

# SPECIFICATION

Shenzhen Strongpower Communication Co., Ltd

ShenzhenStrongpowerCommunicationCo., Ltd.

**LC90 FPC antenna**

**Product acknowledgement**

|                       |              |                        |                                              |
|-----------------------|--------------|------------------------|----------------------------------------------|
| Customer              | Chao yuan    | Frequency<br>Band      | LTE-B1/B3/B5/B38<br>/B39/B40/B41<br>WIFI /BT |
| Model                 | LC90         |                        |                                              |
| Serial No             | RQ03B132660B | Color                  | natural colour                               |
| RF<br>designer        | Dai shuai    | Structural<br>engineer | Zhou Jun                                     |
| Technical<br>director | Fu Yicheng   | Date                   | 2023/09/12                                   |

Confirm by customer:

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Confidentiality requirements

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## I. FPC antenna

### 1. Electrical Parameters

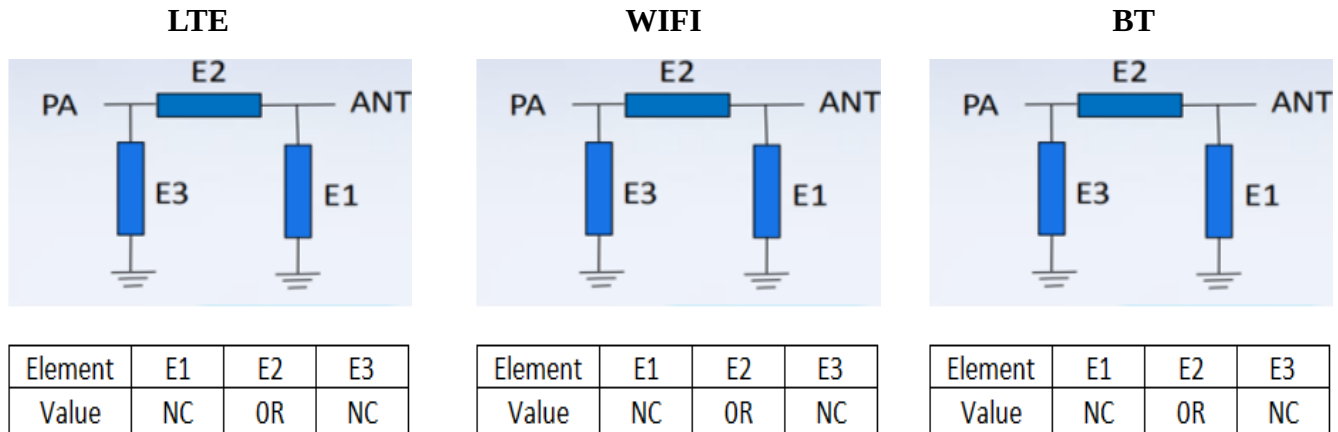
#### 1.1 Work Frequency Band

**LTE Frequency Band:** 824MHz~894 MHz    1710MHz~2690 MHz。

**WIFI Frequency Band:** 2400MHz~2500 MHz。

**BT Frequency Band:** 2400MHz~2500 MHz。

#### 1.2 Matching Circuit



## 2. Composition of Metal Stamping Parts: FPC

## 3. The Equipment of Active&Passive Test

Satimo Chamber, Arilink Chamber, GTS Chamber, GuangPin Chamber,

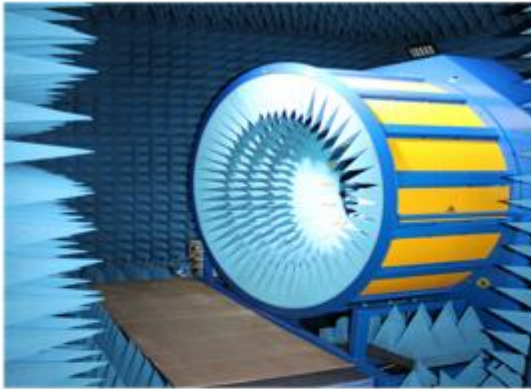
Agilent 8960, Anritsu MT8820C, R&S CMW500

Network analyzer Agilent E5071C

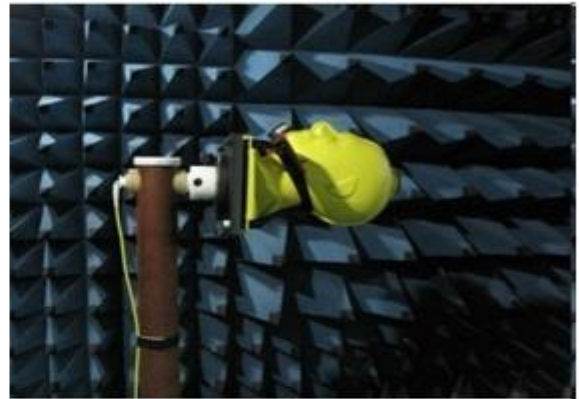
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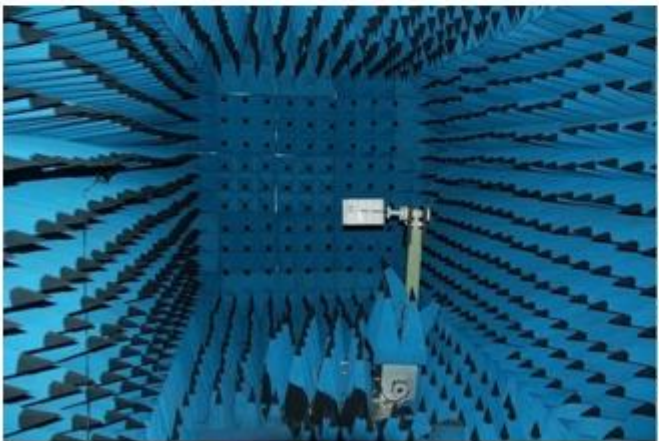
# chamber



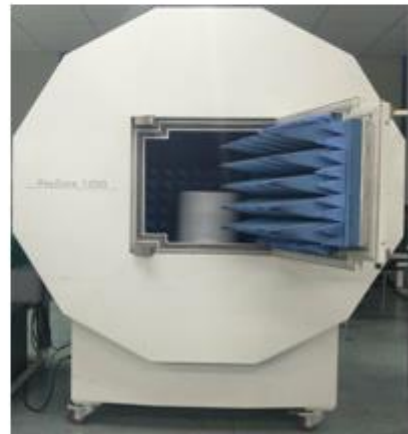
Satimo



Airlink



Guang Ping

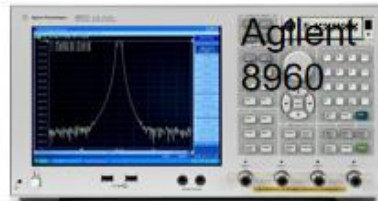


GTS

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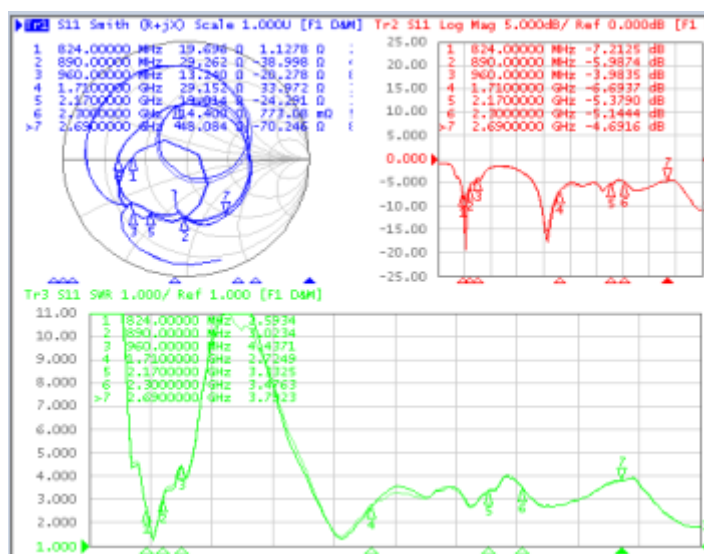
# equipment



## 4. Passive Test

### 4.1 LTE S11 Parameters, VSWR, Return loss, Smith Chart

## LTE



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## 4.2 LTE Passive Efficiency and Gain

### LTE

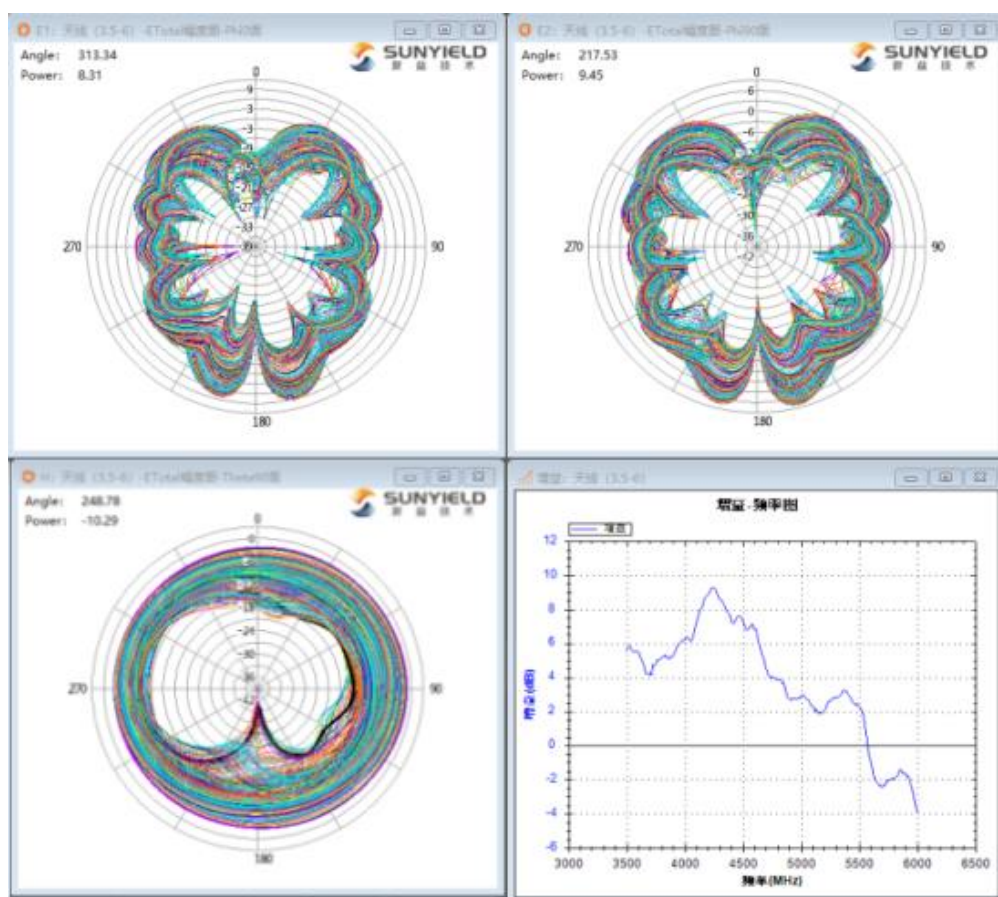
| 频率<br>(MHz) | 效率 (%) | 增益<br>Gain . dB | 频率<br>(MHz) | 效率 (%) | 增益<br>Gain . dB | 频率<br>(MHz) | 效率 (%) | 增益<br>Gain . dB |
|-------------|--------|-----------------|-------------|--------|-----------------|-------------|--------|-----------------|
| 820         | 25%    | -0.14           | 1710        | 27%    | 1.44            | 2300        | 31%    | 2.44            |
| 825         | 26%    | -0.13           | 1720        | 27%    | 1.67            | 2310        | 31%    | 2.67            |
| 830         | 26%    | -0.37           | 1730        | 29%    | 1.76            | 2320        | 33%    | 2.76            |
| 835         | 28%    | -0.50           | 1740        | 29%    | 1.79            | 2330        | 30%    | 2.79            |
| 840         | 29%    | -0.59           | 1750        | 29%    | 1.76            | 2340        | 35%    | 2.76            |
| 845         | 32%    | 0.22            | 1760        | 29%    | 1.63            | 2350        | 33%    | 2.63            |
| 850         | 31%    | 0.15            | 1770        | 30%    | 1.78            | 2360        | 34%    | 2.78            |
| 855         | 32%    | 0.43            | 1780        | 32%    | 1.83            | 2370        | 33%    | 2.83            |
| 86          | 33%    | 0.69            | 1790        | 35%    | 1.87            | 2380        | 36%    | 2.87            |
| 865         | 34%    | 0.67            | 1800        | 36%    | 1.9             | 2390        | 31%    | 2.9             |
| 870         | 33%    | 0.69            | 1810        | 37%    | 2.03            | 2400        | 33%    | 3.03            |
| 875         | 34%    | 0.14            | 1820        | 38%    | 2.24            | 2410        | 36%    | 3.24            |
| 88          | 33%    | 0.13            | 1830        | 38%    | 2.28            | 2420        | 35%    | 3.28            |
| 885         | 32%    | 0.37            | 1840        | 38%    | 2.4             | 2430        | 38%    | 3.4             |
| 890         | 32%    | 0.50            | 1850        | 38%    | 2.39            | 2440        | 36%    | 3.39            |
| 895         | 31%    | 0.59            | 1860        | 37%    | 2.45            | 2450        | 38%    | 3.45            |
|             |        |                 | 1870        | 38%    | 2.55            | 2460        | 40%    | 3.55            |
|             |        |                 | 1880        | 35%    | 2.37            | 2470        | 38%    | 3.37            |
|             |        |                 | 1890        | 37%    | 2.24            | 2480        | 40%    | 3.24            |
|             |        |                 | 1900        | 38%    | 2.13            | 2490        | 38%    | 3.13            |
|             |        |                 | 1910        | 37%    | 2.03            | 2500        | 41%    | 3.03            |
|             |        |                 | 1920        | 35%    | 2.12            | 2510        | 39%    | 3.12            |
|             |        |                 | 1930        | 35%    | 2.13            | 2520        | 41%    | 3.13            |
|             |        |                 | 1940        | 34%    | 2.08            | 2530        | 38%    | 3.08            |
|             |        |                 | 1950        | 33%    | 1.95            | 2540        | 38%    | 2.95            |
|             |        |                 | 1960        | 33%    | 1.77            | 2550        | 31%    | 2.77            |
|             |        |                 | 1970        | 32%    | 1.64            | 2560        | 36%    | 2.64            |
|             |        |                 | 1980        | 32%    | 1.44            | 2570        | 35%    | 2.44            |
|             |        |                 | 1990        | 31%    | 1.18            | 2580        | 35%    | 2.18            |
|             |        |                 | 2000        | 30%    | 1.04            | 2590        | 35%    | 2.04            |
|             |        |                 | 2010        | 30%    | 1.56            | 2600        | 36%    | 2.56            |
|             |        |                 | 2020        | 28%    | 1.69            | 2610        | 31%    | 2.69            |
|             |        |                 | 2030        | 28%    | 1.55            | 2620        | 33%    | 2.55            |
|             |        |                 | 2040        | 26%    | 1.59            | 2630        | 32%    | 2.59            |
|             |        |                 | 2050        | 26%    | 1.71            | 2640        | 32%    | 2.71            |
|             |        |                 | 2060        | 24%    | 1.67            | 2650        | 32%    | 2.67            |
|             |        |                 | 2070        | 24%    | 1.65            | 2660        | 33%    | 2.65            |

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## Confidential Information

|  |  |  |      |     |       |      |     |       |
|--|--|--|------|-----|-------|------|-----|-------|
|  |  |  | 2080 | 22% | 1. 63 | 2670 | 31% | 2. 63 |
|  |  |  | 2090 | 24% | 1. 55 | 2680 | 31% | 2. 55 |
|  |  |  | 2100 | 23% | 1. 3  | 2690 | 30% | 2. 3  |
|  |  |  | 2110 | 22% | 1. 19 |      |     |       |
|  |  |  | 2120 | 20% | 1. 22 |      |     |       |
|  |  |  | 2130 | 20% | 1. 12 |      |     |       |
|  |  |  | 2140 | 21% | 1. 33 |      |     |       |
|  |  |  | 2150 | 20% | 1. 39 |      |     |       |
|  |  |  | 2160 | 21% | 1. 54 |      |     |       |
|  |  |  | 2170 | 22% | 1. 79 |      |     |       |



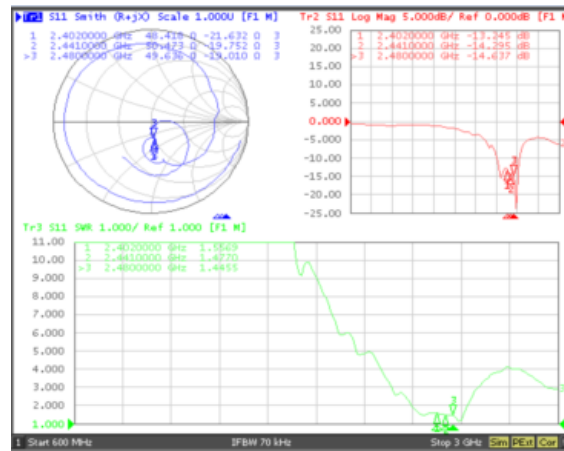
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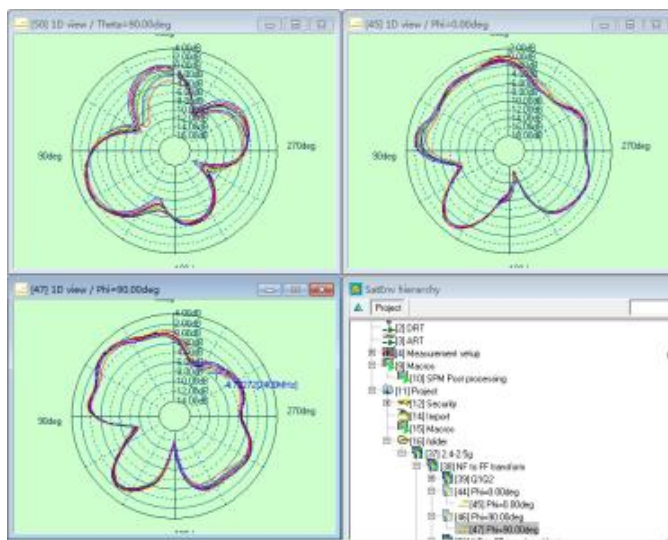
#### 4.3 WIFI S11 Parameters, VSWR, Return loss, Smith Chart

WIFI



#### 4.4 WIFI Passive Efficiency and Gain

WIFI



| 频率 (MHz) | 效率 (%) | 增益 Gain . dB |
|----------|--------|--------------|
| 2400     | 56.40% | 2.90         |
| 2410     | 64.10% | 3.07         |
| 2420     | 62.90% | 3.09         |
| 2430     | 61.30% | 3.12         |
| 2440     | 61.40% | 3.05         |
| 2450     | 61.70% | 2.99         |
| 2460     | 63.30% | 2.79         |
| 2470     | 60.10% | 2.53         |
| 2480     | 63.40% | 2.44         |
| 2490     | 56.40% | 2.33         |
| 2500     | 55.60% | 2.39         |

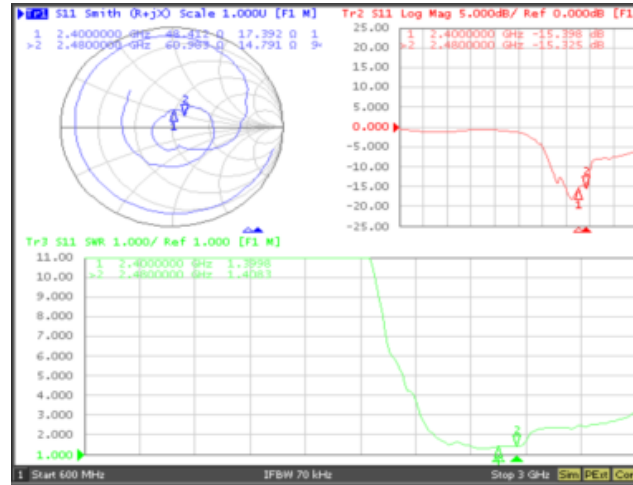
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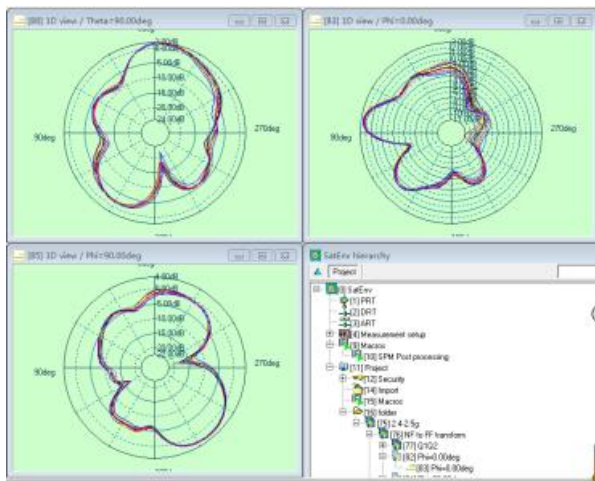
#### 4.5 BT S11 Parameters, VSWR, Return loss, Smith Chart

BT



#### 4.6 BT Passive Efficiency and Gain

BT



| 频率<br>(MHz) | 效率 (%) | 增益<br>Gain . dB |
|-------------|--------|-----------------|
| 2400        | 37.82% | 1.81            |
| 2410        | 41.70% | 1.52            |
| 2420        | 38.33% | 1.26            |
| 2430        | 39.46% | 1.46            |
| 2440        | 36.25% | 1.53            |
| 2450        | 37.01% | 1.34            |
| 2460        | 36.45% | 1.29            |
| 2470        | 34.92% | 1.21            |
| 2480        | 37.04% | 1.46            |

### 5. Conclusion

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

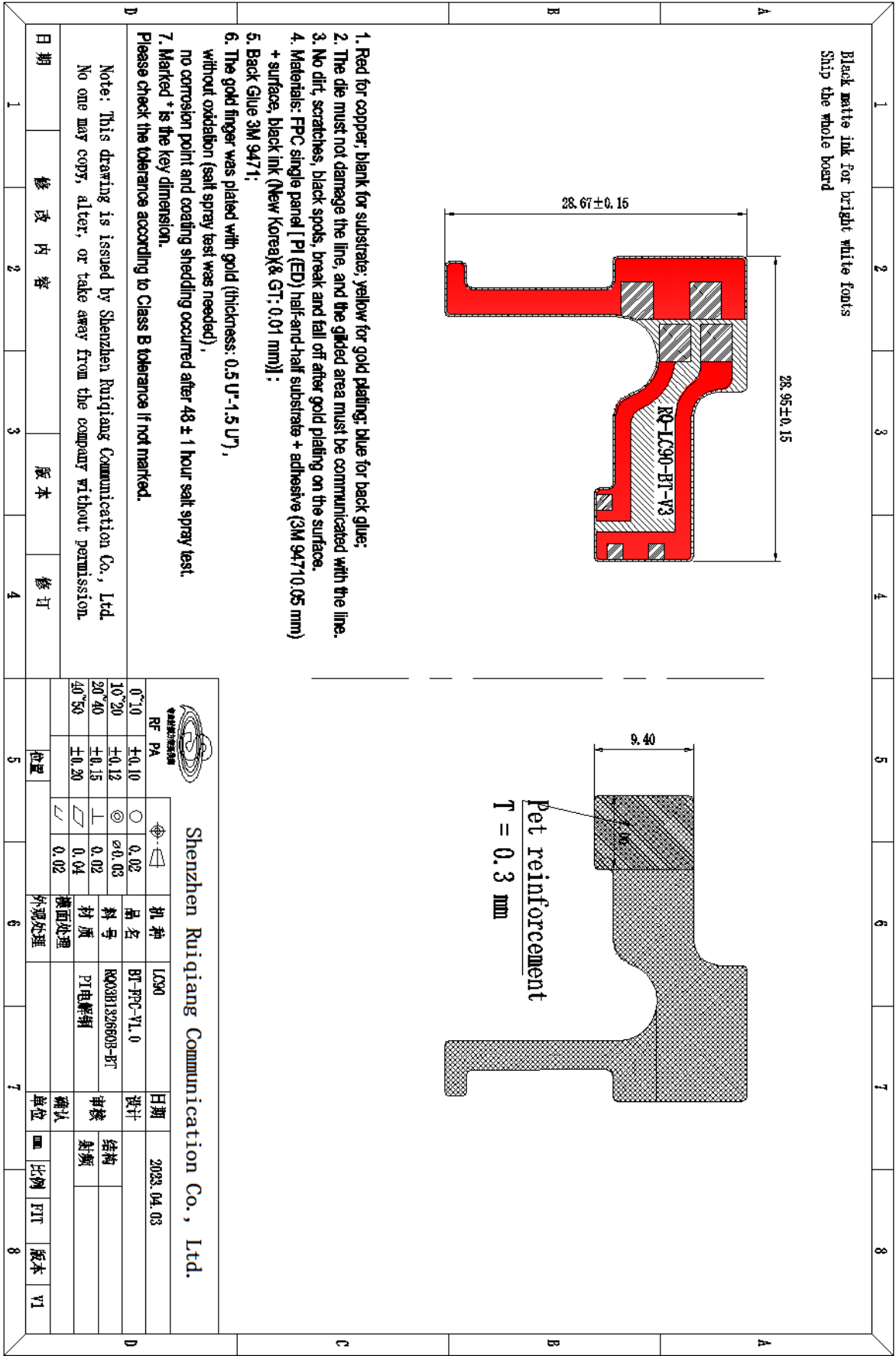
## II: Project Drawing

(See Next Page)

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