shenzhenTian wei xun wireless technology co.,ltd.

# Product performance and specification

Tian wei xun antenna the research and development department

CUSTOMER NAME: Shenzhen AZW Technology Co., Ltd

PRODUCT NAME: SER PRO BOARD MODEL V2

TIAN WEI XUN P/N: TWX-069-087 PCB MODEL:

CUSTOMER P/N: 14.02.03880000
14.02.03880001

| Client | Admit manufacturing party | | |
|---|---|---|---|
| **Customers confirmation** | **Quality department** | **R&D** | **Approval** |
| | | **ME:** | |
| | | **RF:** | |
| **Date:** | **(Date): Wednesday, July 3rd, 2024** | | |

Telephone: 86-755-29361726 Fax: 86-755-85268343

| Draft | Liao Xianming | Product specification sheet | edition | V1 |
|---|---|---|---|---|
| Issuing department | R&D Department | | Release date | 2024-07-03 |

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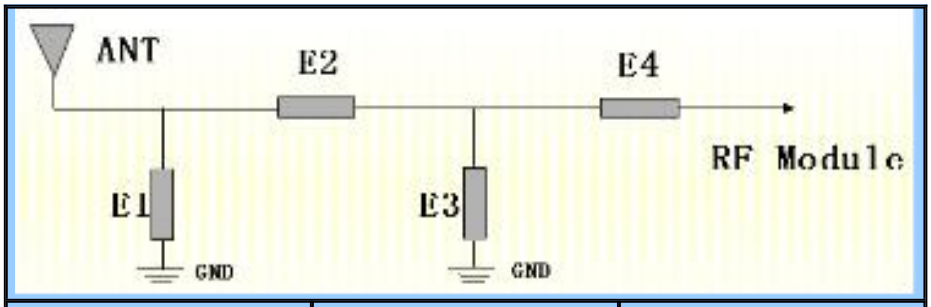
## 1.1 Project Diagram

**SER PRO**

### 1.1.1 Antenna matching diagram




| Element | capacitance | inductance |
|---|---|---|
| E1(0402) | | |
| E2(0402) | | |
| E3(0402) | | |
| E4(0402) | | |

Matching instructions: Match according to the original motherboard without any changes.

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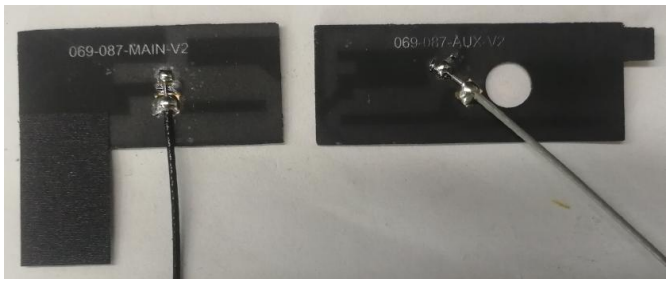
## 2.1 objective

Standardize the specifications and testing methods of mobile communication terminal antenna products produced by Tianweixun to avoid errors caused by different testing conditions and methods.

## 3.1 antenna

### 3.1.1 Main antenna electrical specifications and materials

This report mainly provides the testing status of the structural performance parameters of mobile phone antenna SER PRO.




Physical image of antenna designed by TianWei Xun

### 3.1.2 Antenna form

Implementation type: PIFA antenna

### 3.1.3 Antenna design operating frequency band

The working frequency band of the antenna is

2412MHz~ 2472MHz ;\5100MHz~5820MHz

### 3.1.4 Measurement data of the main antenna in the ETS-SG24SYSTEM 3D testing system

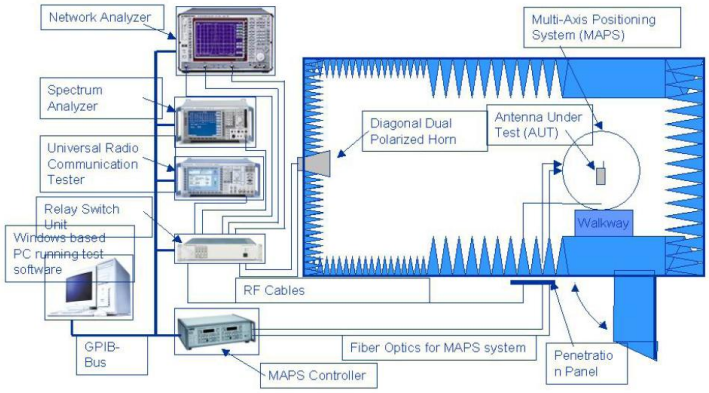



Figure (2) ETS Testing System

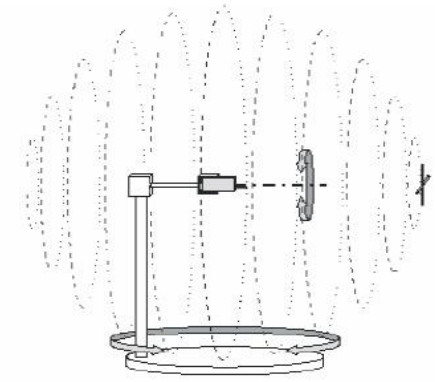


Figure (3) Three dimensional positioning device for mobile phone in darkroom

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The following table shows the passive performance indicators of Tianweixun's designed and mass-produced antennas:

| Freq. (MHz) | Gain (dBi) | Efficiency (%) | Freq. (MHz) | Gain (dBi) | Efficiency (%) | Freq. (MHz) | Gain (dBi) | Efficiency (%) |
|---|---|---|---|---|---|---|---|---|
| 2400 | -0.48 | 22.0 | 5100 | 3.30 | 35.5 | 5485 | 2.33 | 33.7 |
| 2410 | -0.58 | 19.9 | 5135 | 3.21 | 32.3 | 5520 | 1.80 | 32.8 |
| 2420 | -0.55 | 18.7 | 5170 | 3.22 | 31.0 | 5555 | 0.86 | 30.6 |
| 2430 | -0.66 | 17.3 | 5205 | 3.54 | 33.3 | 5590 | 1.24 | 32.0 |
| 2440 | 0.89 | 16.1 | 5240 | 3.31 | 32.3 | 5625 | 0.79 | 31.7 |
| 2450 | -1.01 | 15.8 | 5275 | 3.16 | 32.1 | 5660 | 0.32 | 30.0 |
| 2460 | -0.96 | 16.8 | 5310 | 3.12 | 33.1 | 5695 | -0.14 | 28.0 |
| 2470 | -1.27 | 16.7 | 5345 | 3.05 | 32.9 | 5730 | 0.26 | 27.3 |
| 2480 | -1.08 | 18.5 | 5380 | 2.71 | 32.8 | 5765 | -0.70 | 22.6 |
| 2490 | -1.14 | 18.7 | 5415 | 3.05 | 34.0 | 5800 | -0.16 | 21.2 |
| 2500 | -0.89 | 20.9 | 5450 | 2.48 | 33.7 | | | |

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| Freq. (MHz) | Gain (dBi) | Efficiency (%) | Freq. (MHz) | Gain (dBi) | Efficiency (%) | Freq. (MHz) | Gain (dBi) | Efficiency (%) |
|---|---|---|---|---|---|---|---|---|
| 2400 | -1.82 | 20.3 | 5100 | 2.22 | 39.1 | 5485 | 0.33 | 31.7 |
| 2410 | -2.10 | 18.9 | 5135 | 1.57 | 34.9 | 5520 | 0.40 | 32.0 |
| 2420 | -1.97 | 18.9 | 5170 | 1.31 | 33.6 | 5555 | 0.50 | 30.4 |
| 2430 | -2.03 | 18.1 | 5205 | 1.09 | 35.7 | 5590 | 0.79 | 31.8 |
| 2440 | -2.03 | 17.3 | 5240 | 1.09 | 33.9 | 5625 | 1.64 | 34.2 |
| 2450 | -2.05 | 16.6 | 5275 | 1.24 | 33.2 | 5660 | 1.39 | 32.4 |
| 2460 | -1.98 | 16.6 | 5310 | 1.15 | 32.9 | 5695 | 1.53 | 33.1 |
| 2470 | -2.19 | 15.9 | 5345 | 0.66 | 32.0 | 5730 | 2.11 | 33.5 |
| 2480 | -2.25 | 16.0 | 5380 | 0.24 | 31.1 | 5765 | 1.43 | 30.0 |
| 2490 | -2.93 | 14.8 | 5415 | -0.03 | 31.3 | 5800 | 0.84 | 29.2 |
| 2500 | -3.04 | 15.3 | 5450 | -0.24 | 31.0 | | | |

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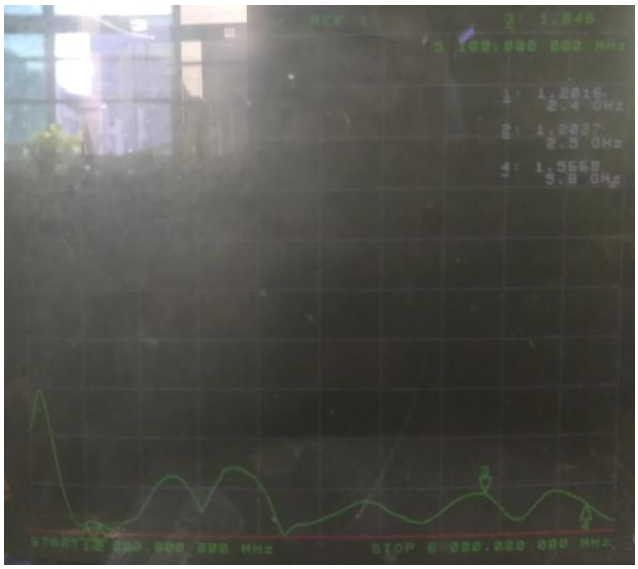
### 3.1.5 Passive standing wave and return loss of antenna



Voltage standing wave ratio (SWR)

Return loss (Return loss)

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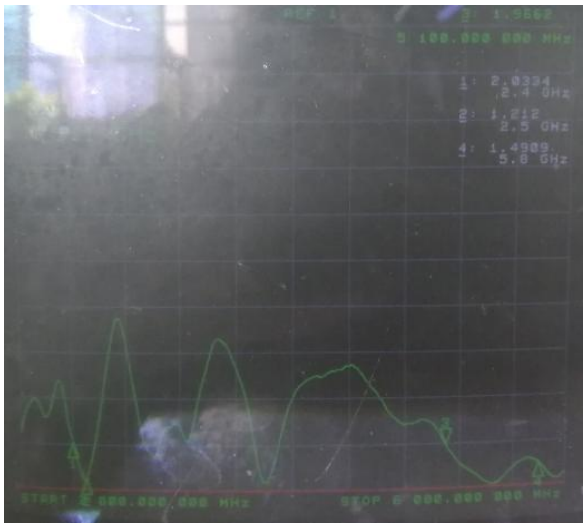
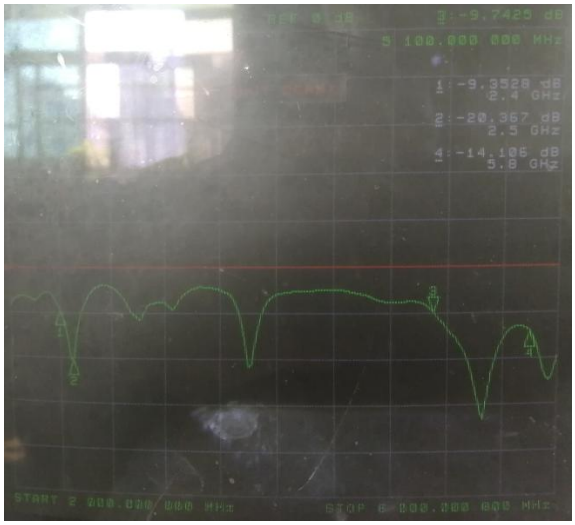


Voltage standing wave ratio (SWR)



Return loss (Return loss)

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### 3.1.6 WiFi Antenna active test data

| | | Channel No. | TRP (dBm) | TIS (dBm) |
|---|---|---|---|---|
| WiFi 网络 | 2.4G (802.11B) | 1 | 11.11 | -80.99 |
| | | 6 | 11.32 | -79.86 |
| | | 13 | 11.45 | -79.66 |
| | 5G (802.11A) | 36 | 11.84 | -72.02 |
| | | 64 | 11.80 | -71.64 |
| | | 149 | 10.83 | -69.93 |
| | | 157 | 10.81 | -71.40 |
| | | 165 | 10.54 | -69.91 |

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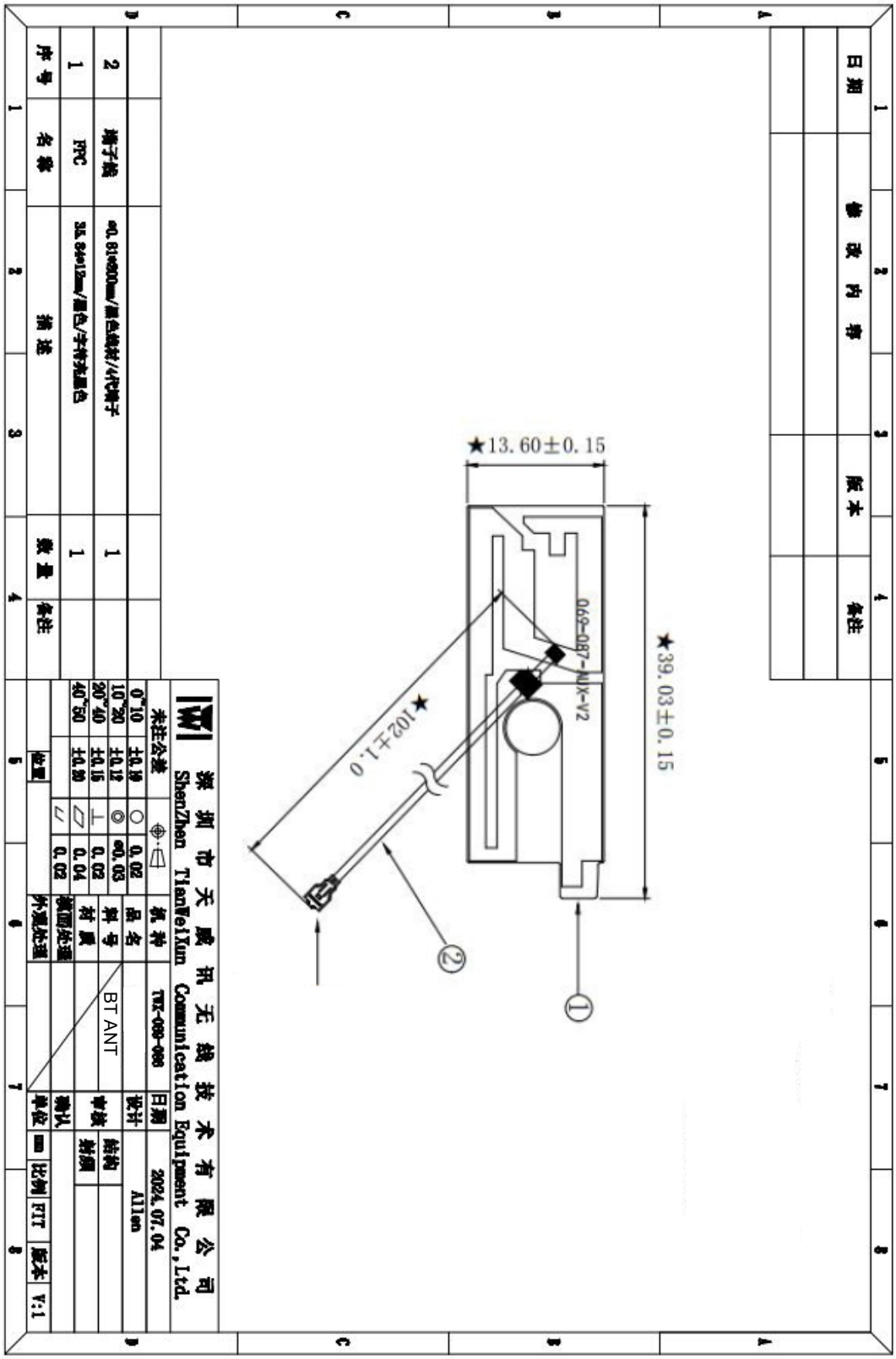


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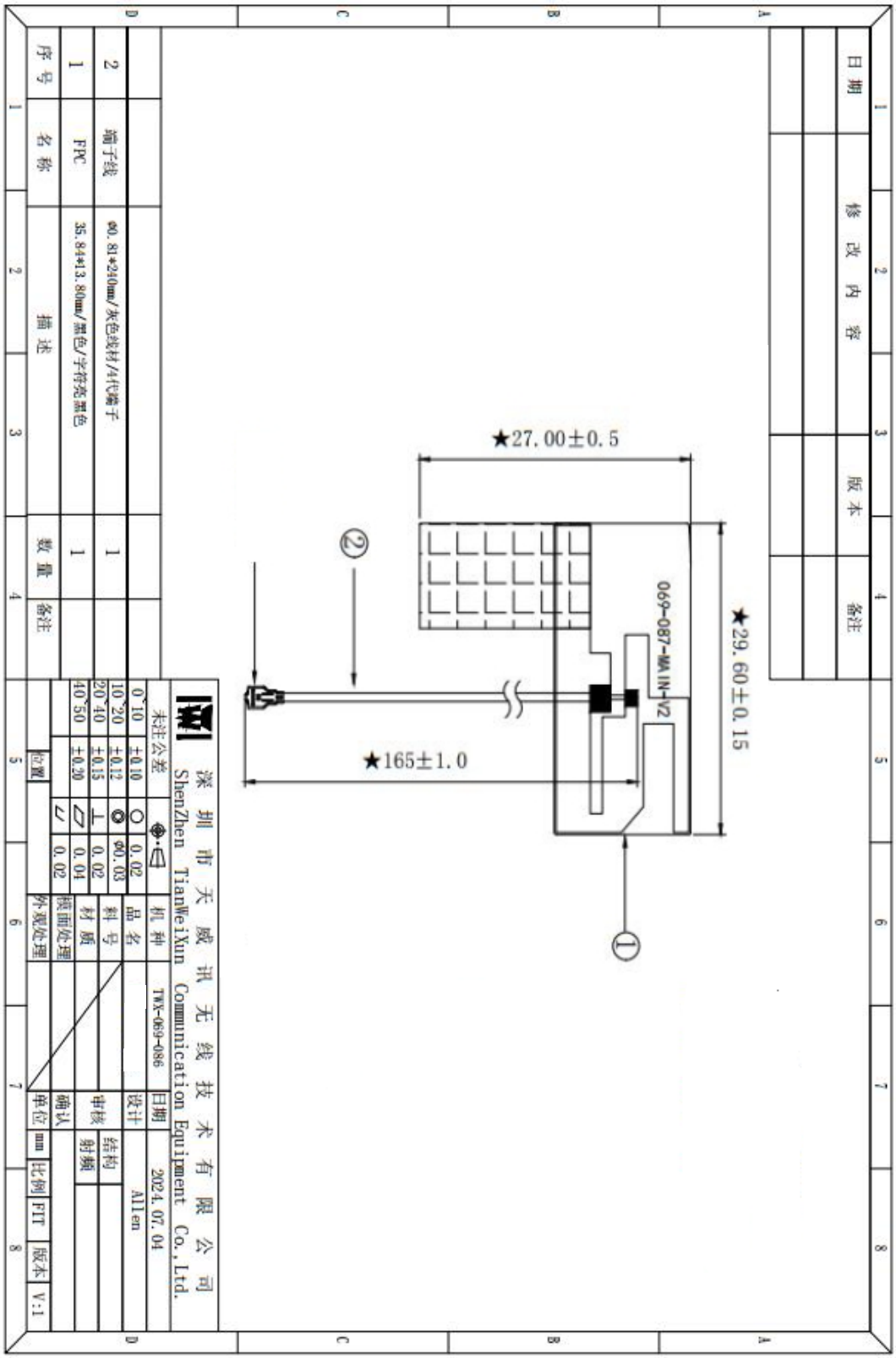


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The information provided by the technology is not allowed to be disclosed to any company or individual without the prior written consent of our company