

## SPECIFICATION FOR APPROVAL

PROVIDER : All things connected Communications Xiangyang Limited

PART NO : WWXL6012353

PART NO :

DESCRIPTION : 2.4/5.8GHZ/L=280mm

DESCRIPTION : FPC ANT

DATE :

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With your approved signatures

| APPROVED SIGNATURES                      |  |                                                      |              |
|------------------------------------------|--|------------------------------------------------------|--------------|
| CUSTOMER                                 |  | PROVIDER                                             |              |
| Ganzhou Jiangyuan Electronics Co. , Ltd. |  | Shenzhen all things connected Communication Co.,Ltd. |              |
| CHOP&SIGNATURES                          |  | CHOP&SIGNATURES                                      | Tong Xiaoyan |
| DATE                                     |  | DATE                                                 |              |

Ganzhou Jiangyuan Electronics Co. , Ltd  
69 Golden Avenue, North District, Ganzhou Ganzhou Economic and Technological Development Zones  
Tel: 86-755-26737355 26737352

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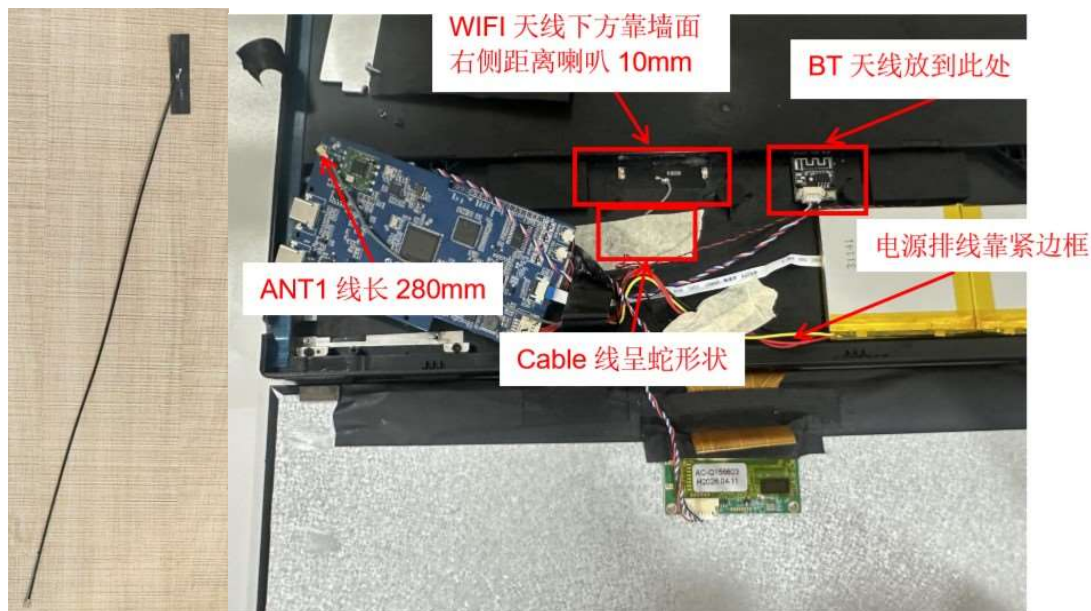
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# Specification for Antenna

## 1、Product pictures

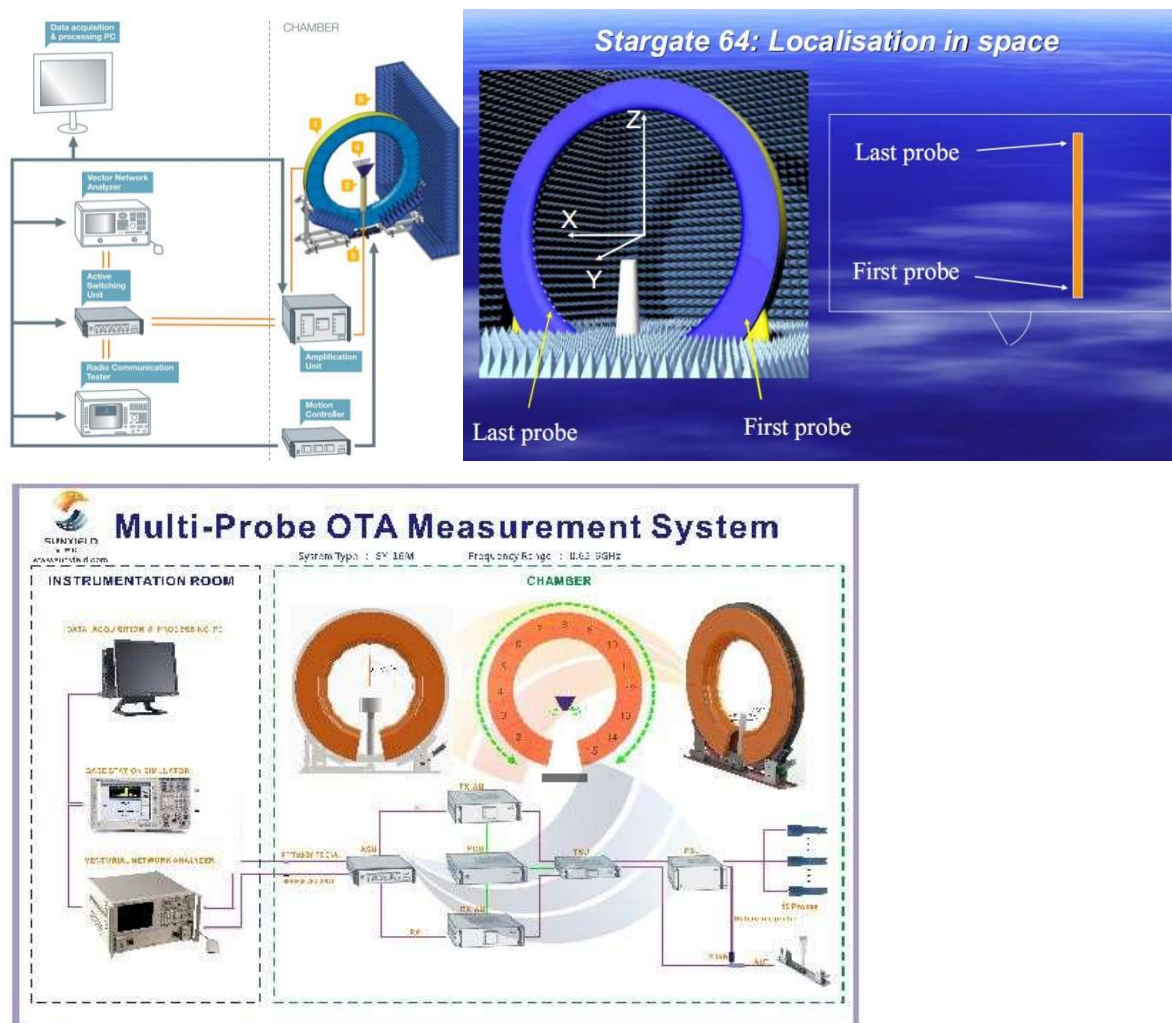


## 2、Test parameters

|                                        |                 |                           |                      |
|----------------------------------------|-----------------|---------------------------|----------------------|
| Name Built-in antenna (WWXL6012353)    |                 | ModelType                 |                      |
| ELECTRICAL SPECTFICATIONS              |                 | MECHANICAL SPECTFICATIONS |                      |
| FrenquencyRange 2400-2500/5150-5850MHz |                 | Dimensions                | 37.9*9.4*0.2         |
| Impedance                              | 50 Ω            | Connector                 | IPEX                 |
| VSWR                                   | ≤3.5            | linelength                | 1.13 Black 280 ± 3mm |
| Gain                                   | -3.0dBi         | WorkingTemperature        | -45℃ - +85℃          |
| Polarization                           | linear Vertical | Limit Temperature         | -45℃ - +85℃          |
| Radiation                              | Omnidirectional |                           |                      |

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### 3、Antenna test environment

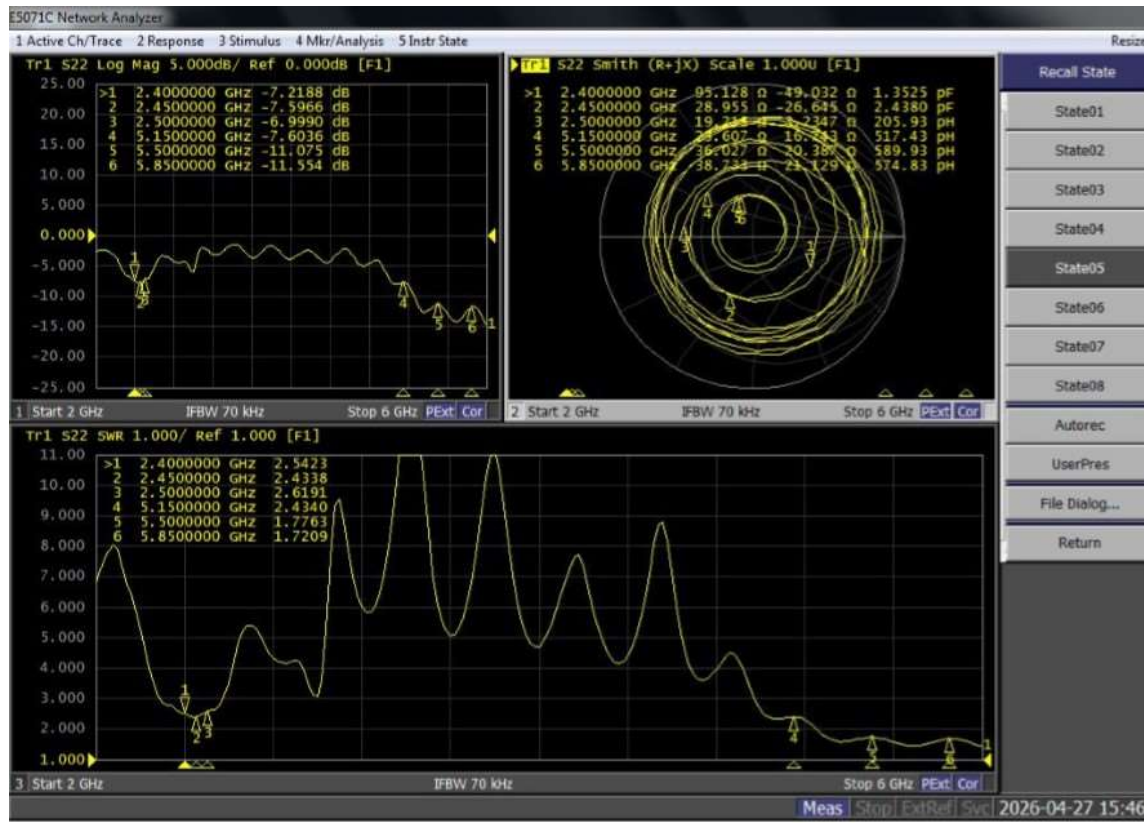


|                      |                                                                                                                          |
|----------------------|--------------------------------------------------------------------------------------------------------------------------|
| test macro:          | SY-16M /MPS4843 multi-probe OTA antenna measurement system                                                               |
| testing environment: | temperature $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , humidity $50\% \pm 15\%$                                        |
| testing equipment:   | Agilent 5071C<br>Agilent 8960 Comprehensive measuring instrument<br>Agilent CMW500 4G Comprehensive measuring instrument |

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## 4、Antenna Passive Parameters:

### 1. VSWR:



### 2、Gain&Efficiency:

| Gain&Efficiency&PhaseCenter |               |                   |                    |               |                   |                    |               |                   |
|-----------------------------|---------------|-------------------|--------------------|---------------|-------------------|--------------------|---------------|-------------------|
| frequency<br>(MHz)          | gain<br>(dBi) | Efficiency<br>(%) | frequency<br>(MHz) | gain<br>(dBi) | efficiency<br>(%) | frequency<br>(MHz) | gain<br>(dBi) | efficiency<br>(%) |
| 2400                        | -3.85         | 46.99             | 5150               | -3.04         | 54.58             | 5700               | -4.22         | 57.94             |
| 2410                        | -3.33         | 43.25             | 5200               | -3.62         | 61.38             | 5750               | -4.09         | 57.02             |
| 2420                        | -3.1          | 41.3              | 5250               | -3.94         | 64.42             | 5800               | -4.23         | 56.36             |
| 2430                        | -3.38         | 42.95             | 5300               | -3.24         | 68.39             | 5850               | -4.05         | 58.34             |
| 2440                        | -3.71         | 45.08             | 5350               | -3.7          | 59.98             |                    |               |                   |
| 2450                        | -3.0          | 45.29             | 5400               | -3.6          | 59.57             |                    |               |                   |
| 2460                        | -3.84         | 43.75             | 5450               | -3.00         | 63.53             |                    |               |                   |
| 2470                        | -3.85         | 43.55             | 5500               | -4.24         | 66.53             |                    |               |                   |
| 2480                        | -3.58         | 41.21             | 5550               | -4.45         | 67.92             |                    |               |                   |
| 2490                        | -3.75         | 41.88             | 5600               | -4.64         | 70.79             |                    |               |                   |
| 2500                        | -3.72         | 40.74             | 5650               | -4.22         | 61.8              |                    |               |                   |

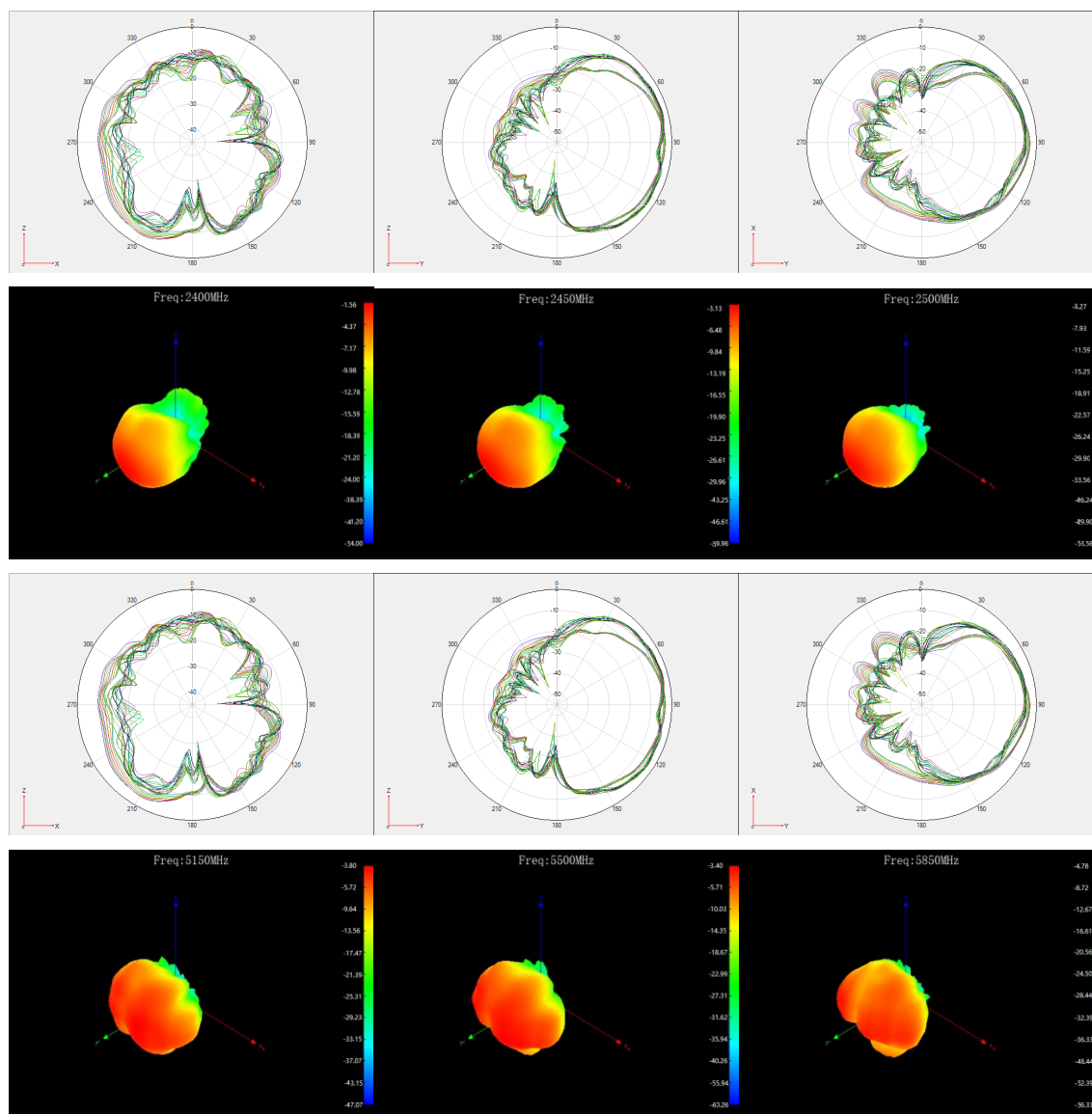
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### 3、 2D/3D pattern:



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#### 4、Active data

Test mode: 802.11b 11Mbps BW 20M

| Test            | Wifi 2G TRP |       |       | Test            | Wifi 2G TIS |        |        |
|-----------------|-------------|-------|-------|-----------------|-------------|--------|--------|
| CH              | 1           | 6     | 11    | CH              | 1           | 6      | 11     |
| Frequency (MHz) | 2412        | 2437  | 2462  | Frequency (MHz) | 2412        | 2437   | 2462   |
| TRP(dBm)        | 14.35       | 15.62 | 16.65 | TIS(dBm)        | -80.78      | -81.12 | -80.44 |

Test mode: 802.11a 6Mbps BW 20M

| Test            | Wifi 5G TRP |       |       | Test            | Wifi 5G TIS |        |        |
|-----------------|-------------|-------|-------|-----------------|-------------|--------|--------|
| CH              | 36          | 100   | 165   | CH              | 36          | 100    | 165    |
| Frequency (MHz) | 5180        | 5500  | 5825  | Frequency (MHz) | 5180        | 5500   | 5825   |
| TRP(dBm)        | 13.78       | 14.11 | 12.64 | TIS(dBm)        | -73.52      | -73.44 | -72.16 |

#### 5. Throughput Test

| sta mode |      |      |      |      |      |
|----------|------|------|------|------|------|
| RTOS     |      |      |      |      |      |
| TCP      | TX   | RX   |      | TX   | RX   |
| 2.4G     | 39.1 | 40.2 | 5.8G | 62.2 | 55.7 |
| UDP      | TX   | RX   |      | TX   | RX   |
| 2.4G     | 86.8 | 86.9 | 5.8G | 62.9 | 88.2 |
| LINUX    |      |      |      |      |      |
|          | TX   | RX   |      | TX   | RX   |
| 2.4G     | 82.3 | 51.1 | 5.8G | 84.4 | 72.2 |
| hostapd  |      |      |      |      |      |
| RTOS     |      |      |      |      |      |
| TCP      | TX   | RX   |      | TX   | RX   |
| 2.4G     | 83.8 | 49.9 | 5.8G | 60.1 | 63.5 |

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## 5、Product characteristics

1. Choose high-quality RF cable with small attenuation;
2. Stable performance;
3. Stable performance。

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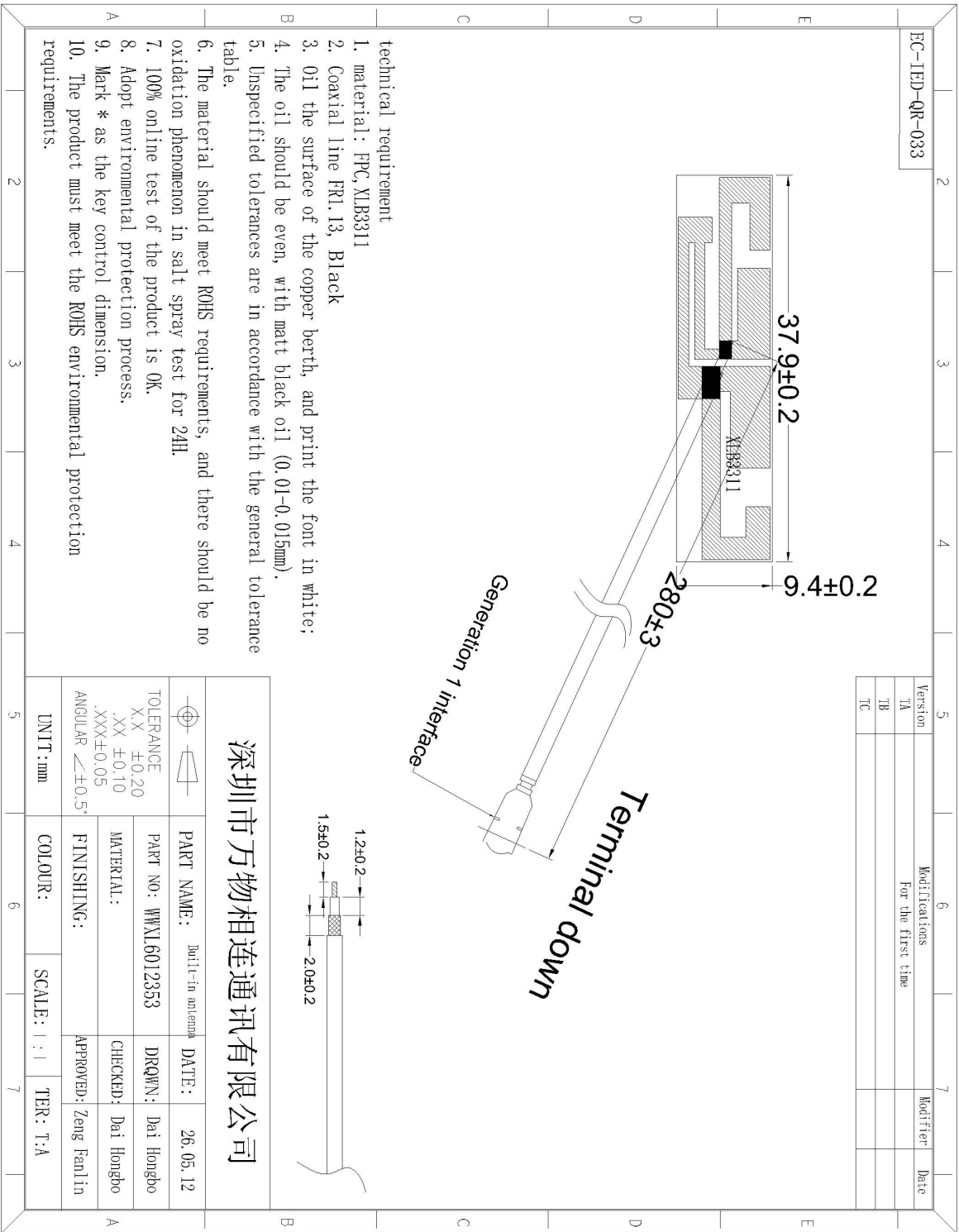
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6、Drawing

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## 7、Reliability testing

### 1 Environmental experiment

|                                                   |                                                                                                                                                                                                                                                                                                         |         |                   |                  |            |                    |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------|------------------|------------|--------------------|
| High and low temperature and humidity test report |                                                                                                                                                                                                                                                                                                         |         |                   |                  |            |                    |
| test project                                      | High temperature, low temperature and constant humidity test                                                                                                                                                                                                                                            |         |                   |                  |            |                    |
| name                                              | Built-in antenna<br>(WWXL6012353)                                                                                                                                                                                                                                                                       |         |                   | date             | 2026.05.12 |                    |
| device                                            | Constant temperature and humidity test box network analyzer                                                                                                                                                                                                                                             |         |                   | Quantity         | 5PCS       |                    |
| Inspectin standards                               | 1. There are no defects such as peeling off, cracks, wrinkles, etc. on the metal surface; non-metal parts must not have defects such as discoloration, cracking, deformation, degumming.<br>2. The electrical test meets the design requirements; the voltage standing wave ratio test is satisfactory. |         |                   |                  |            |                    |
| Test name                                         |                                                                                                                                                                                                                                                                                                         | request | experiment method | Actual test data | result     |                    |
|                                                   |                                                                                                                                                                                                                                                                                                         |         |                   |                  | sample     | Assessm ent result |
|                                                   | Pilot projects                                                                                                                                                                                                                                                                                          |         |                   |                  |            |                    |
| High temperature test                             | Temperature (°C)                                                                                                                                                                                                                                                                                        |         | 9                 |                  | 1          | qualified          |
|                                                   | Test sample                                                                                                                                                                                                                                                                                             |         | according         |                  | 2          | qualified          |
|                                                   | temperature stabilization time (H)                                                                                                                                                                                                                                                                      | +85±3   | to GB2423. 1-89   | +87 1.2          | 3          | qualified          |
|                                                   | Test duration (h)                                                                                                                                                                                                                                                                                       | 1       | Method            | 2.3              | 4          | qualified          |
|                                                   | Recovery time (h)                                                                                                                                                                                                                                                                                       | 2       |                   | 1                | 5          | qualified          |
| Low temperature test                              | Temperature (°C)                                                                                                                                                                                                                                                                                        |         | 8th in            |                  | 1          | qualified          |
|                                                   | Test sample                                                                                                                                                                                                                                                                                             |         | accordanc e with  |                  | 2          | qualified          |
|                                                   | temperature stabilization time (h)                                                                                                                                                                                                                                                                      | -45±3   | GB2423. 1-89      | -46 1.2          | 3          | qualified          |
|                                                   | Test duration (h)                                                                                                                                                                                                                                                                                       | 1       |                   | 2.4              | 4          | qualified          |
|                                                   | Recovery time (h)                                                                                                                                                                                                                                                                                       | 2       | Method            | 1.1              | 5          | qualified          |

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|                         |                       |                           |                                           |                        |   |           |
|-------------------------|-----------------------|---------------------------|-------------------------------------------|------------------------|---|-----------|
| Constant Damp Heat Test | Temperature (°C)      | +40±2<br>90-95<br>21<br>1 | According to GB2423.3-93 Section 5 Method | +42<br>92<br>22<br>1.1 | 1 | qualified |
|                         | Relative humidity (%) |                           |                                           |                        | 2 | qualified |
|                         | Test duration (h)     |                           |                                           |                        | 3 | qualified |
|                         | Recovery time (h)     |                           |                                           |                        | 4 | qualified |
|                         |                       |                           |                                           |                        | 5 | qualified |

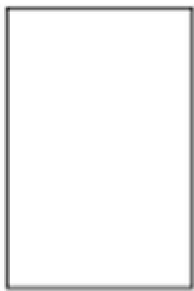
## 2. Salt spray test

| Salt fog test report        |                                                                                                                                                                                                                                                     |                                       |                   |         |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------|---------|
| Test item                   | Salt spray test                                                                                                                                                                                                                                     |                                       |                   |         |
| Name                        | Built-in antenna<br>(WWXL6012353)                                                                                                                                                                                                                   | date of<br>observation                | 2026.05.12        |         |
| Device name                 | Salt spray corrosion test box                                                                                                                                                                                                                       | Test quantity                         | 5 PCS             |         |
| Test method                 | The test samples were put into the modulated salt solution test chamber and salt spray corrosion chamber for continuous spray test                                                                                                                  |                                       |                   |         |
| Salt solution concentration | 52g/L                                                                                                                                                                                                                                               | PH Value of Salt Solution:<br>6.5-7.2 | Test cycle: 24h   |         |
| Actual test data            | 55g/L                                                                                                                                                                                                                                               | PH Value of Salt Solution: 6.8        | Test cycle: 26h   |         |
| Test standard               | Tests were carried out according to GB/T10125 "Artificial Atmosphere Corrosion Test and Salt Spray Test"; Results According to GB/T6461-2002 "Metal and other inorganic coatings on metal substrates after corrosion test are samples and specimens |                                       |                   |         |
| Test result                 |                                                                                                                                                                                                                                                     |                                       |                   |         |
| NO                          | Corrosion resistance grade                                                                                                                                                                                                                          | Actual test data                      | Assessment result | Remarks |

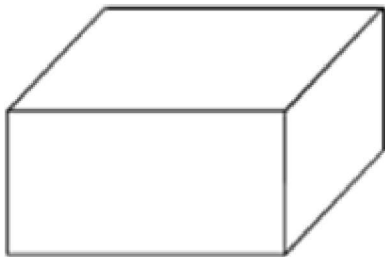
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|   |                |                |           |  |
|---|----------------|----------------|-----------|--|
| 1 | Rp/Ra=10/10vsB | Rp/Ra=10/10vsB | qualified |  |
| 2 | Rp/Ra=10/10vsB | Rp/Ra=10/10vsB | qualified |  |
| 3 | Rp/Ra=10/10vsB | Rp/Ra=10/10vsB | qualified |  |
| 4 | Rp/Ra=10/10vsB | Rp/Ra=10/10vsB | qualified |  |
| 5 | Rp/Ra=10/10vsB | Rp/Ra=10/10vsB | qualified |  |

### 8、Packing instructions:



100PCS/Pouch



30Pouch/1Caron

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