



# Antenna Test report

Model Name: M9-4-YJ-SL730A

Date: 15th Aug, 2023

Shenzhen Xinlingke Technology Co., Ltd.

[www.kpantenna.com](http://www.kpantenna.com)

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# 01.Project Introduction and Photoes-Project Introduction



|                          |                                                                          |                |                                 |
|--------------------------|--------------------------------------------------------------------------|----------------|---------------------------------|
| RF Engineer              | Engineer Kong                                                            | Email          | 2532625702@qq.com               |
|                          |                                                                          | Mobile         | 18477016343                     |
| Antenna Overview         |                                                                          |                |                                 |
| Status of Sample machine | Whole machine                                                            | Project Name   | M9-4-YJ-SL730A                  |
| Antenna Type             | PIFA                                                                     | Structure mode | FPC+4th Generation coaxial line |
| Main Antenna             | 4G:B2 B3 B4 B5 B7 B8 B20 B28A B40, 3G(850/1900)<br>2G(850/900/1800/1900) |                |                                 |
| Other Antenna            | Diversity Three-in-one antenna                                           |                |                                 |

## 02.Report Versions



| Version | Report Time | Commissioning Overview                |
|---------|-------------|---------------------------------------|
| A0      | 2023.08.02  | Antenna Test Report                   |
| A1      | 2023.08.05  | Optimize the main antenna test report |
| A2      | 2023.08.15  | Optimize jamming antenna test report  |
| A3      |             |                                       |
| A4      |             |                                       |
| A5      |             |                                       |
| A6      |             |                                       |
| A7      |             |                                       |
| A8      |             |                                       |
| A9      |             |                                       |
| A10     |             |                                       |

## 03.Introduction of Company and Test Environment- Company



### Company Experience

Shenzhen Xinlingke Technology Co., Ltd. owns 12 years of experience in R & D and production of various mobile communication terminals. Company has established a joint RF device laboratory with universities. Company is proficient in antennas of 5G NSA and SA, ultra thin mobile phones, NB IOT / EMTC, and base station.



### Product Range

The products of company cover many fields, such as smart home, Internet of vehicles, smart wear, mobile phones, pad, base station etc.



### Core Task

Company has been committed to improving our long-term competitiveness by providing whole RF solution, insisted on taking customer demand as the first place.

## 04.Introduction of Company and Test Environment-Test Environment



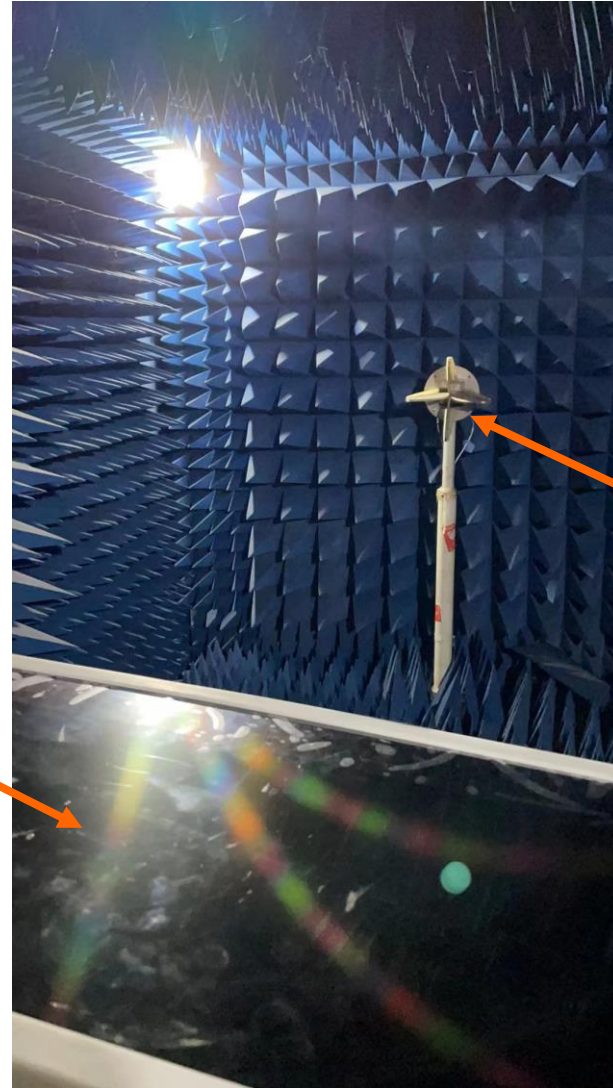
**The company owns several OTA darkrooms whose frequency bands covers from 400mhz to 8.5ghz.**

- Providing OTA test for whole machine which include but not be limited to 5G NSA, SA(trp/tis), WiFi active test (supporting 11b/11g/11n/11ax mode), bluetooth/GPS active test
- Providing antenna gain and efficiency
- Providing 2D pattern / Apple chart analysis
- Providing upper and lower hemisphere efficiency
- Providing mutual interference correlation coefficient test items.

## 05.Environment Test



Location of  
Tested  
Machine



Location of  
Loudspeaker

## 06.Antenna correlation data



Main antenna active data

| Band | Channel | TRP  | TIS   |
|------|---------|------|-------|
| B2   | L       | 17.3 |       |
|      | M       | 17.2 |       |
|      | H       | 17.1 | -90.7 |
| B3   | L       | 17.1 |       |
|      | M       | 17.6 |       |
|      | H       | 17.1 | -91.6 |
| B4   | L       | 17.1 |       |
|      | M       | 17.2 |       |
|      | H       | 17.1 | -90.4 |
| B5   | L       | 12.2 |       |
|      | M       | 12.1 |       |
|      | H       | 11.3 | -82.1 |

| Band | Channel | TRP  | TIS   |
|------|---------|------|-------|
| B7   | L       | 12.1 |       |
|      | M       | 12.6 |       |
|      | H       | 14.1 | -88.9 |
| B8   | L       | 10.2 |       |
|      | M       | 9.5  |       |
|      | H       | 8.5  | -78.5 |
| B28  | L       | 13.4 |       |
|      | H       | 13.7 | -83.8 |
| B40  | L       | 12.6 |       |
|      | M       | 13.1 |       |
|      | H       | 13.1 | -84   |

## 07. Antenna correlation data

Main antenna active data



|                                         |          |
|-----------------------------------------|----------|
| Off screen                              |          |
| EGSM TRP                                | EGSM TIS |
| 124                                     | 124      |
| 914.799                                 | 959.799  |
| 19.44                                   | -93.56   |
| Flash the screen and turn on the camera |          |
| EGSM TRP                                | EGSM TIS |
| 124                                     | 124      |
| 914.799                                 | 959.799  |
| 19.35                                   | -93.72   |

|                                                |              |
|------------------------------------------------|--------------|
| Off screen                                     |              |
| WCDMA_II TRP                                   | WCDMA_II TIS |
| 9262                                           | 9662         |
| 1852.4                                         | 1932.4       |
| 17.53                                          | -105.72      |
| Bright screen before rectification             |              |
| WCDMA_II TRP                                   | WCDMA_II TIS |
| 9262                                           | 9662         |
| 1852.4                                         | 1932.4       |
| 17.54                                          | -100.86      |
| After the brightening environment is rectified |              |
| WCDMA_II TRP                                   | WCDMA_II TIS |
| 9262                                           | 9662         |
| 1852.4                                         | 1932.4       |
| 17.57                                          | -103.23      |

## 08. WIFI active data



2.4G WIFI active data

| 2.4GWIFI | 802.11b (11M) |     |       |
|----------|---------------|-----|-------|
| channel  | 1             | 7   | 13    |
| TRP      | 6.2           | 9.7 | 9.7   |
| TIS      |               |     | -74.1 |

5G WIFI active data

| 5GWIFI  | 802.11a (54M) |     |       |
|---------|---------------|-----|-------|
| channel | 36            | 149 | 165   |
| TRP     | 8.5           | 5.7 | 3.9   |
| TIS     |               |     | -65.6 |

## 09. Antenna passive data

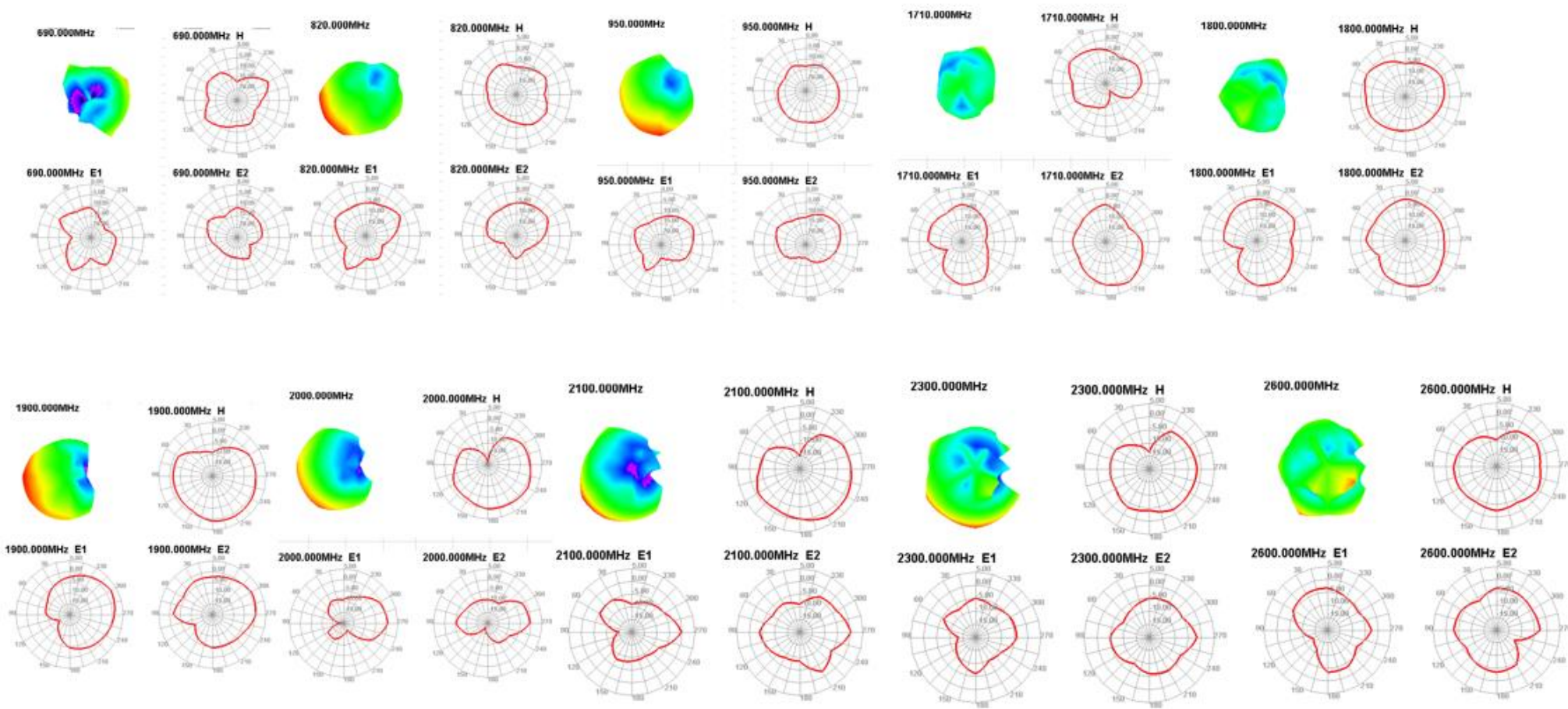
### 4G main antenna gain

| Passive Test For |            | Passive Test For |            |      |       |      |       |
|------------------|------------|------------------|------------|------|-------|------|-------|
| Freq (MHz)       | Gain (dBi) | Freq (MHz)       | Gain (dBi) |      |       |      |       |
| 690              | -2.74      | 1700             | -1.68      | 1980 | -2.34 | 2580 | -0.71 |
| 700              | -2.09      | 1710             | -1.41      | 1990 | -1.68 | 2590 | -0.55 |
| 710              | -2.98      | 1720             | -1.71      | 2000 | -1.91 | 2600 | -0.39 |
| 720              | -2.74      | 1730             | -1.91      | 2010 | -1.51 | 2610 | 0.85  |
| 730              | -2.24      | 1740             | -1.87      | 2020 | -2.86 | 2620 | -0.33 |
| 740              | -2.1       | 1750             | -1.91      | 2030 | -2.25 | 2630 | -1.11 |
| 750              | -2.41      | 1760             | -1.81      | 2040 | -2.01 | 2640 | -0.23 |
| 760              | -2.33      | 1770             | -1.88      | 2050 | -2.28 | 2650 | -0.4  |
| 770              | -2.26      | 1780             | -1.86      | 2060 | -2.04 |      |       |
| 780              | -3.05      | 1790             | -1.7       | 2070 | -1.92 |      |       |
| 790              | -3.13      | 1800             | -0.33      | 2080 | -2.96 |      |       |
| 800              | -3.27      | 1810             | -0.47      | 2090 | -2.67 |      |       |
| 810              | -3.32      | 1820             | -0.43      | 2300 | -1.79 |      |       |
| 820              | -3.32      | 1830             | -0.16      | 2310 | -1.31 |      |       |
| 830              | -3.43      | 1840             | 0.6        | 2320 | -2.58 |      |       |
| 840              | -3.51      | 1850             | 0.27       | 2330 | -2.31 |      |       |
| 850              | -3.56      | 1860             | -0.32      | 2340 | -1.86 |      |       |
| 860              | -3.55      | 1870             | -0.25      | 2350 | -1.87 |      |       |
| 870              | -3.62      | 1880             | 0.67       | 2360 | -1.97 |      |       |
| 880              | -3.77      | 1890             | 0.02       | 2370 | -1.78 |      |       |
| 890              | -3.77      | 1900             | -0.67      | 2380 | -1.96 |      |       |
| 900              | -3.79      | 1910             | -0.9       | 2390 | -1.76 |      |       |
| 910              | -3.81      | 1920             | -0.66      | 2400 | -1.62 |      |       |
| 920              | -3.93      | 1930             | -0.92      | 2500 | -1.81 |      |       |
| 930              | -3.95      | 1940             | -1.29      | 2510 | -1.24 |      |       |
| 940              | -4.02      | 1950             | -1.12      | 2520 | -1.28 |      |       |
| 950              | -4.12      | 1960             | -1.27      | 2530 | -0.68 |      |       |
| 960              | -4.54      | 1970             | -2.13      | 2540 | -1.14 |      |       |
|                  |            |                  |            | 2550 | -0.99 |      |       |
|                  |            |                  |            | 2560 | -0.2  |      |       |
|                  |            |                  |            | 2570 | -0.36 |      |       |

# 10. Antenna correlation data



## 4G main antenna



# 11. Antenna passive data



Antenna passive data

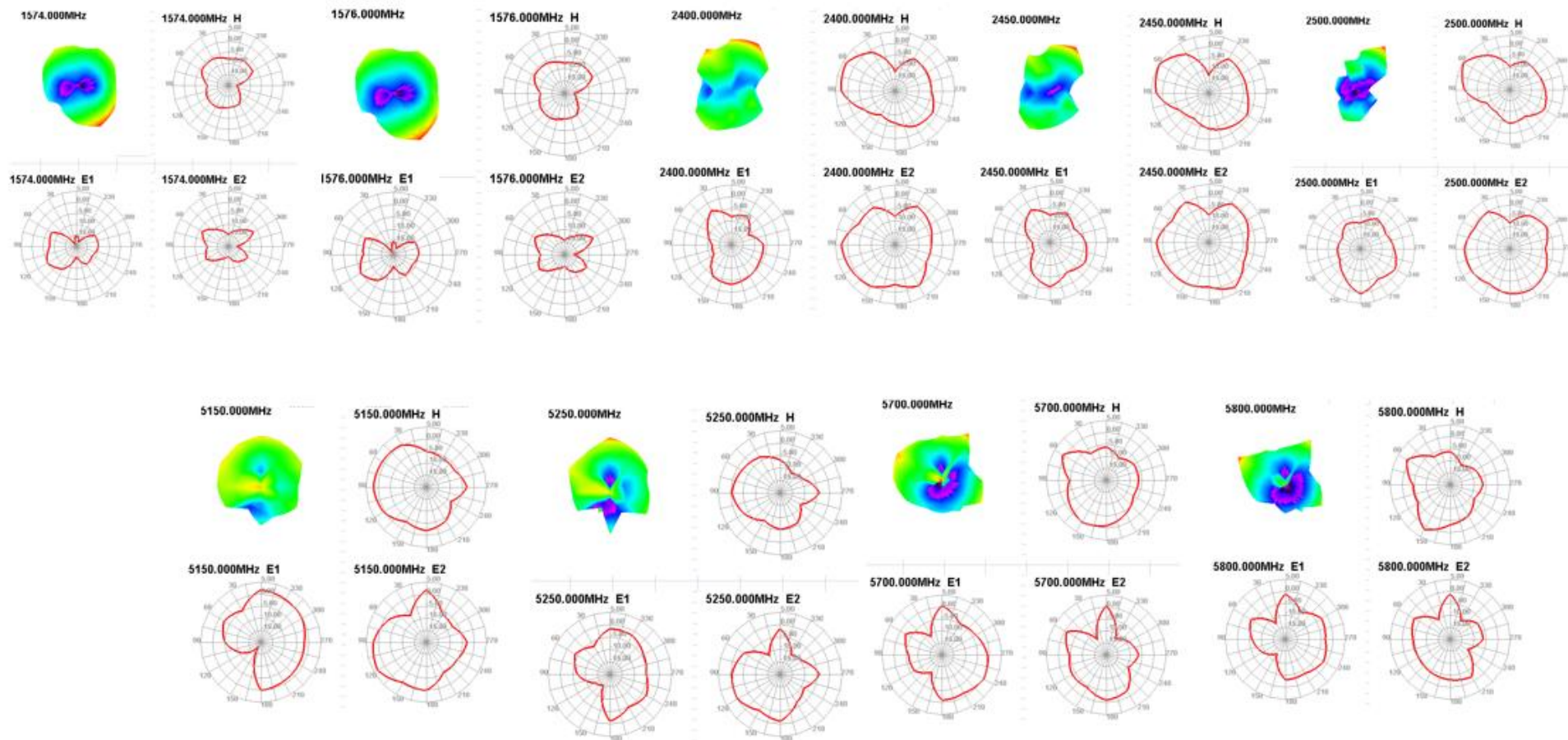
three-in-one antenna gain

| Passive Test For |            | Passive Test For |            |
|------------------|------------|------------------|------------|
| Freq (MHz)       | Gain (dBi) | Freq (MHz)       | Gain (dBi) |
| 1564             | -1.77      | 2400             | -0.91      |
| 1566             | -1.72      | 2410             | -0.65      |
| 1568             | -1.74      | 2420             | -1.07      |
| 1570             | -1.81      | 2430             | -1.16      |
| 1572             | -1.73      | 2440             | -0.91      |
| 1574             | -1.63      | 2450             | -0.52      |
| 1576             | -1.49      | 2460             | -0.94      |
| 1578             | -1.32      | 2470             | -1.31      |
| 1580             | -1.15      | 2480             | -0.96      |
| 1582             | -1.07      | 2490             | -1.46      |
| 1584             | -1.02      | 2500             | -1.57      |

| Passive Test For |            |
|------------------|------------|
| Freq (MHz)       | Gain (dBi) |
| 5150             | 0.67       |
| 5200             | 0.53       |
| 5250             | -0.93      |
| 5300             | -1.93      |
| 5350             | -0.47      |
| 5400             | -1.09      |
| 5450             | -1.62      |
| 5500             | -2.11      |
| 5550             | -2.11      |
| 5600             | -2.32      |
| 5650             | -3.49      |
| 5700             | -1.67      |
| 5750             | -2.3       |
| 5800             | -1.67      |
| 5850             | -1.1       |

## 12. Antenna correlation data

### WiFi1 antenna efficiency

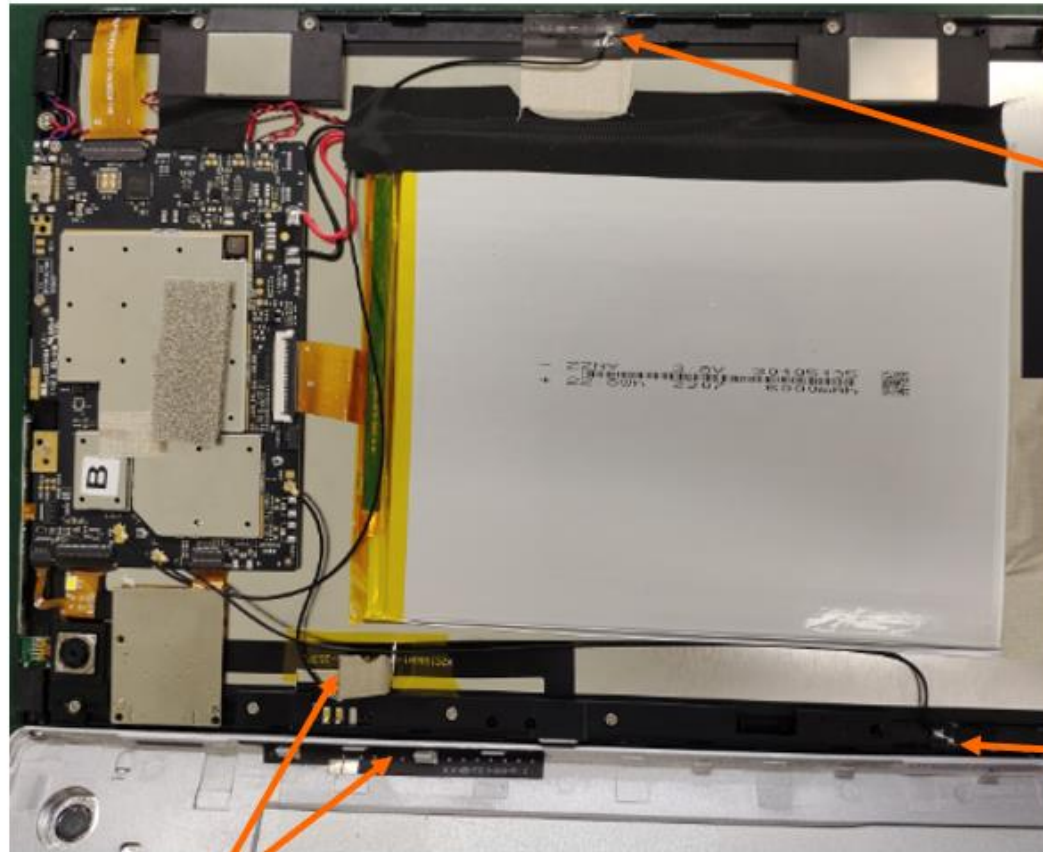


## 13.GPS/BT/ measured data



**GPS search on the roof of the fifth floor of our company, positioning time 1 minute. Bluetooth no block 12 meters listening to music smooth**

## 14. Antenna location diagram

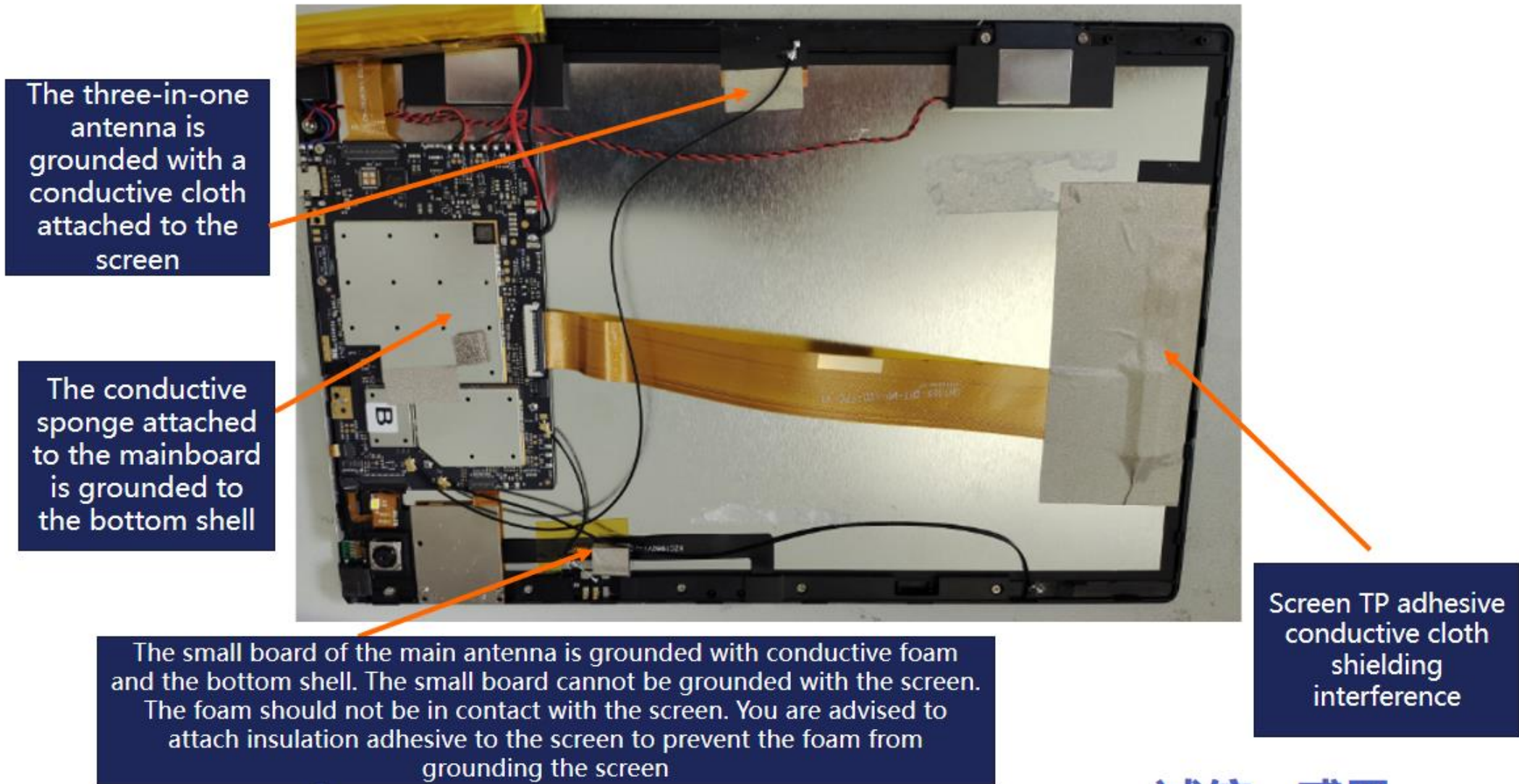


Three-in-one  
antenna location

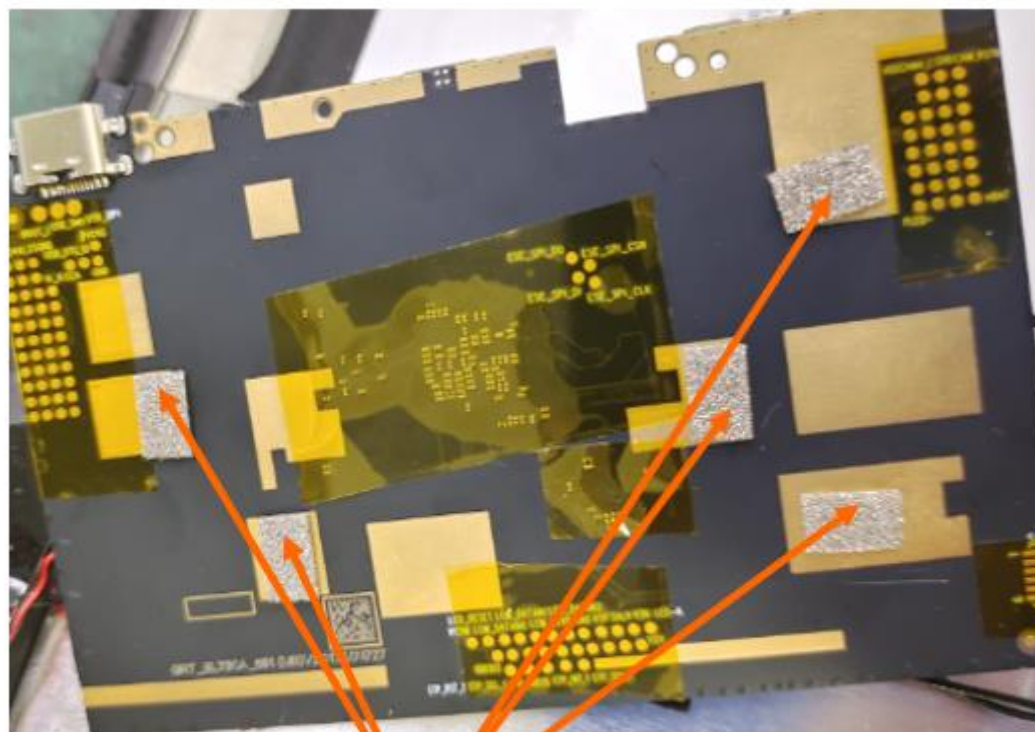
Diversity antenna  
position

Main antenna and small plate  
position

## 15. Environmental treatment



## 16. Environmental treatment

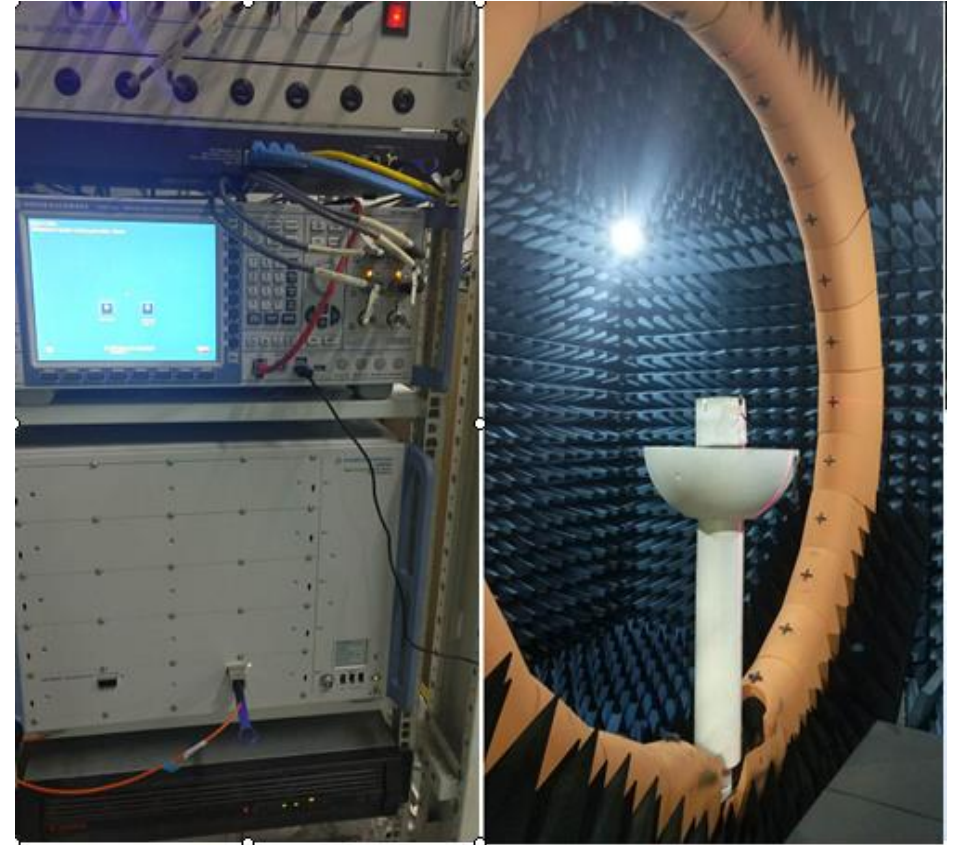


The mainboard is grounded to the screen  
The mainboard is grounded to the screen

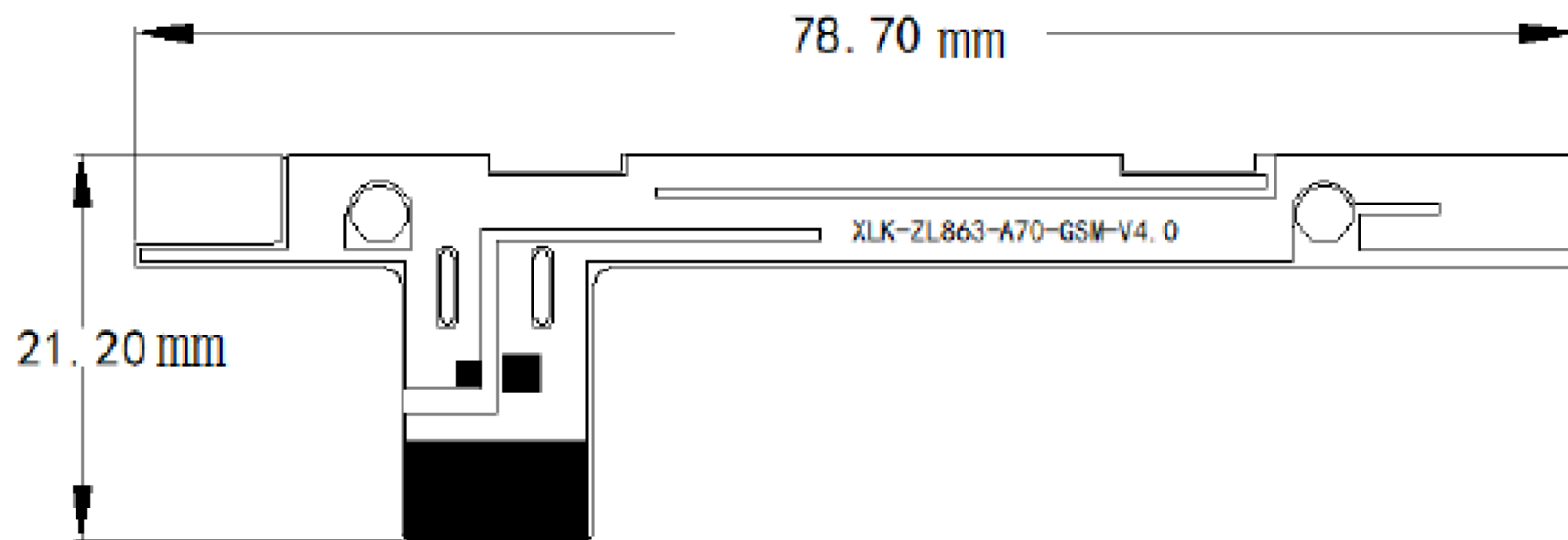
## 17.Conclusion



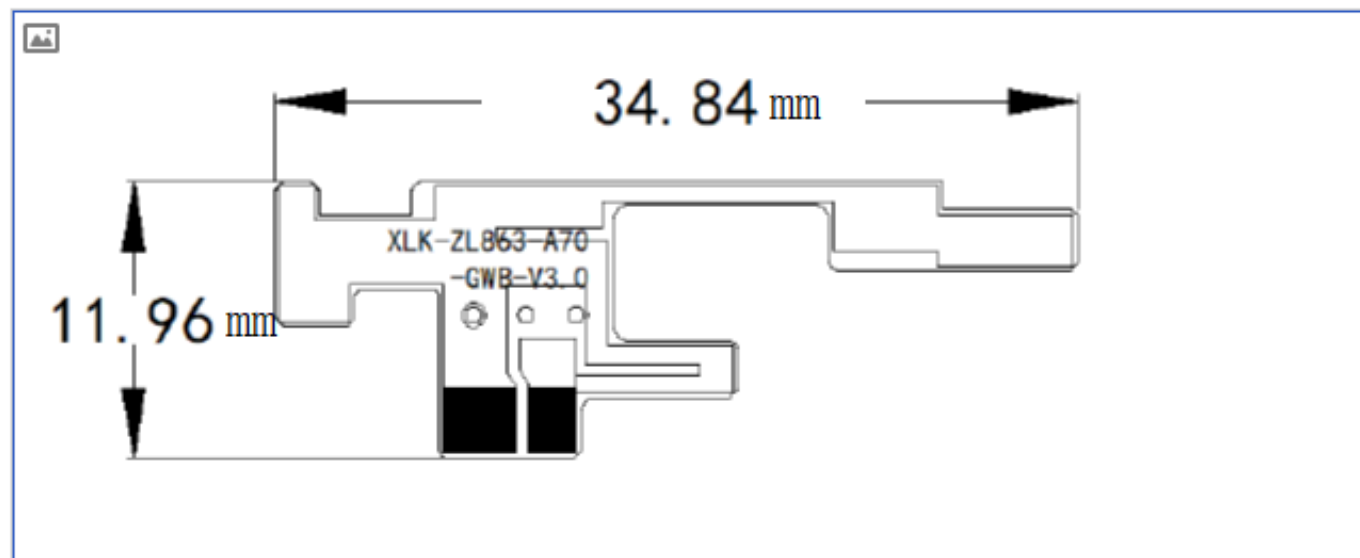
**The software and hardware of batch production should be the same as the sample machine.**



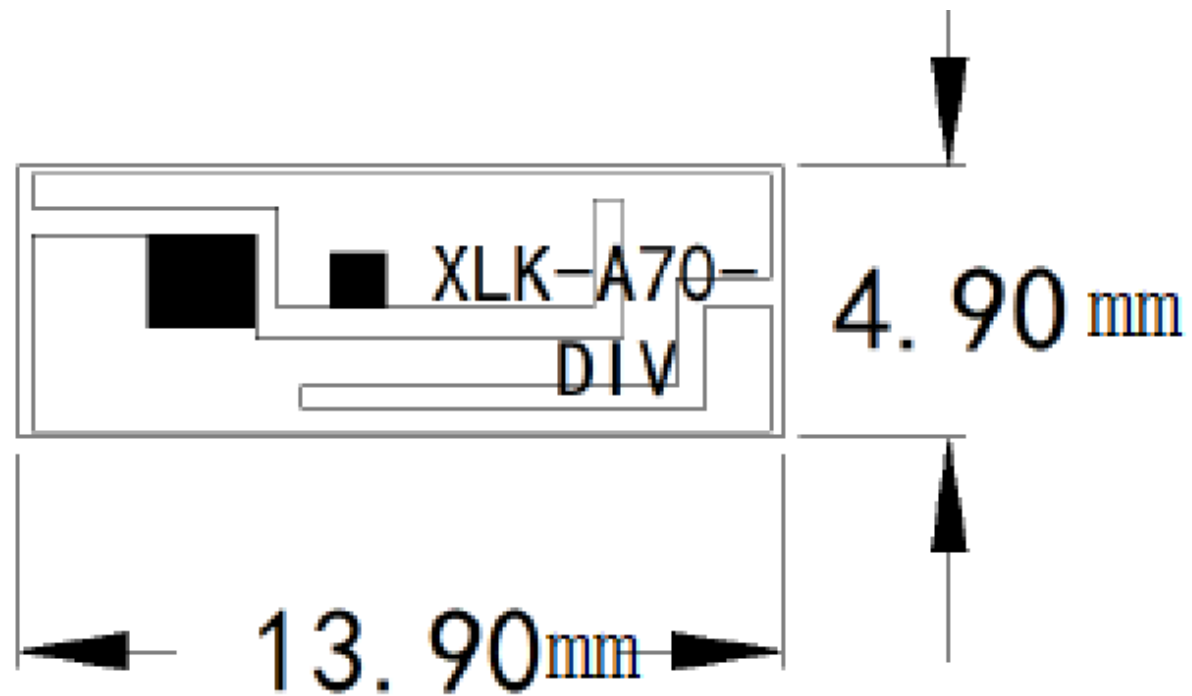
## 主天线尺寸



## 三合一天线尺寸



## 分集天线尺寸



# THANKS!

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