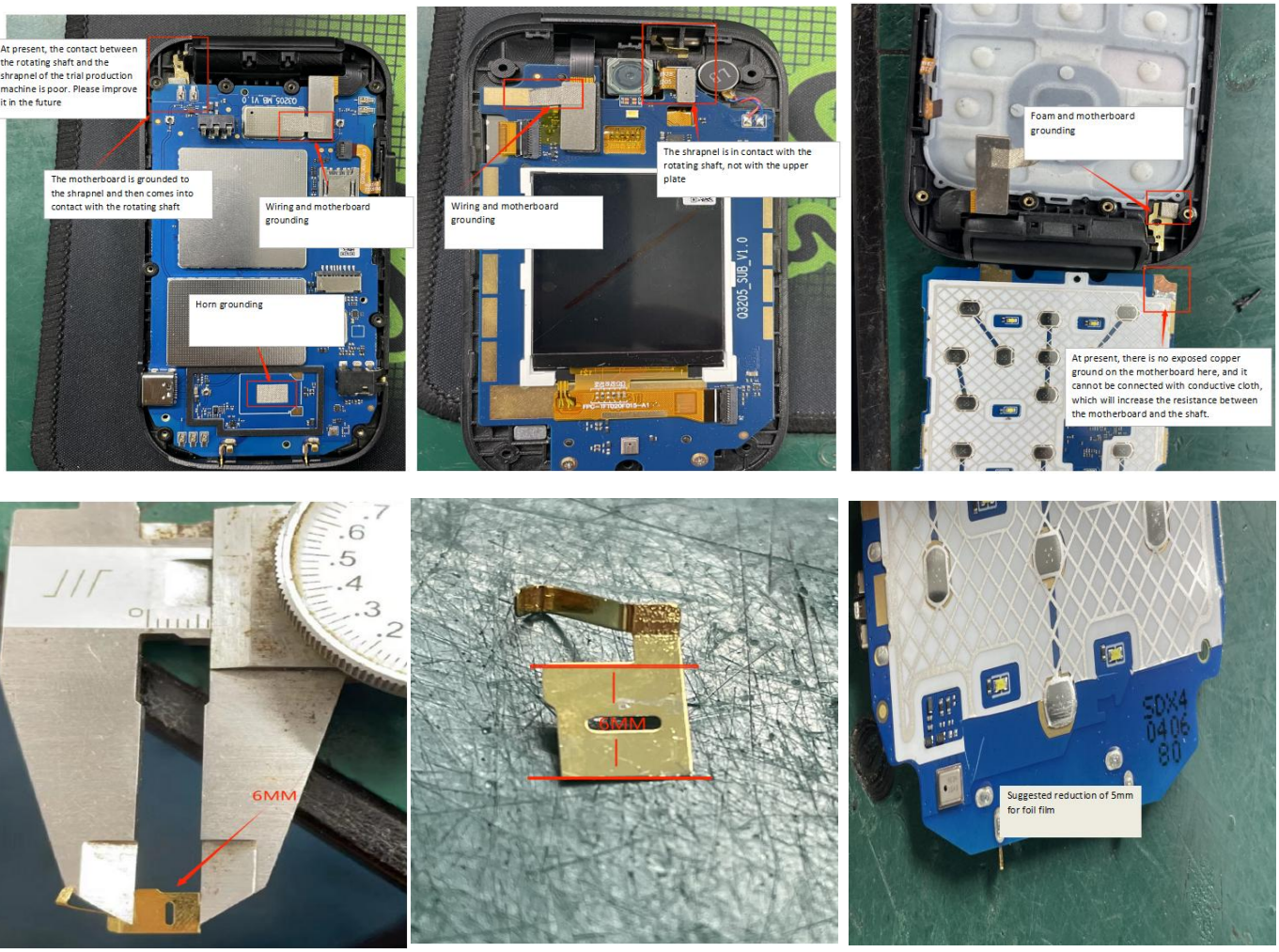
## 5.3、Passive field pattern diagram--B12




## 5.4、Passive field pattern diagram--B66



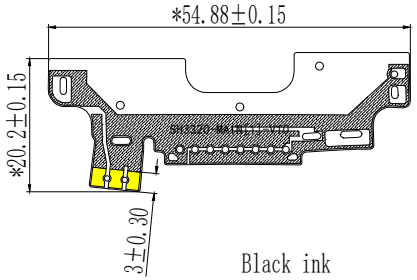
# 6、environmental treatment




# 7、conclusion：

This antenna is designed on the basis of the prototype provided by the customer, electrical parameters and structural performance have reached the technical requirements, please confirm!

| | 0~10 | 10~30 | 30~50 | 50~ | 角度 | ○ | ◎ | ⊥ | ▱ |
|---|---|---|---|---|---|---|---|---|---|
| | 0.05 | 0.10 | 0.15 | 0.20 | 1° | 0.02 | 0.02 | 0.03 | 0.05 |

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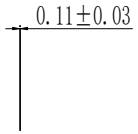


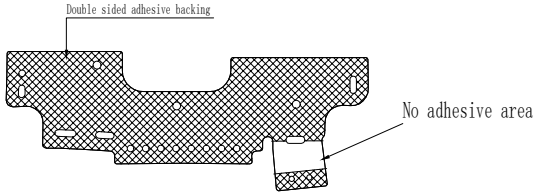


Delivery without release paper

BOT

technical requirement:

1. "*" is the key dimension;
2. Please refer to the drawing for unspecified dimensions;
3. Meet RoHS requirements.

| | | | |
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| A | Initial Issue | 2023.05.27 | |
| edition | describe | date | Note |

TOPANT Shenzhen Topant Technology Co., Ltd.

| | | | | | |
|---|---|---|---|---|---|
| Machine model | Q3205 | Product Color | black | date | 2023/05/27 |
| Project Code | BQ-3205X-019 | Mold surface treatment | NA | MD | BI YE ZHI |
| Part Name | MAIN antenna | unit mm | scale 1:1 | RF | CHEN XI TIAN |
| Part Number | 1Q-3205X-019-1 | Third perspective | | check | ZHOU KANG |
| material | Electrolytic copper PI | | | ratify | ZHANG LEI |
| Save Path | | | | current version | A |

# SPECIFICATION

Daxian Communication Technology Limited

## Shenzhen Daxian Technology Co., Ltd.

## Unimax Q3205 Diversity Antenna

## Product specification

| | | | |
|---|---|---|---|
| Guest households | Unimax | frequency band | LTE B2/4/5/12/66 |
| Project name | Q3205 | version | V10 |
| Material No. | 2Q-3205X-019 | color | Black |
| R F design | Xitian.Chen | structure design | Yezhi.Bi |
| Quality Manager | Ziyin.Hu | R & D director | Lei.Zhang |
| Date | 2023-05-31 | | |

client confirmation：

Whether the assembly meets your requirements：☐OK ☐NG

Shenzhen Topant Technology Co., Ltd.

Shangshuijing Village, No. 513, ihua Road, BujiTown, Longgang District, Shenzhen (opposite to theNational Defense Training Base)reached the 7thfloor of the Industrial Park Complex
TEL:0755-28576002
FAX:0755-84276383

Shanghai Branch: Room 201, Building 8 No, 3000Longdong Avenue,Integrated Circuit IndustrialZone, Zhangjiang Hi-tech Park, Shanghai
TEL:021-61630552
FAX:755-84276383

# Change resume

| version number | Change content | Reason for change | Initiate change Party | date | Modifier |
|---|---|---|---|---|---|
| V1.0 | create | | | 2023.5.31 | |
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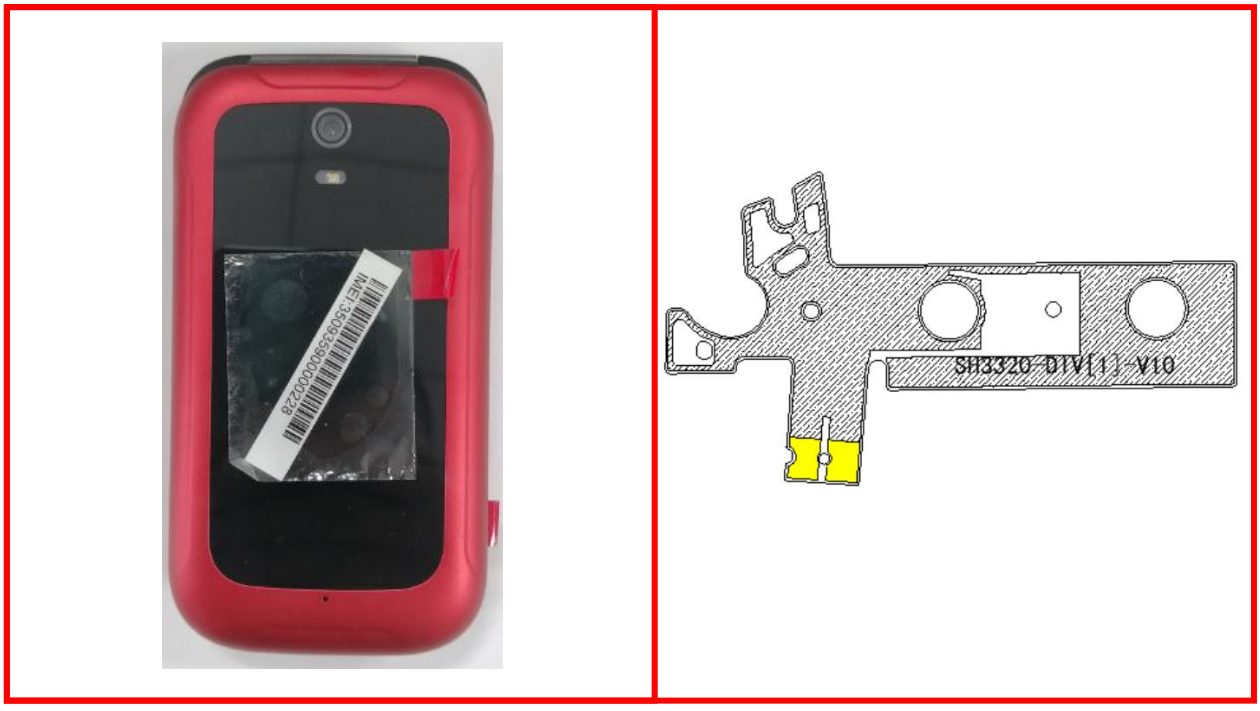
# Index

# 一 Project description

| | |
|---|---|
| **Customer name：** | Unimax |
| **Whole machine type：** | Diversity Antenna |
| **Antenna band：** | LTE B2/4/5/12/66 |
| **Antenna form：** | FPC |
| **Feed form：** | welding |
| **Number of feed feet：** | 2 left and right ears |
| **Hardware version：** | motherboard： |

# 一、Diversity Antenna

**This report provides a variety of measurements of the electrical performance of the Q3205 antenna. Figure 1 shows the antenna designed by the display.**




**Whole machine appearance chart** **antenna appearing diagram**

**Figure 1**

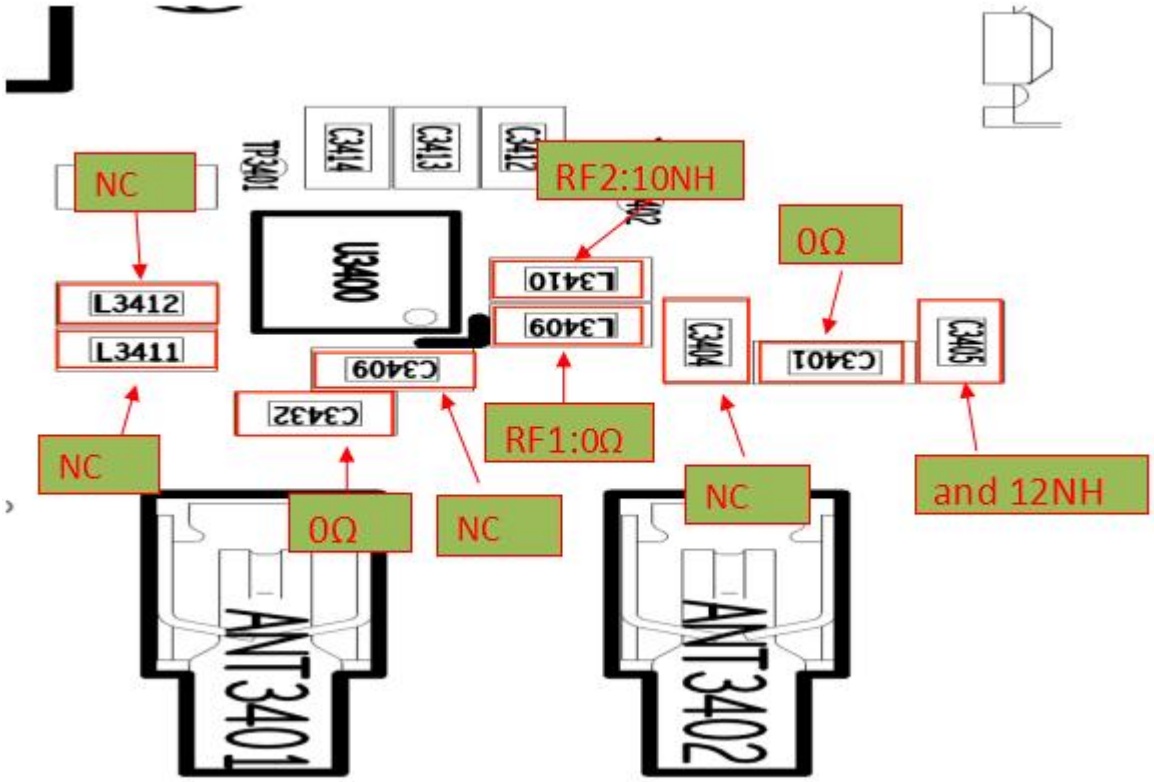
## 1.1 Electrical specification standard

**The frequency range of the antenna is 1850MHz~1990MHz,1710MHz~2155MHz,824MHz~894MHz,699MHz~746MHz,1710MHz~2200MHz. The following table indicates the electrical performance specifications of the antenna. The antenna is designed and manufactured by a large display.**

| LTE -band B2 | | | | |
|---|---|---|---|---|
| band | **band (MHz)** **The transmit TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 2 | 1850~1910 | ≤4 | 1930~1990 | ≤4 |
| LTE -band B4 | | | | |
| band | **band (MHz)** **The transmit TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 4 | 1710~1755 | ≤4 | 2110~2155 | ≤4 |
| LTE -band B5 | | | | |
| band | **band (MHz)** **The transmitter TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 5 | 824~849 | ≤4 | 869~894 | ≤4 |
| LTE -band B12 | | | | |
| band | **band (MHz)** **The transmitter TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 12 | 699~716 | ≤4 | 729~746 | ≤4 |
| LTE -band B66 | | | | |
| band | **band (MHz)** **The transmitter TX** | **VSWR** | **band (MHz)** **The receiving end RX** | **VSWR** |
| LTE -B 66 | 1710~1780 | ≤4 | 2110~2200 | ≤4 |

## 1.2 antenna matching

| Diversity antenna switch logic | | | |
|---|---|---|---|
| Element | Number | value | Band |
| RF1 | | 0Ω | GSM2/3/5/8 LTE B2/4/5/66 WCDMA 2/5 |
| RF2 | | 10NH | LTE B12 |
| RF3 | | | |
| RF4 | | | |




## 1.3 Antenna composition

The antenna is mainly composed of FPC.

# 2、 The Equipment of Active Test

Satimo 3D Chamber　6×4×4( m )

Agilent 8960 E5515c

Network analyzer-R&S ZVL

**Figure 2**

# 3 test

## 3.1 The Test of standing Wave (VSWR)

**3.1.1 The Test of standing Wave (VSWR)：** In turn, the connection of the VSWR testing device is as follows: RES ZVL Network Analyzer / testing Line / testing tool

**Actual measurement (with diagram)**

## 3.2 Measurement of Efficiency, Power (TRP) and Sensitivity (TIS)

### 3.2.1 Test site：

Large-scale microwave darkroom. The test frequency range is 400MHz / 6GHz, the static range is 50cm circumferential and the reflectivity is less than-50 dB..

### 3.2.2 Test instrument：

Rs ZVL Network Analyzer, Agilent8960 E5515C, Standard Horn Antenna, French SATIMO-SG24SYSTEM system, Printer, etc.

**3.2.3 test data ：In microwave anechoic chambers, the power and sensitivity values measured are shown in the following table:**

OTA Active Test:

| FRE-Band | Channel | TRP | TIS |
|---|---|---|---|
| LTE-B2 | 18650 | 22.39 | |
| | 18900 | 22.01 | |
| | 19150 | 21.26 | -100.15 |
| LTE-B4 | 20000 | 19.98 | |
| | 20175 | 21.39 | |
| | 20350 | 21.83 | -98.06 |
| LTE-B5 | 20450 | 17.78 | |
| | 20525 | 18.33 | |
| | 20600 | 17.52 | -94.01 |
| LTE-B12 | 23035 | 17.46 | |
| | 23095 | 18.18 | |
| | 23155 | 18.34 | -98.04 |
| LTE-B66 | 132022 | 21.5 | |
| | 132322 | 22.11 | |
| | 132622 | 21.59 | -98.36 |

## OTA Passive Efficiency&Gain Test--RF1:B5/medium-high frequency:

| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
|---|---|---|---|
| 820 | 13.65 | -8.65 | -5.46 |
| 830 | 18.65 | -7.29 | -4.04 |
| 840 | 21.04 | -6.77 | -3.45 |
| 850 | 24.4 | -6.13 | -2.95 |
| 860 | 25.75 | -5.89 | -2.86 |
| 870 | 25.94 | -5.86 | -3.16 |
| 880 | 23.96 | -6.2 | -3.79 |
| 890 | 23.01 | -6.38 | -4.08 |
| 900 | 21.5 | -6.67 | -4.44 |
| 1930 | 43.72 | -4 | 2.49 |
| 1940 | 46.87 | -3.75 | 2.46 |
| 1950 | 48.56 | -3.62 | 2.33 |
| 1960 | 49.28 | -3.57 | 2.46 |
| 1970 | 51.09 | -3.44 | 2.41 |
| 1980 | 51.33 | -3.42 | 2.42 |
| 1990 | 50.85 | -3.46 | 2.1 |
| 2000 | 52.8 | -3.32 | 2.05 |
| 2010 | 53.1 | -3.3 | 2.11 |
| 2020 | 53.9 | -3.24 | 2.13 |
| 2030 | 55.06 | -3.17 | 2.18 |
| 2040 | 55.69 | -3.13 | 2.01 |
| 2050 | 59.84 | -2.86 | 2.33 |
| 2060 | 60.08 | -2.84 | 2.15 |

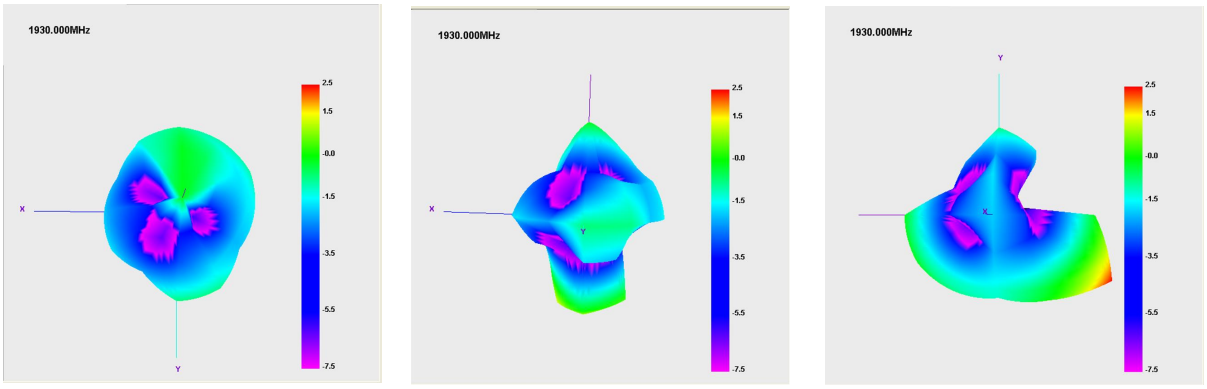
| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
|---|---|---|---|
| 2070 | 61.06 | -2.78 | 2.17 |
| 2080 | 61.99 | -2.73 | 1.99 |
| 2090 | 63.12 | -2.66 | 1.96 |
| 2100 | 64.82 | -2.56 | 1.96 |
| 2110 | 64.7 | -2.57 | 1.87 |
| 2120 | 65.7 | -2.51 | 2.04 |
| 2130 | 67.05 | -2.43 | 2.08 |
| 2140 | 67.02 | -2.43 | 2.27 |
| 2150 | 66.05 | -2.49 | 2.2 |
| 2160 | 64.26 | -2.59 | 2.33 |
| 2170 | 61.37 | -2.77 | 2.31 |
| 2180 | 62.32 | -2.71 | 2.49 |
| 2190 | 61.91 | -2.73 | 2.68 |
| 2200 | 61.36 | -2.77 | 2.64 |

## OTA Passive Efficiency&Gain Test--RF2:B12:

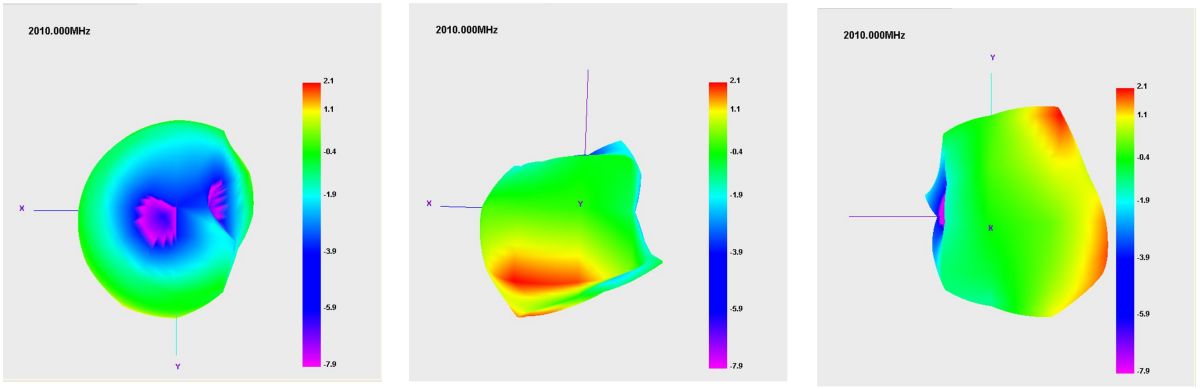
| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
|---|---|---|---|
| 700 | 23.29 | -6.33 | -2.93 |
| 710 | 27.44 | -5.62 | -2.44 |
| 720 | 34 | -4.69 | -1.63 |
| 730 | 38.14 | -4.19 | -0.88 |
| 740 | 35.98 | -4.44 | -1.18 |
| 750 | 32.11 | -4.93 | -1.67 |
| 760 | 30.49 | -5.16 | -2.12 |
| 770 | 27.1 | -5.67 | -2.65 |
| 1930 | 6.25 | -12.04 | -4.63 |
| 1940 | 6.79 | -11.68 | -4.64 |
| 1950 | 7.21 | -11.42 | -4.75 |
| 1960 | 7.83 | -11.06 | -4.55 |
| 1970 | 9.32 | -10.31 | -4.17 |
| 1980 | 11.46 | -9.41 | -3.66 |
| 1990 | 13.57 | -8.67 | -3.52 |
| 2000 | 16.25 | -7.89 | -3.27 |
| 2010 | 18.78 | -7.26 | -2.64 |
| 2020 | 22.06 | -6.56 | -1.97 |
| 2030 | 25.22 | -5.98 | -1.58 |
| 2040 | 27.41 | -5.62 | -1.55 |

| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
|---|---|---|---|
| 2050 | 30.96 | -5.09 | -0.96 |
| 2060 | 33.2 | -4.79 | -0.78 |
| 2070 | 35.43 | -4.51 | -0.39 |
| 2080 | 36.54 | -4.37 | -0.39 |
| 2090 | 37.4 | -4.27 | -0.25 |
| 2100 | 38.87 | -4.1 | -0.18 |
| 2110 | 39.45 | -4.04 | -0.27 |
| 2120 | 39.89 | -3.99 | -0.23 |
| 2130 | 40.24 | -3.95 | -0.35 |
| 2140 | 40.18 | -3.96 | -0.12 |
| 2150 | 39.79 | -4 | -0.03 |
| 2160 | 38.5 | -4.15 | 0.13 |
| 2170 | 35.97 | -4.44 | 0.21 |
| 2180 | 35.9 | -4.45 | 0.36 |
| 2190 | 35.73 | -4.47 | 0.6 |
| 2200 | 35.64 | -4.48 | 0.56 |

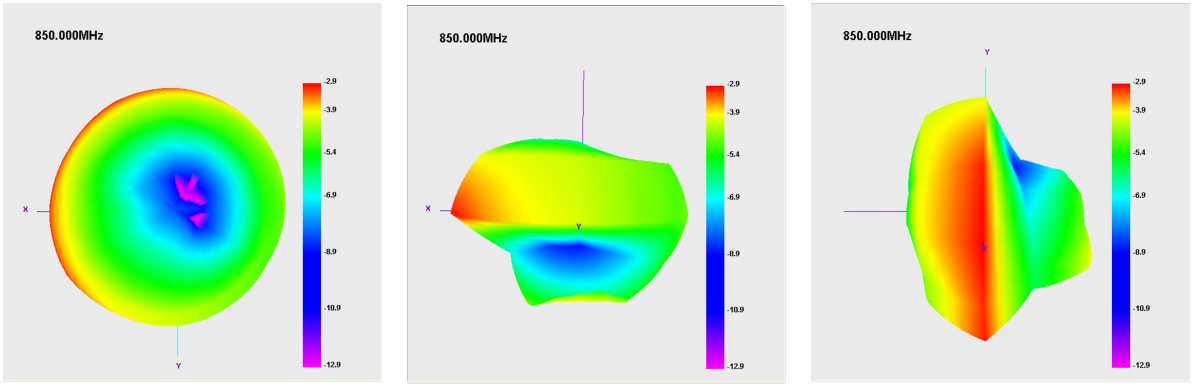
# 5、Passive field pattern diagram--B2



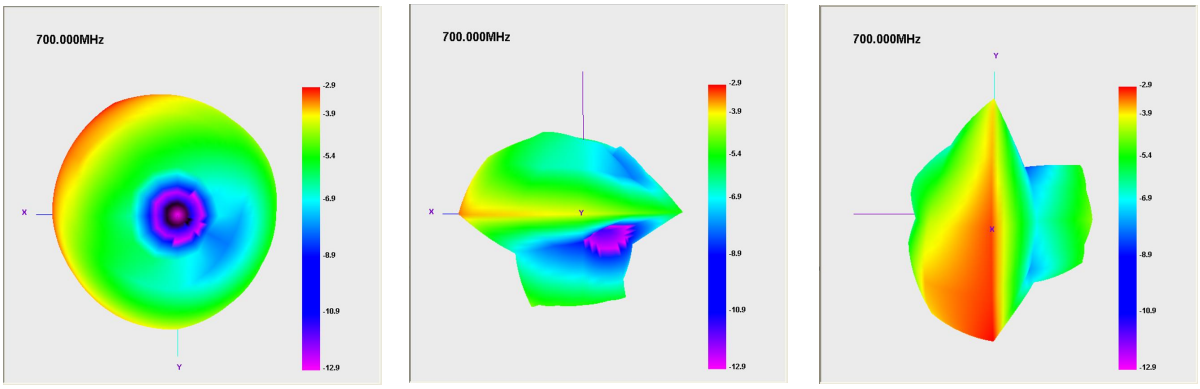

# 5.1、Passive field pattern diagram--B4



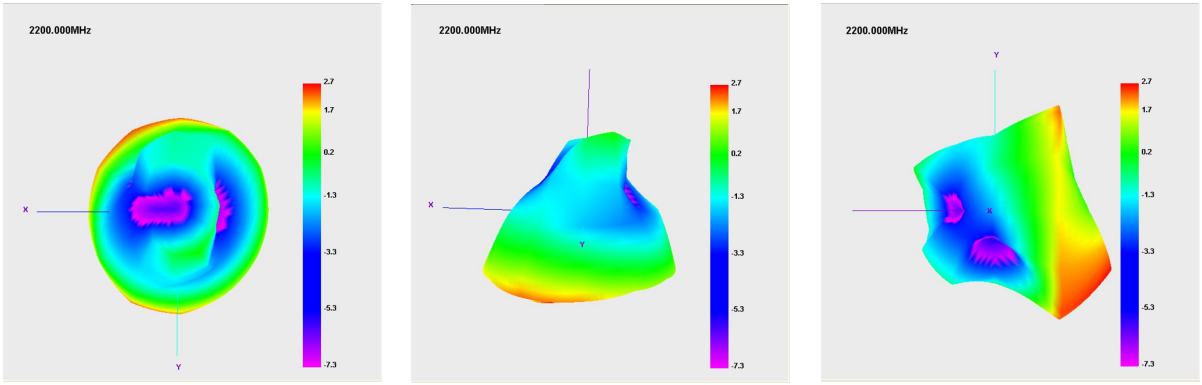

# 5.2、Passive field pattern diagram--B5



## 5.3、Passive field pattern diagram--B12

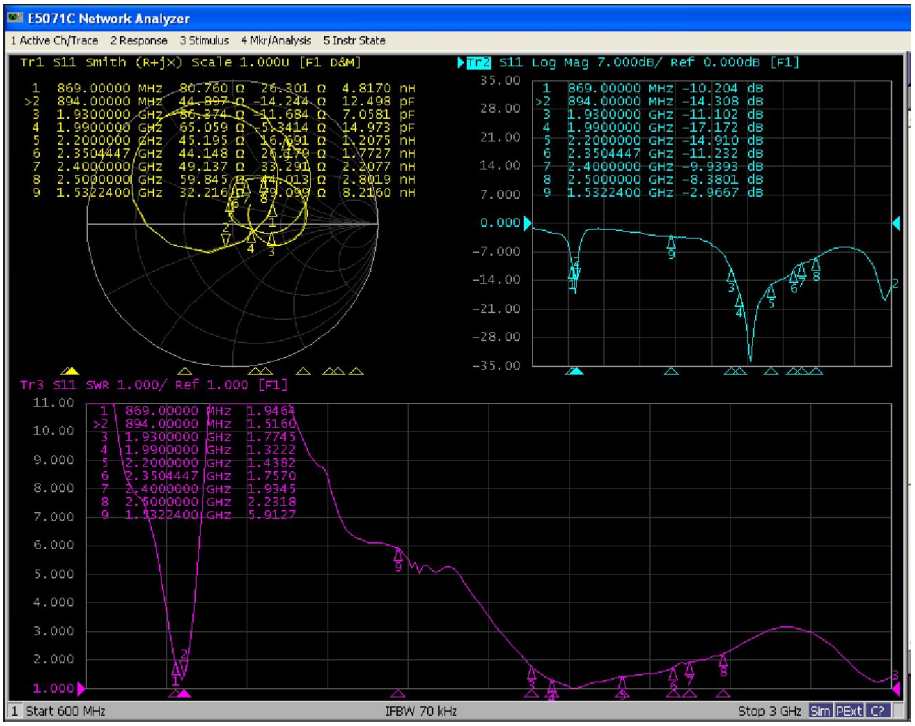



## 5.4、Passive field pattern diagram--B66

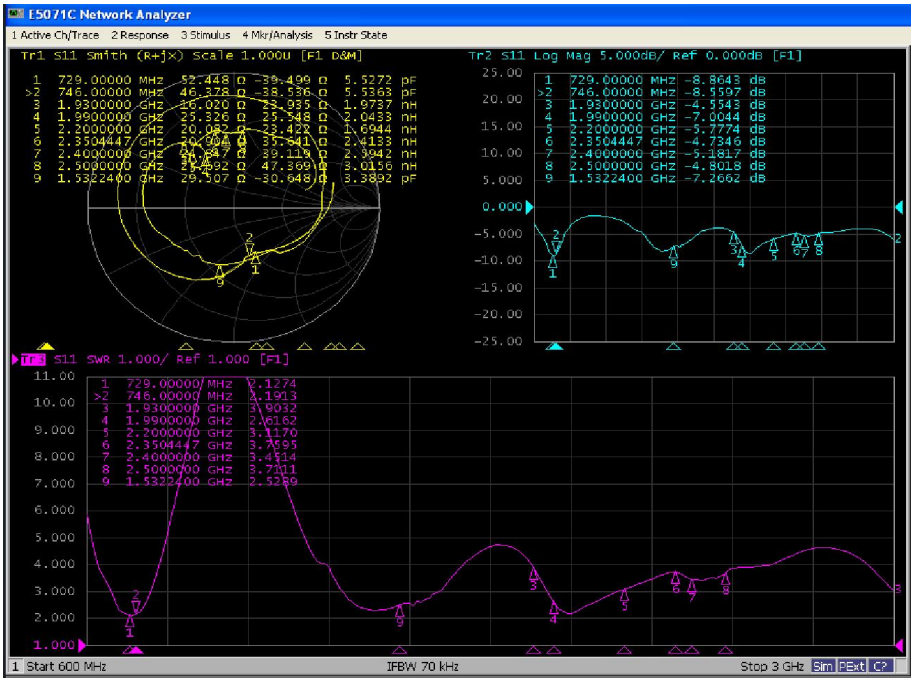


# 4、Attachment chart

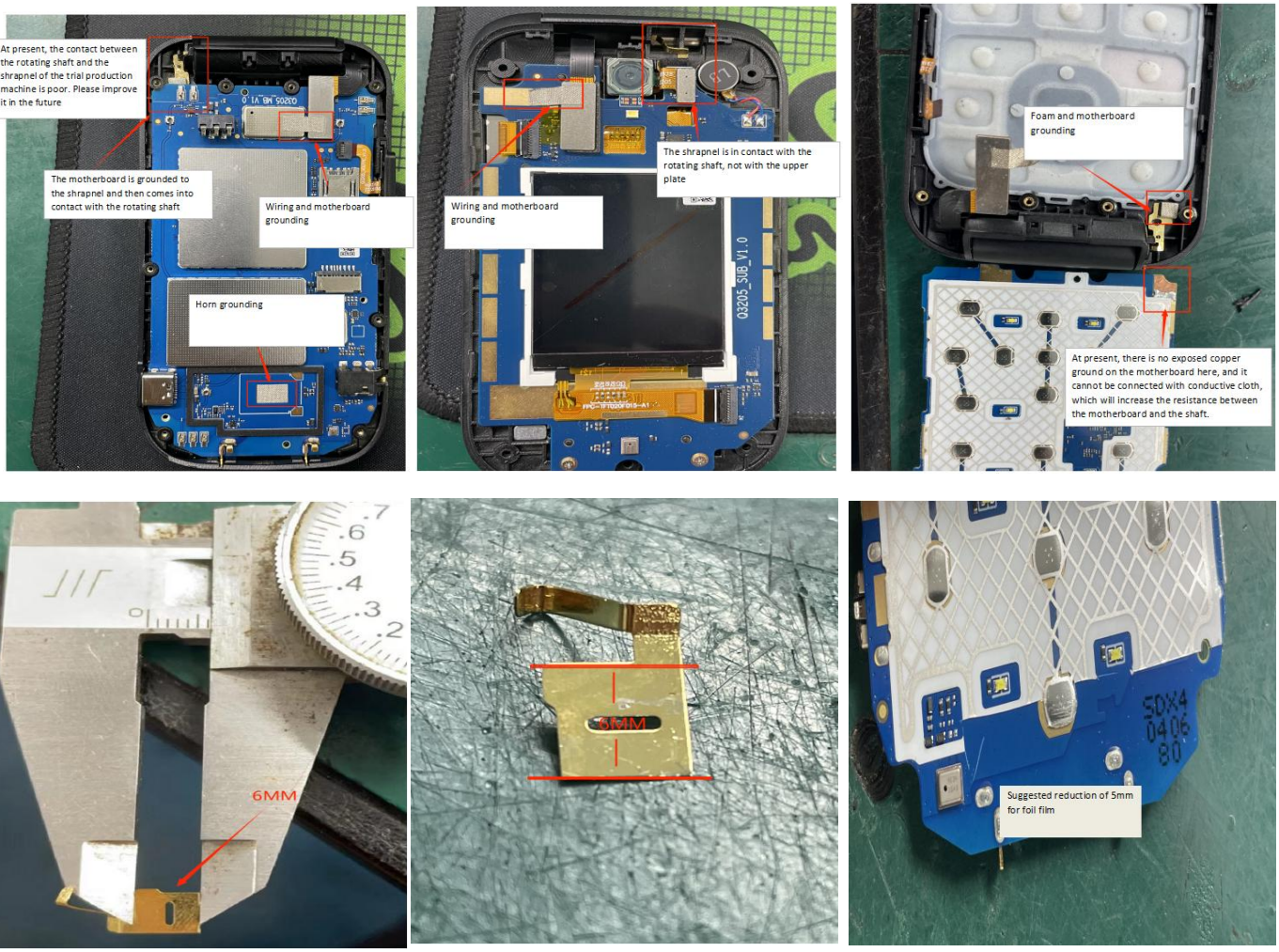
## 4.1 VSWR parameter diagram--RF1:B5/medium-high frequency




## 4.2 VSWR parameter diagram--RF2:B12



# 5、environmental treatment

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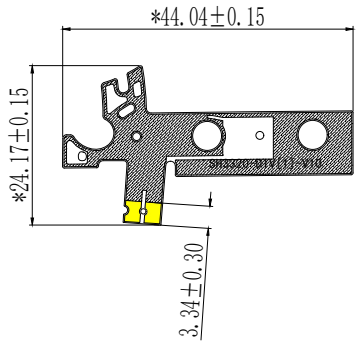
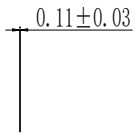
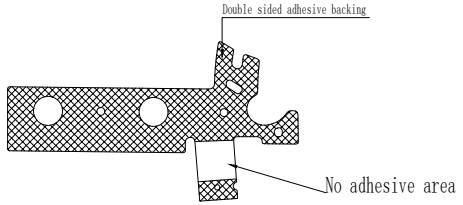
| | 0~10 | 10~30 | 30~50 | 50~ | 角度 | ○ | ◎ | ⊥ | ▱ |
|---|---|---|---|---|---|---|---|---|---|
| | 0.05 | 0.10 | 0.15 | 0.20 | 1° | 0.02 | 0.02 | 0.03 | 0.05 |




Black ink
Black characters

TOP

Delivery without release paper

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technical requirement:

1. "*" is the key dimension;
2. Please refer to the drawing for unspecified dimensions;
3. Meet RoHS requirements.

| edition | describe | date | Note |
|---|---|---|---|
| | | | |
| | | | |
| A | Initial Issue | 2023.05.27 | |

TOPANT

Shenzhen Topant Technology Co., Ltd.

| | | | | | |
|---|---|---|---|---|---|
| Machine model | Q3205 | Product Color | black | date | 2023/05/27 |
| Project Code | BQ-3205X-019 | Mold surface treatment | NA | MD | BI YE ZHI |
| Part Name | DIV antenna | unit mm | scale 1:1 | RF | CHEN XI TIAN |
| Part Number | 2Q-3205X-019-1 | Third perspective | | check | ZHOU KANG |
| material | Electrolytic copper PI | | | ratify | ZHANG LEI |
| Save Path | | | current version | A | |