# 深圳市和鸣微科技有限公司

## Shenzhen HamyWe Technology Co.,Ltd.

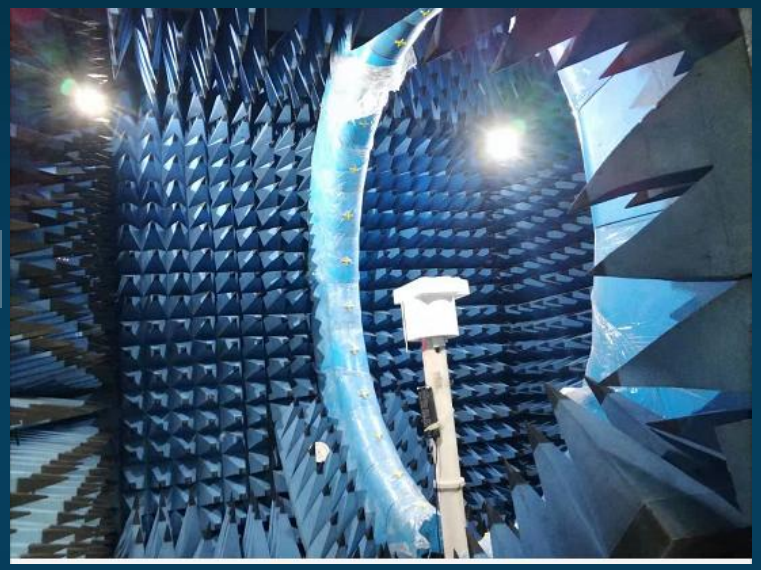
# WBT1032 Microphone Antenna Debug Data

Version
V3

Principal：Zhao Yingjun
Phone：17620403011
Date：2023.08.10

# Equipment Testing

SG24



GTS

Agilent 8960

CMW 500

SP9500

Agilent E5071B

| System Testing | Testing Environment | Active Testing | Passive Testing |
|---|---|---|---|
| SG24<br>GTS | temperature：22℃±3℃<br>humidity：：50%±15% | sustain 2G/3G/4G<br>sustain BT/WIFI/GPS | 600MHZ——6G |

# Recording of dubug version

**WBT1032**

| Version | Date | Content Overview |
|---|---|---|
| V1 | 2023/06/20 | BT WIFI Antenna Testing |
| V2 | 2023/07/18 | The MIC receives debug tests |
| V3 | 2023/08/23 | Antenna test report after changing the structure |
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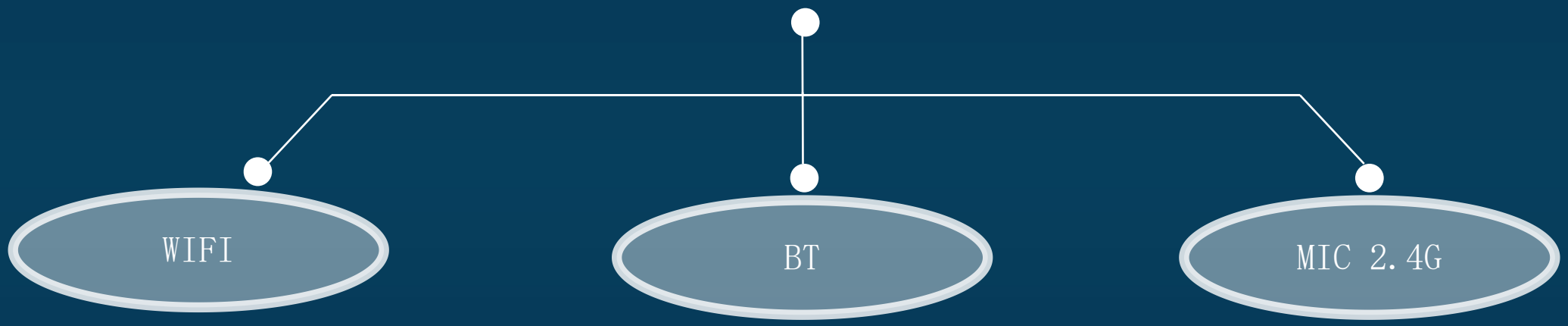
# Project description

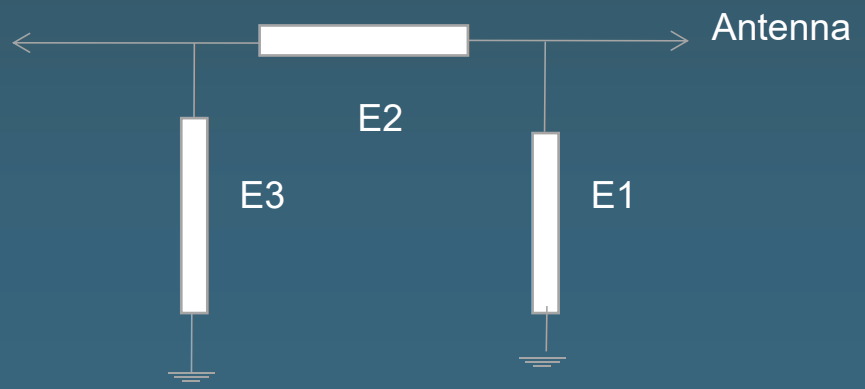



Antenna model: ANT1

Antenna type: FPC

Match change: None

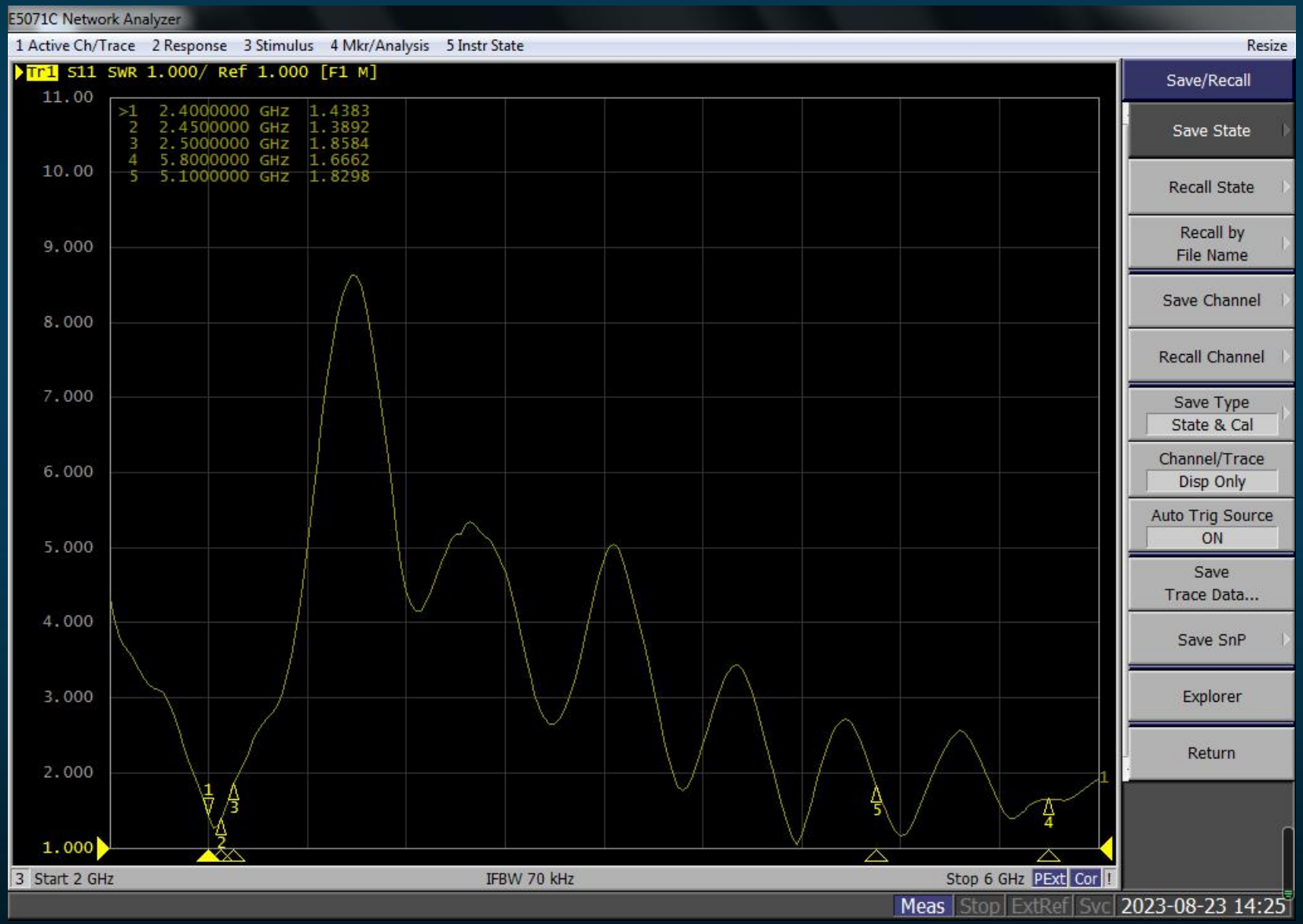
# WIFI antenna matching circuit



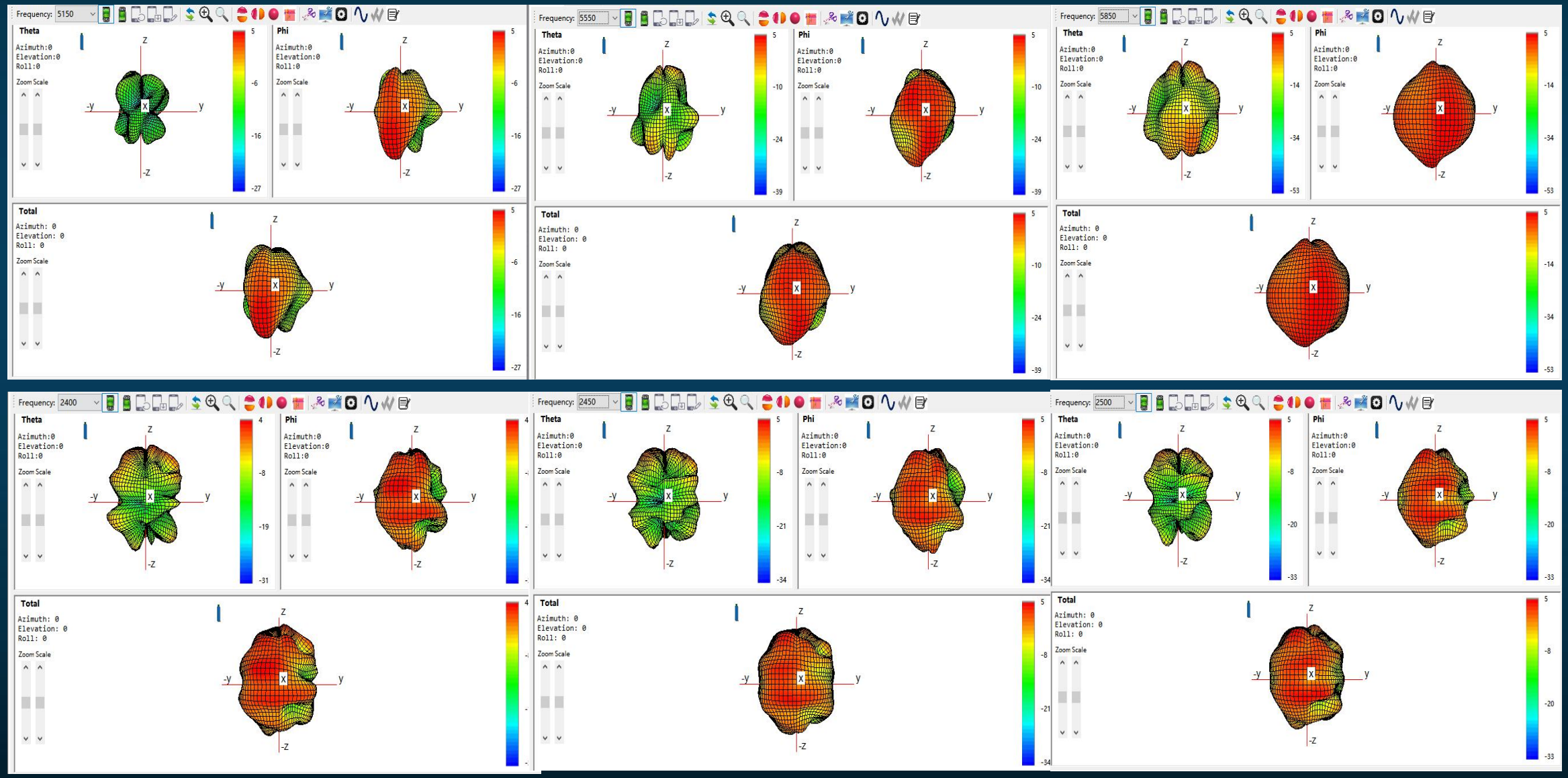

**Match change** **None**

| Antenna | |
|---|---|
| Element | Value |
| E1 (0402) | NC |
| E2 (0402) | 10PF |
| E3 (0402) | NC |

# *WIFI antenna S11 impedance*



# 3D Radiation Pattern



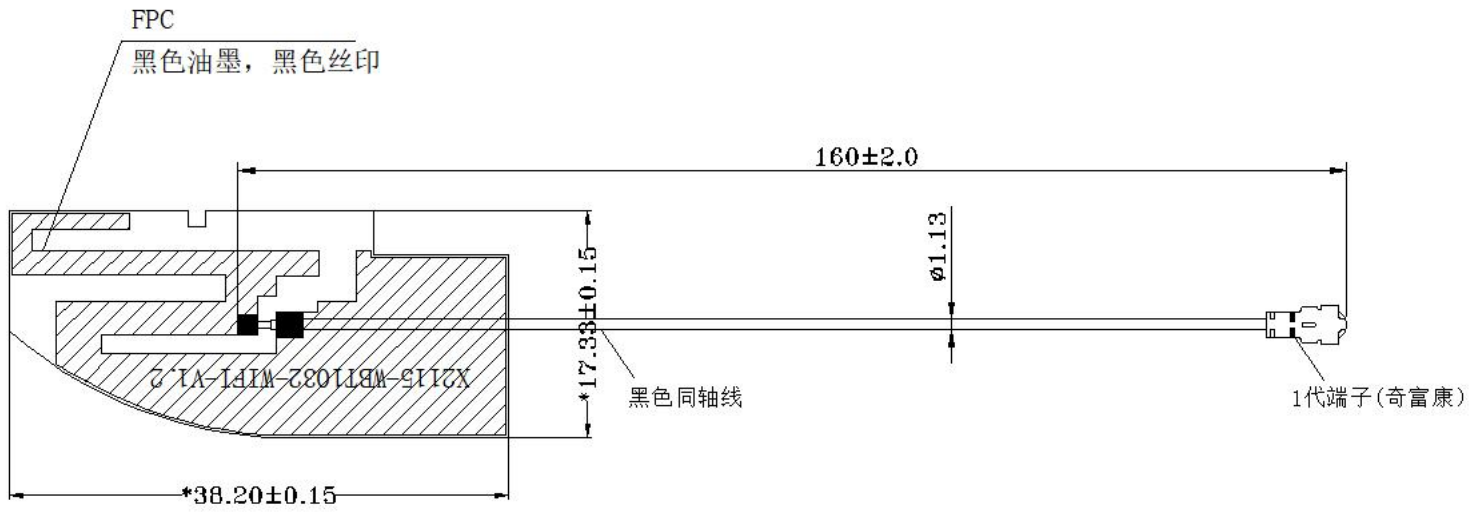
# WIFI-GAIN & Efficiency

| Frequency (MHz) | Gain(dB) | Efficiency (%) |
|---|---|---|
| 2400 | 3.96 | 58.87 |
| 2410 | 4.02 | 55.33 |
| 2420 | 3.91 | 57.72 |
| 2430 | 3.76 | 55.75 |
| 2440 | 4.09 | 56.69 |
| 2450 | 4.44 | 54.01 |
| 2460 | 4.51 | 53.91 |
| 2470 | 4.63 | 52.36 |
| 2480 | 4.77 | 52.45 |
| 2490 | 4.74 | 52.08 |
| 2500 | 4.9 | 52.81 |

| Frequency (MHz) | Gain(dB) | Efficiency (%) |
|---|---|---|
| 5150 | 4.19 | 50.65 |
| 5200 | 5.32 | 53.65 |
| 5250 | 6.19 | 48.15 |
| 5300 | 6.15 | 48.41 |
| 5350 | 5.67 | 48.87 |
| 5400 | 5.14 | 49.31 |
| 5450 | 4.49 | 50.42 |
| 5500 | 4.56 | 48.66 |
| 5550 | 4.41 | 49.78 |
| 5600 | 3.86 | 50.85 |
| 5650 | 4.51 | 50.75 |
| 5700 | 5.13 | 50.21 |
| 5750 | 5.74 | 53.55 |
| 5800 | 5.66 | 52.48 |
| 5850 | 4.73 | 51.67 |

# Antenna Engineer Drawing

环保要求:■ROSH □REACH 无




技术要求

1:"*" 重要尺寸标注

2:天线电压驻波比对照测试图形;

3:天线焊接部位牢固,线缆尺寸准确;焊锡需饱满圆润；表面不能有油渍残留。

4:丝印字体清晰不易脱落;

5；连接器朝向倾斜角度不能大于或小于35°

6.背面为背胶面;离心纸面切一刀为撕手位

7.切料口不可有漏铜现像。

8.产品必须符合欧盟RoHS要求。

| 记号 | 更改日期 | 更改人 | 更改内容 | 备注 |
|---|---|---|---|---|
| A | | | | |
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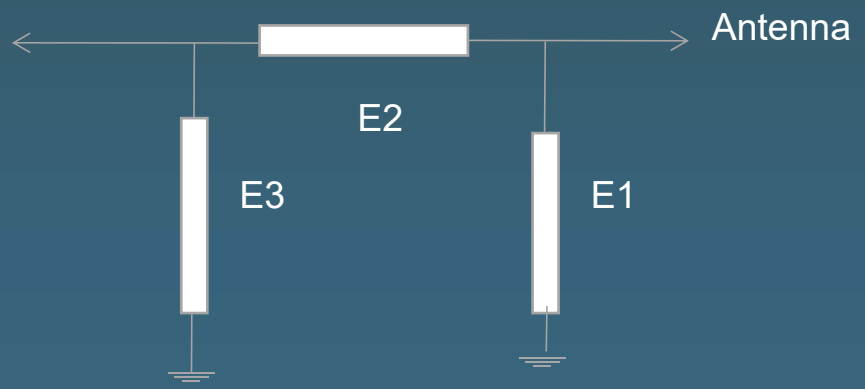
| A | | | | |

深圳市和鸣微科技有限公司

| 未注公差标准 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-10 | ±0.05 | ○ | 0.02 | 机种 | X2115-WBT1032 | 品名 | WIFI-FPC | | 日期 | 2023.07.18 | |
| 10-18 | ±0.06 | ◎ | ø0.03 | 料号 | X2115-WBT1032-WIFI | | | | MD | | |
| 18-30 | ±0.08 | ⊥ | 0.02 | 材料 | | 特殊工艺 | | | RF | | |
| 30-40 | ±0.09 | ▱ | 0.04 | 共 1页 | 第 1 页 | | | | 审核 | | |
| 40- | ±0.10 | Angle | ±0.5° | 第一视角 | | 单位 | mm | 比例 | Flt | 版本 | V00 |

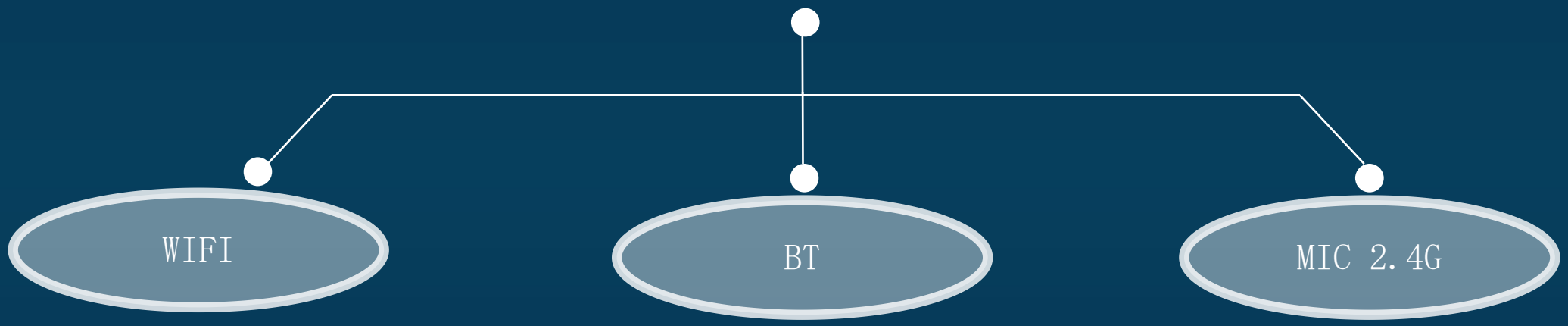
# BT antenna matching circuit




| Match change | None |
|---|---|

| Antenna | |
|---|---|
| Element | Value |
| E1 (0402) | NC |
| E2 (0402) | 0Ω |
| E3 (0402) | NC |

# Project description

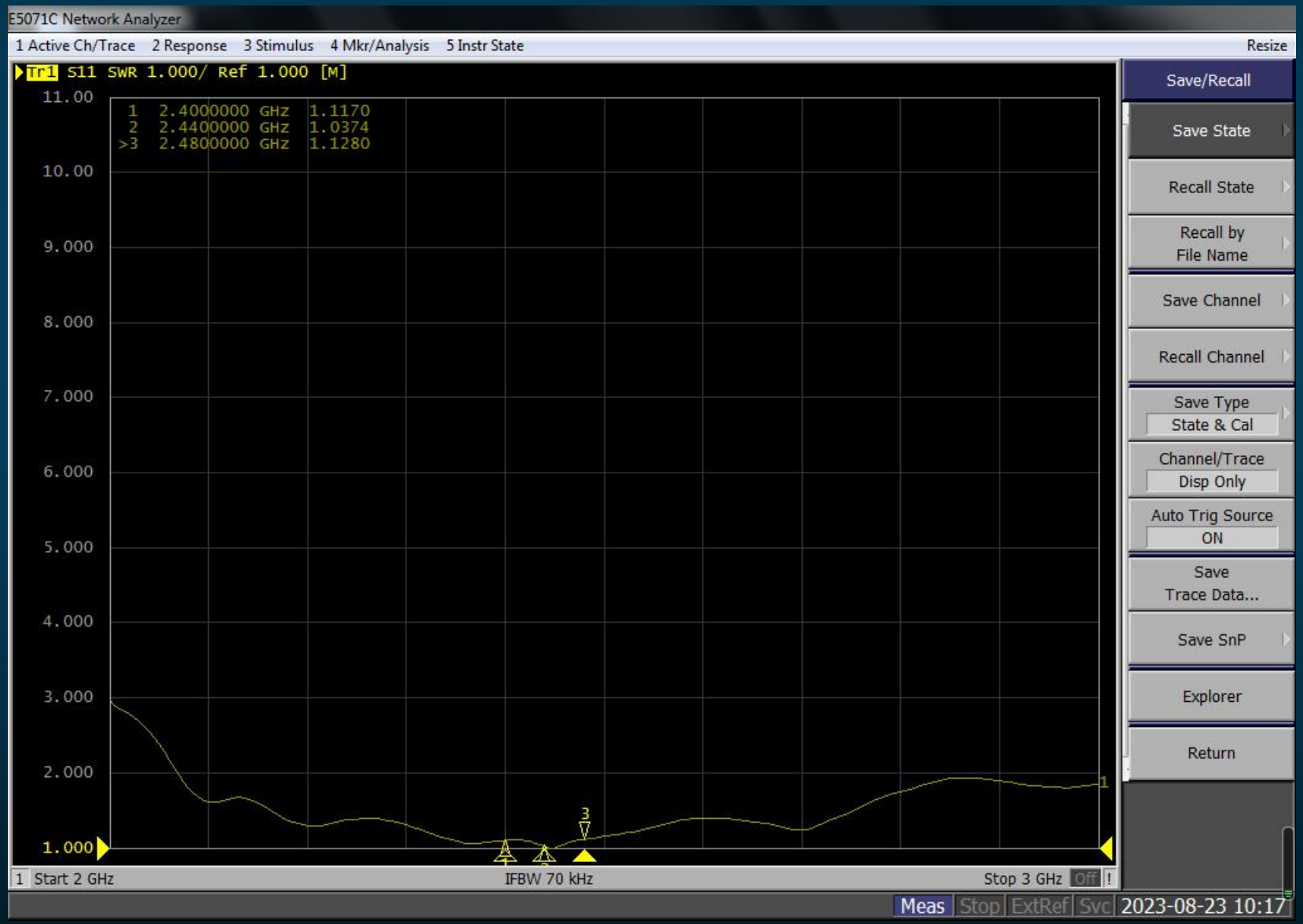



Antenna model: ANT2

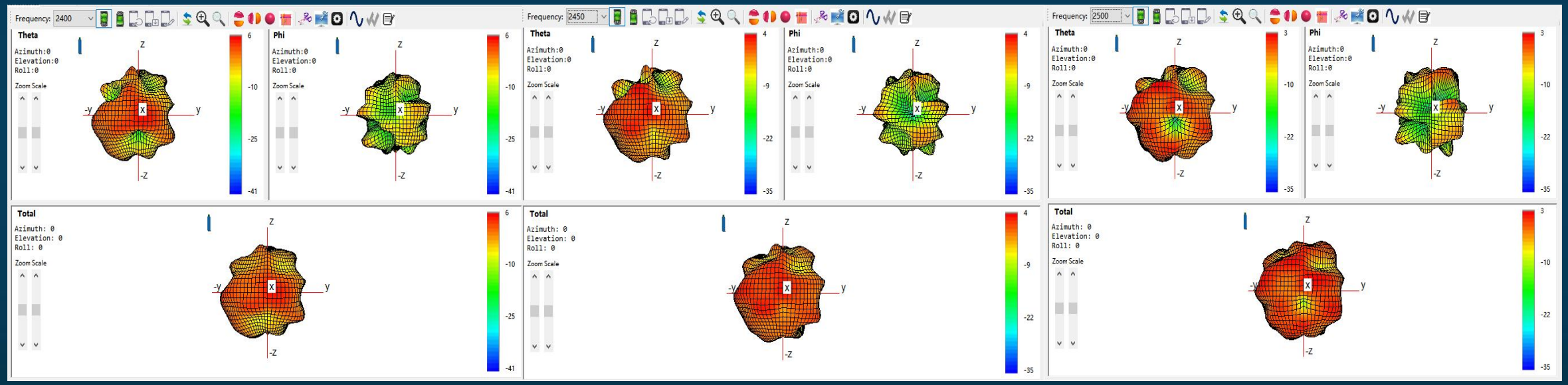
Antenna type: FPC

Match change: None

# BT antenna S11 impedance



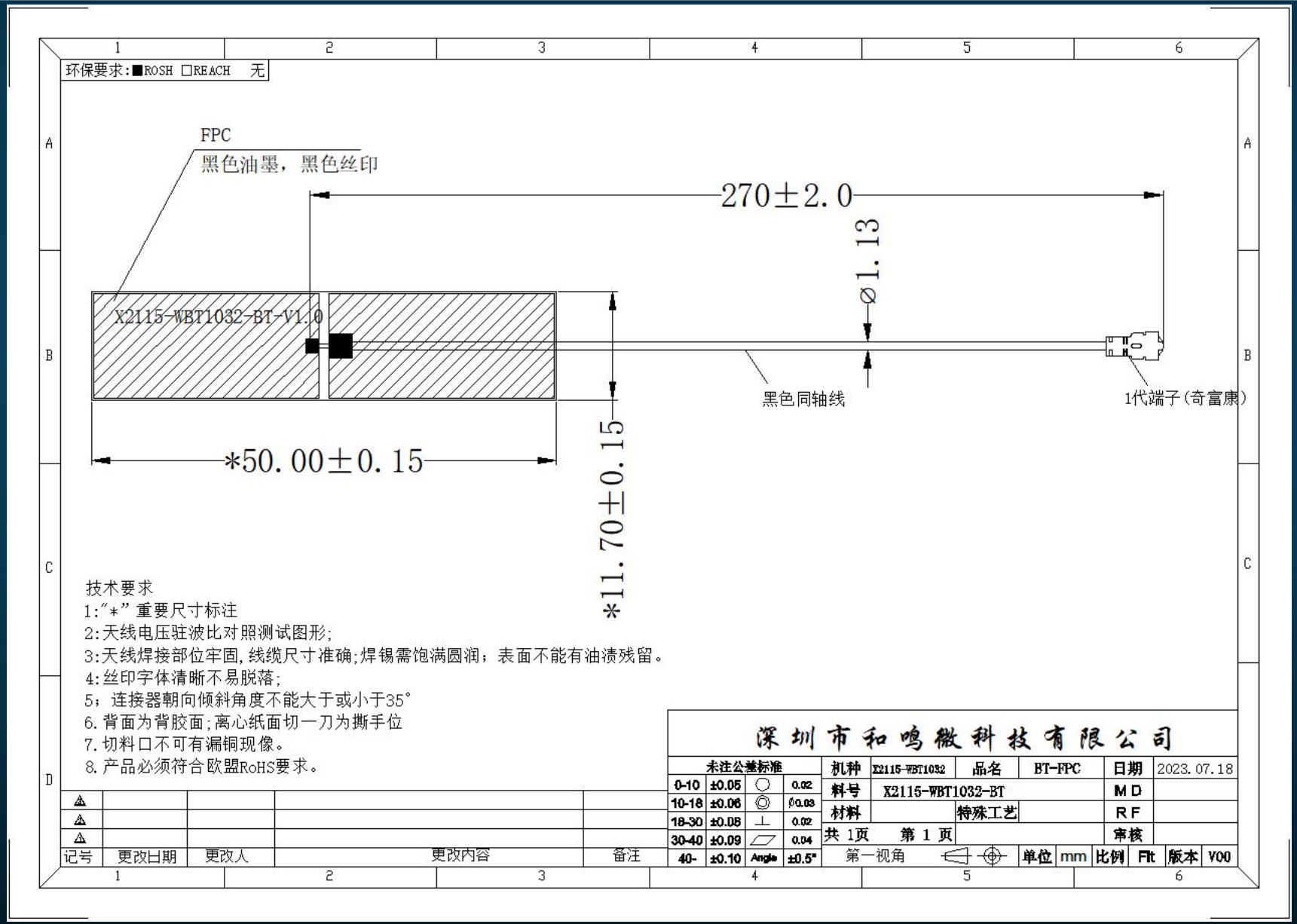
# 3D Radiation Pattern



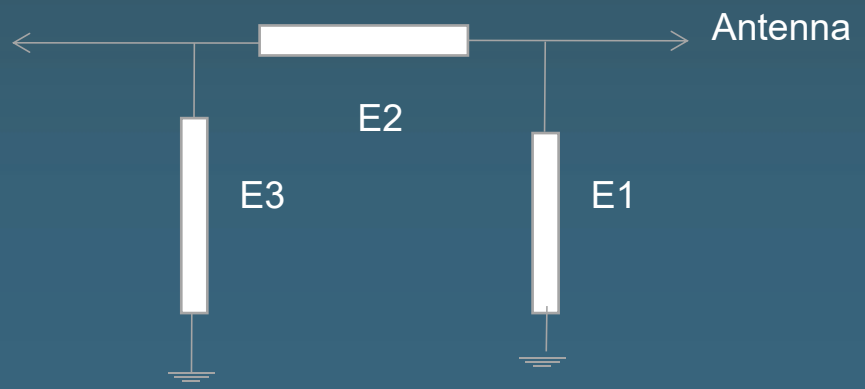
# BT-GAIN & Efficiency

| Frequency (MHz) | Gain(dB) | Efficiency(%) |
|---|---|---|
| 2400 | 5.4 | 56.55 |
| 2410 | 5.25 | 55.57 |
| 2420 | 4.69 | 58.34 |
| 2430 | 4.78 | 54.91 |
| 2440 | 4.44 | 55.57 |
| 2450 | 3.92 | 55.31 |
| 2460 | 3.21 | 55.03 |
| 2470 | 2.71 | 55.63 |
| 2480 | 2.26 | 55.56 |
| 2490 | 2.37 | 54.57 |
| 2500 | 2.31 | 54.71 |

# Antenna Engineer Drawing



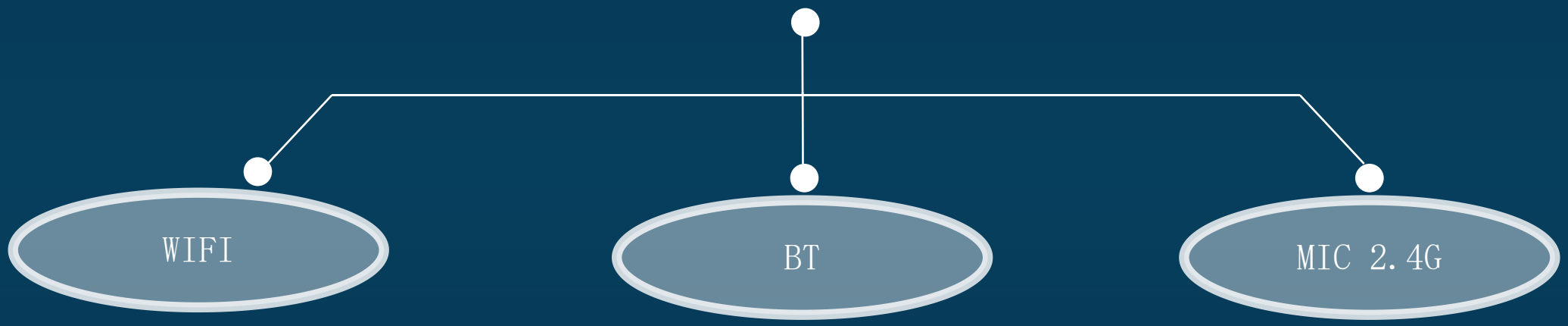
# ANT4 antenna matching circuit




**Match change** **None**

| Antenna | |
|---|---|
| Element | Value |
| E1 (0402) | NC |
| E2 (0402) | 1PF |
| E3 (0402) | 4.7NH |

# Project description

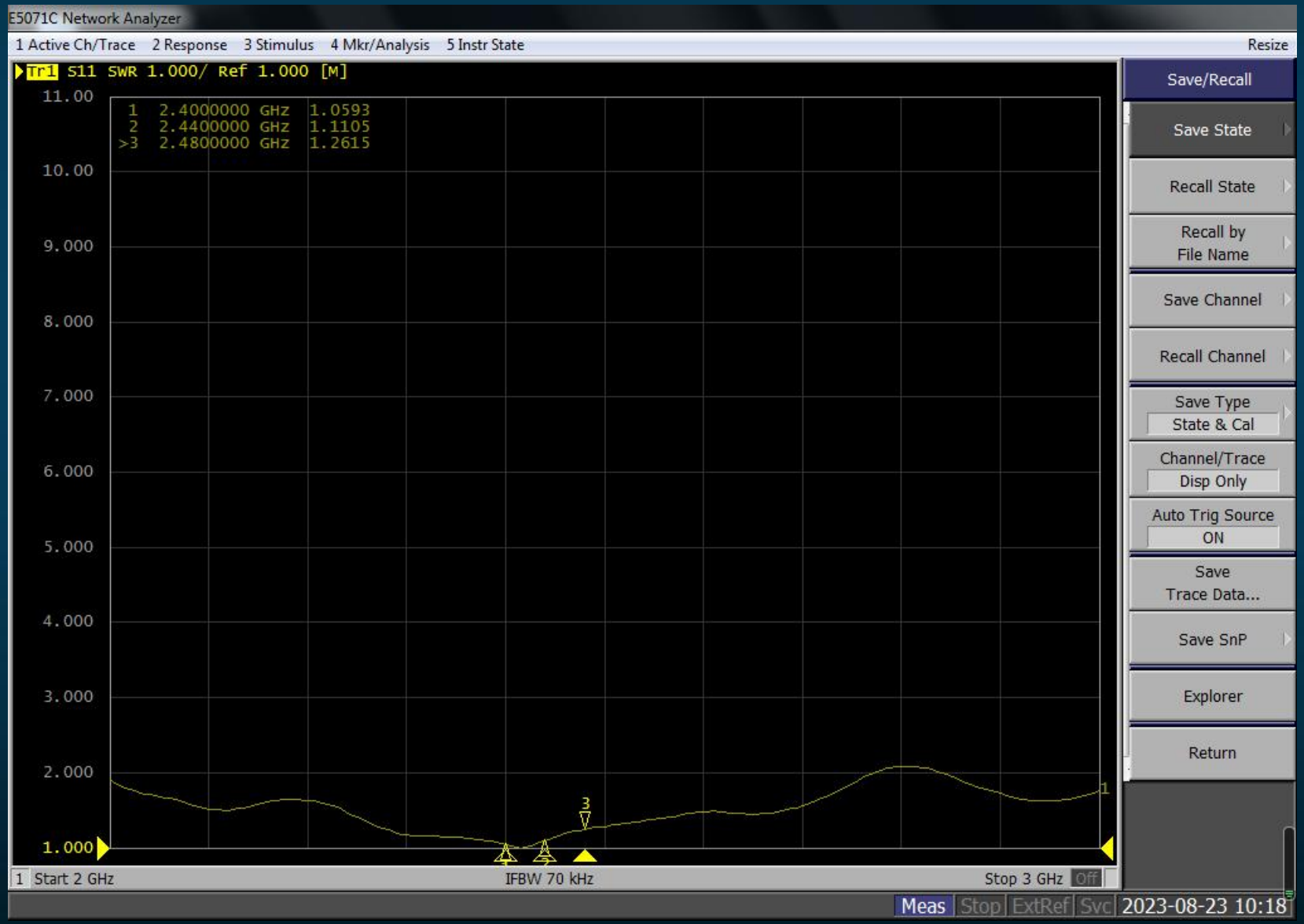



Antenna model: ANT4

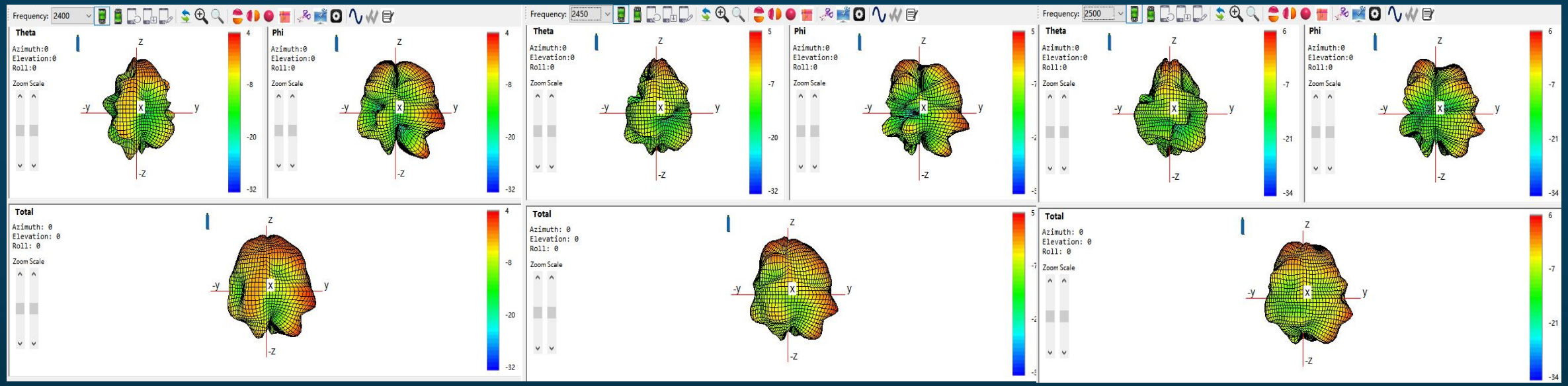
Antenna type: FPC

Match change: None

# **ANT4** *antenna S11 impedance*



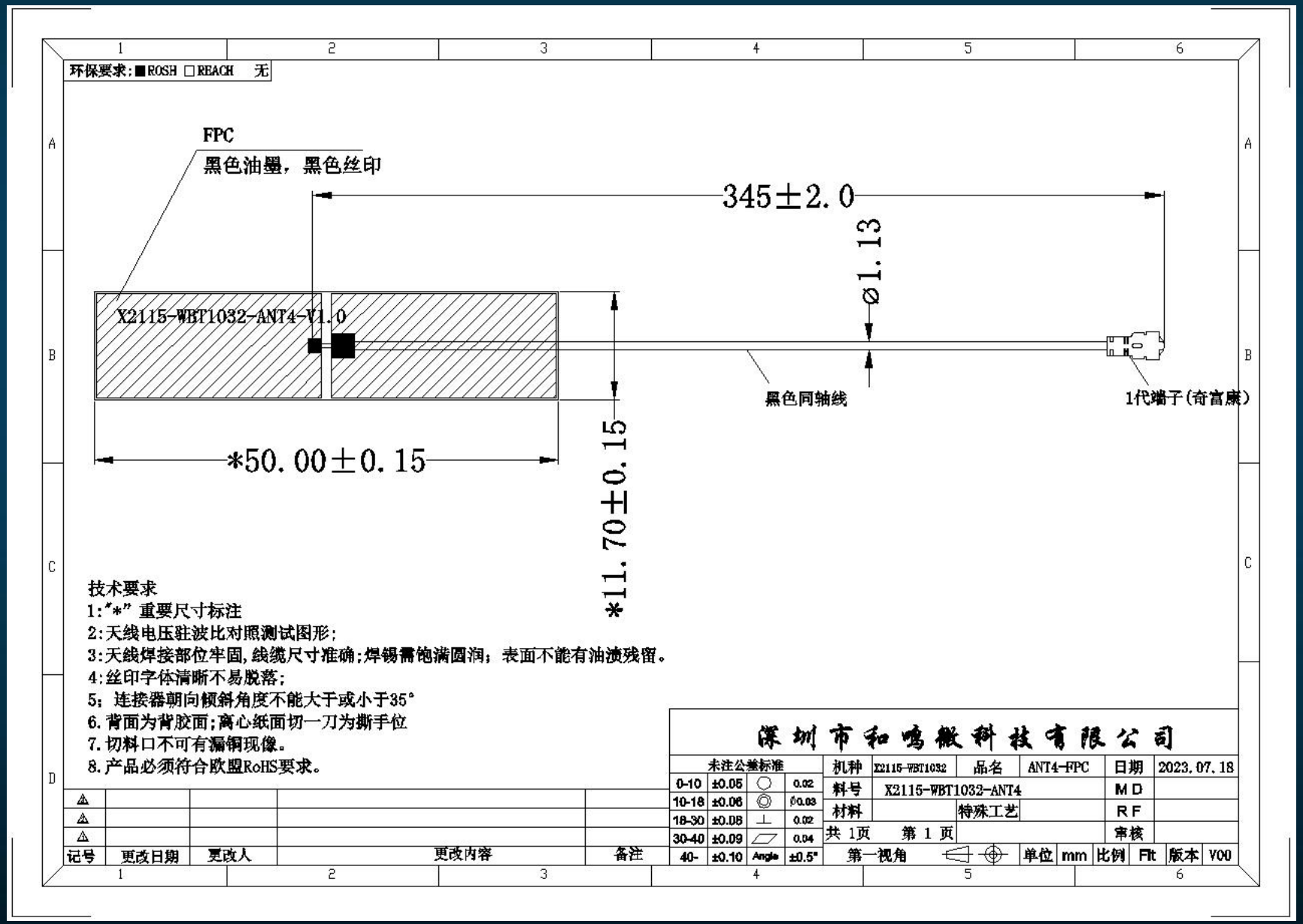
# 3D Radiation Pattern



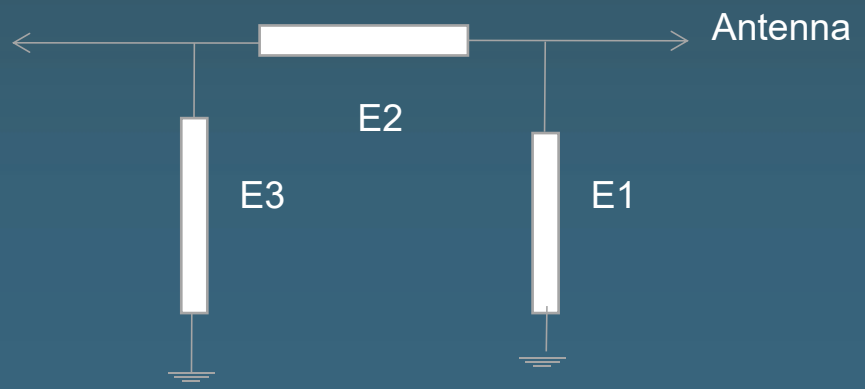
# ANT4-*GAIN & Efficiency*

| Frequency (MHz) | Gain(dB) | Efficiency(%) |
|---|---|---|
| 2400 | 3.84 | 56.27 |
| 2410 | 4.06 | 55.94 |
| 2420 | 4.07 | 54.55 |
| 2430 | 4.41 | 55.68 |
| 2440 | 4.62 | 55.41 |
| 2450 | 4.94 | 56.94 |
| 2460 | 5.12 | 57.07 |
| 2470 | 5.38 | 58.33 |
| 2480 | 5.45 | 58.63 |
| 2490 | 5.4 | 58.26 |
| 2500 | 5.21 | 57.63 |

# Antenna Engineer Drawing



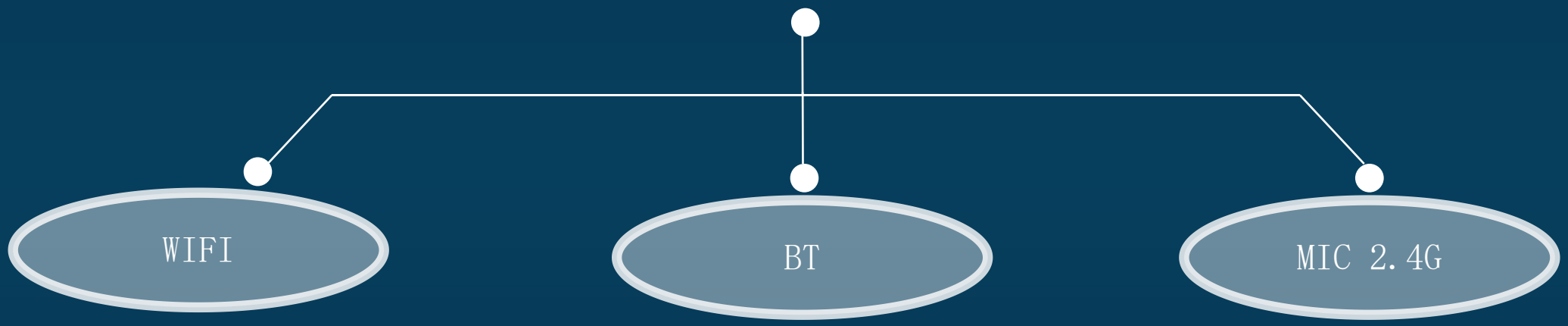
# ANT5 antenna matching circuit




**Match change** **None**

| Antenna | |
|---|---|
| Element | Value |
| E1 (0402) | NC |
| E2 (0402) | 1PF |
| E3 (0402) | 4.7NH |

# Project description

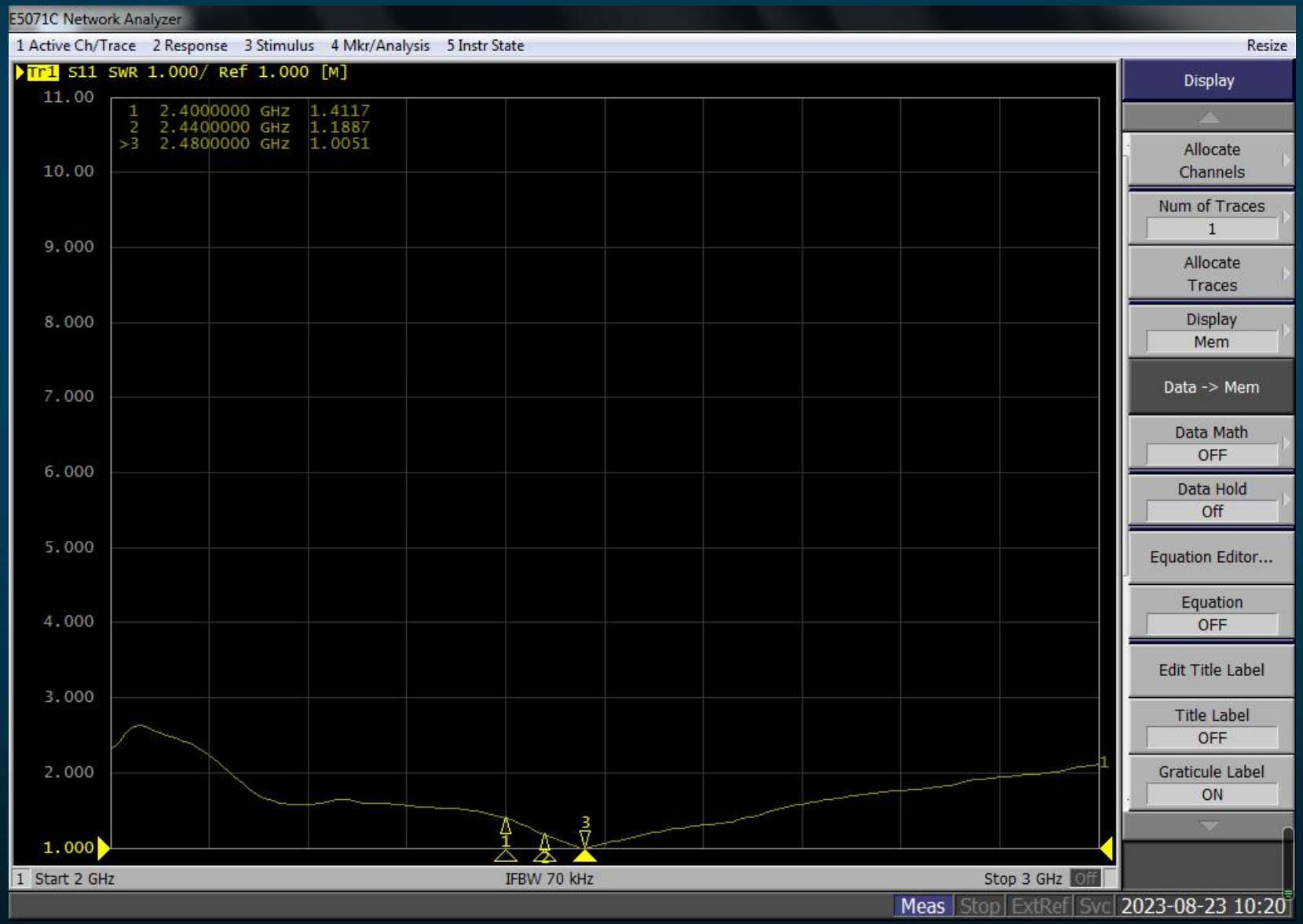



Antenna model: ANT5

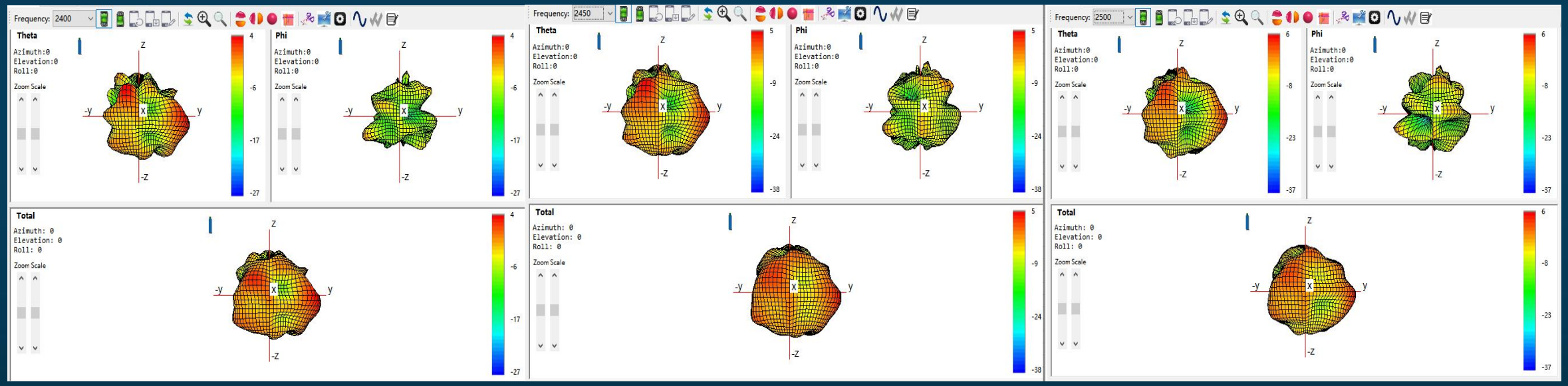
Antenna type: FPC

Match change: None

# **ANT5** *antenna S11 impedance*



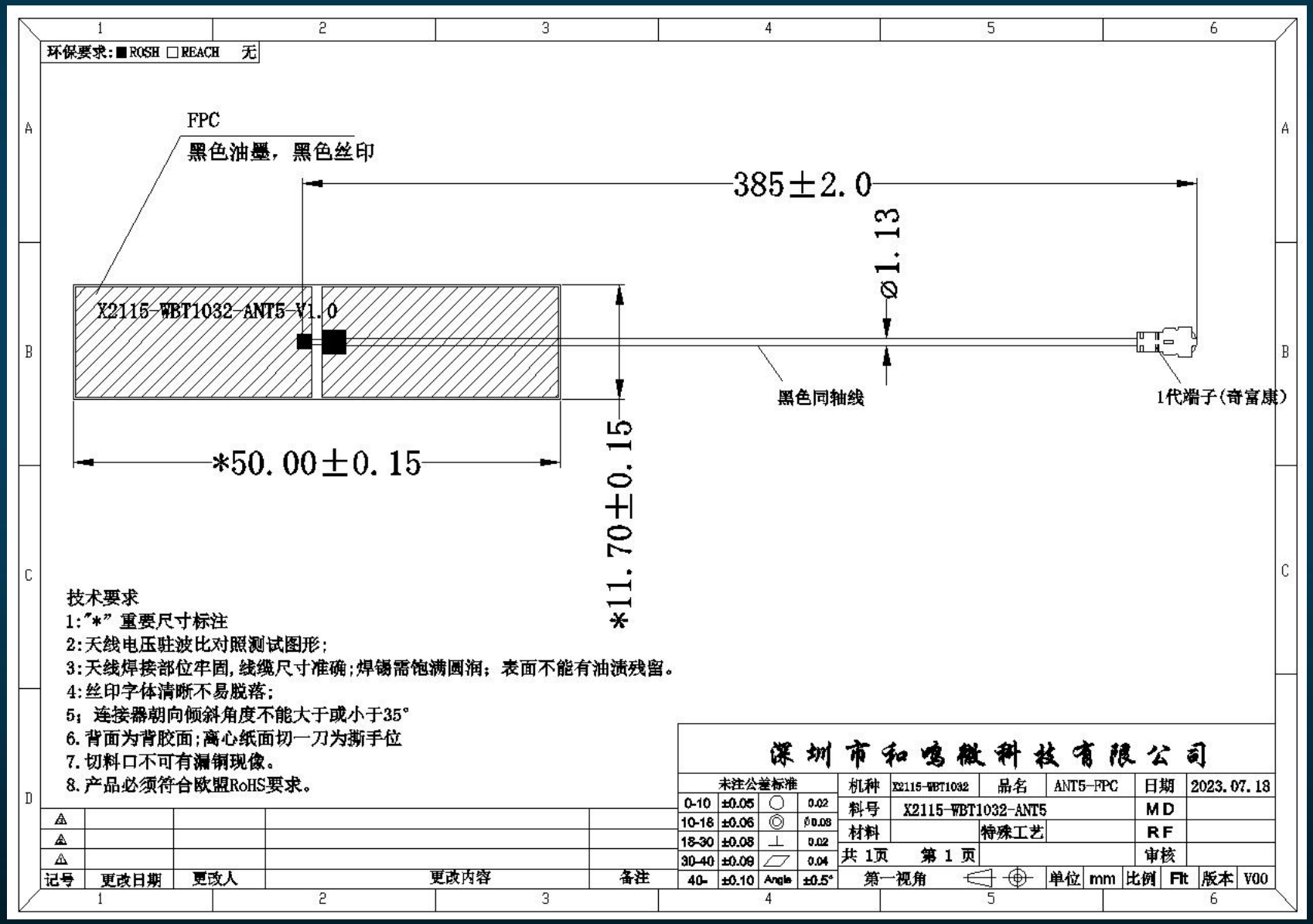
# 3D Radiation Pattern



# ANT5-*GAIN & Efficiency*

| Frequency (MHz) | Gain(dB) | Efficiency(%) |
|---|---|---|
| 2400 | 3.93 | 57.37 |
| 2410 | 3.84 | 56.36 |
| 2420 | 3.53 | 53.49 |
| 2430 | 3.71 | 55.09 |
| 2440 | 4.17 | 54.64 |
| 2450 | 4.65 | 56.26 |
| 2460 | 5.03 | 56.52 |
| 2470 | 5.3 | 57.48 |
| 2480 | 5.65 | 58.51 |
| 2490 | 5.75 | 58.29 |
| 2500 | 5.74 | 58.31 |

# Antenna Engineer Drawing



# NOTICE

1. Please pay attention to whether the matching in the report has changed and whether the environmental treatment is feasible; This will directly affect the antenna performance, if you have any objections, please contact us in time;

2. If your machine has replacement materials, updated software, environmental processing changes, etc., you must provide the latest status of the machine to our company for verification in time

3. If your company's machine needs to be sent to a third party for verification or inspection, it is best to provide the test machine to our company to test and verify OK before sending it for testing (because the consistency of the motherboard, environmental treatment, antenna assembly and so on will affect the antenna deviation)