



Shenzhen Yunding Communication Electronics Co., Ltd.

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E-mail:wht0809@163.com

## Antenna specification

: WANG YU SHI TONG

DESCRIPTION: **P6-WIFI-FPC-1.13black-L150MM-IPEX1**

PART NO.:

CUS PART NO.:

D A T E: 2023-11-17

### Yunding signature

|                        |                |                  |
|------------------------|----------------|------------------|
| ENGINEERING DEPARTMENT | Q C DEPARTMENT | SALES DEPARTMENT |
|                        |                |                  |

### Customer signature

|                        |                |                       |
|------------------------|----------------|-----------------------|
| ENGINEERING DEPARTMENT | Q C DEPARTMENT | PURCHASING DEPARTMENT |
|                        |                |                       |

Tel: 0755 23073599

⌘ The letter of acknowledgement is in duplicate, with your company's approval and seal

⌘ Approval in duplicate, please signed by your company.



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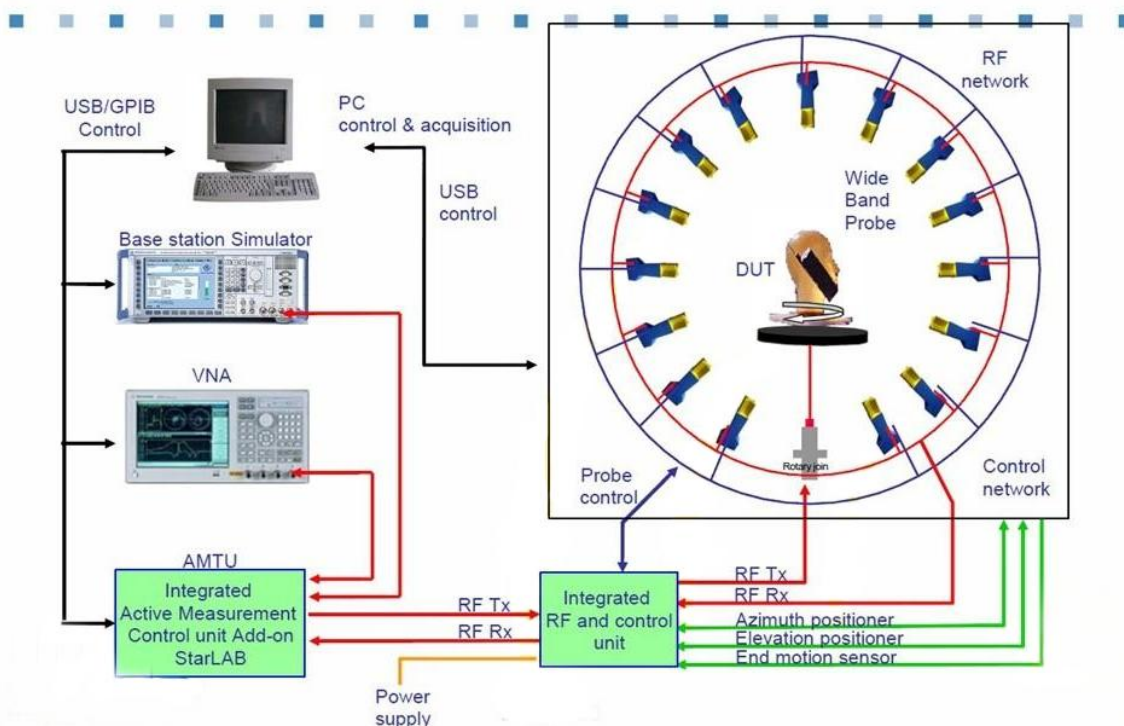
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## Test items and equipment

|                  | Test items                                        | Equipment                                                                                                                                         |
|------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. S11-parameter | 1. Return Loss<br>2. VSWR                         | network analyzer: Agilent E5071B<br>HP 8753D                                                                                                      |
| 2.Active test    | 1. Transmitting power<br>2. Receiving sensitivity | 1. Darkroom: ETS 7x4x3 m (3D) Chamber<br>ETS 5x3x3 m (3D) Chamber<br>2.general-purpose tester : Agilent 8960 E5515B ×2<br>StarPoint SP6011 Cmw500 |
| 3.Passive test   | 1.Gain<br>2.Efficiency                            | 1. Darkroom: ETS 7x4x3 m (3D) Chamber<br>ETS 5x3x3 m (3D) Chamber<br>2. network analyzer: Agilent E5071B<br>HP 8753D                              |





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## WiFi-1 S11

E5071C Network Analyzer

1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State



|          |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|
| Freq/GHz | 2400 | 2450 | 2500 | 5000 | 5500 | 5850 |
| VSWR     | 1.3  | 1.0  | 1.5  | 1.7  | 1.2  | 1.3  |



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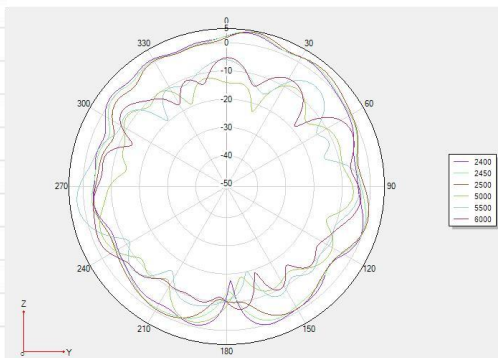
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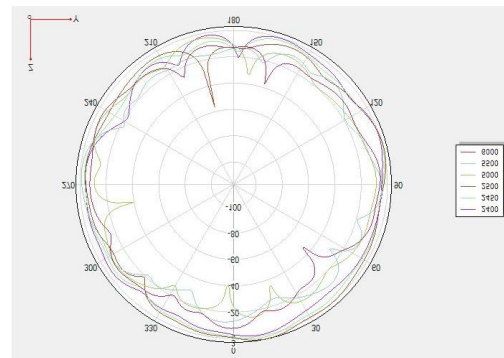
### 3DPattern@2400-2500MHz 5150-5850MHz

| Frequency | MaxEphi/dB | Efficiency / % |
|-----------|------------|----------------|
| 2400      | 3.3        | 60.67          |
| 2410      | 3.39       | 60.12          |
| 2420      | 3.21       | 60.39          |
| 2430      | 3.04       | 58.48          |
| 2440      | 2.65       | 56.62          |
| 2450      | 2.59       | 55.85          |
| 2460      | 2.52       | 58.61          |
| 2470      | 2.6        | 58.34          |
| 2480      | 2.42       | 56.13          |
| 2490      | 2.64       | 57.15          |
| 2500      | 2.8        | 59.43          |
| 5000      | 3.2        | 53.46          |
| 5100      | 3.07       | 55.46          |
| 5200      | 3.22       | 54.95          |
| 5300      | 3.19       | 51.64          |
| 5400      | 3.23       | 55.21          |
| 5500      | 3.12       | 54.24          |
| 5600      | 3.33       | 52.84          |
| 5700      | 3.36       | 53.21          |
| 5800      | 3.45       | 53.09          |
| 5900      | 3.17       | 50.93          |
| 6000      | 3.09       | 50.66          |

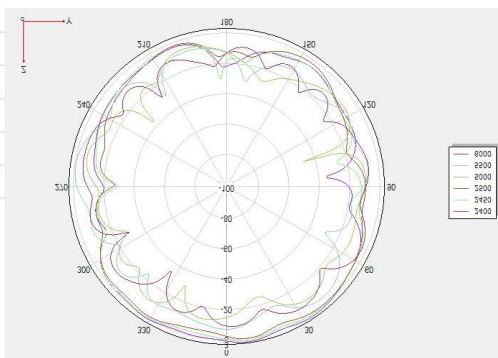
XOZ



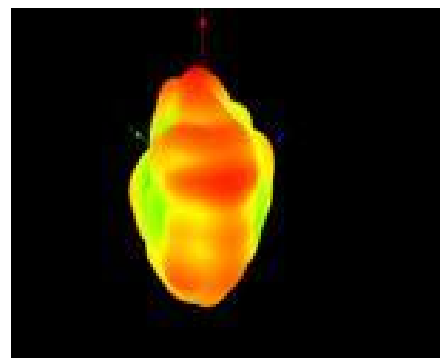
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3D





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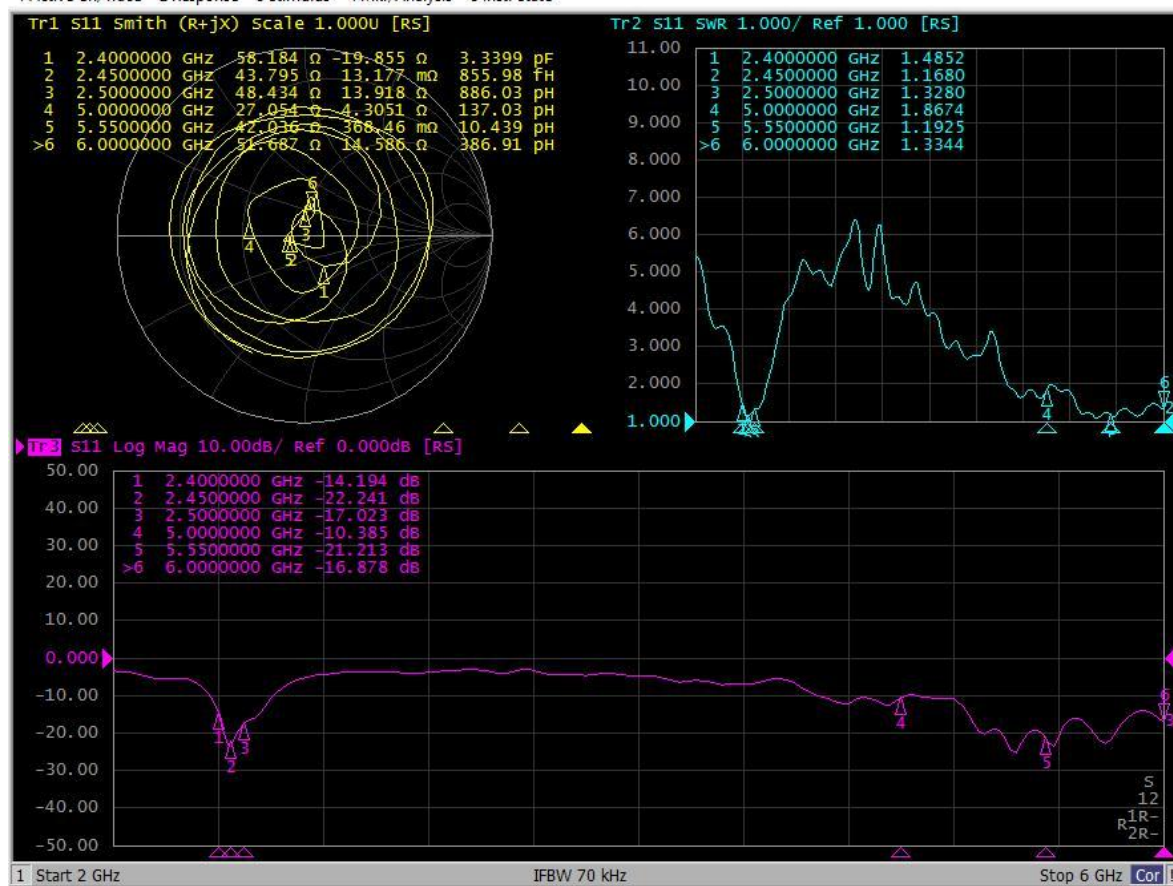
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## WiFi-2 S11

E5071C Network Analyzer

1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State



|          |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|
| Freq/GHz | 2400 | 2450 | 2500 | 5000 | 5500 | 5850 |
| VSWR     | 1.4  | 1.1  | 1.3  | 1.8  | 1.1  | 1.3  |



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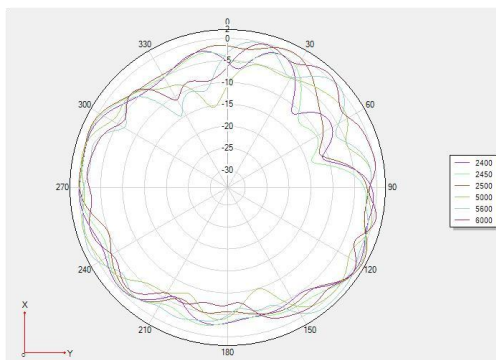
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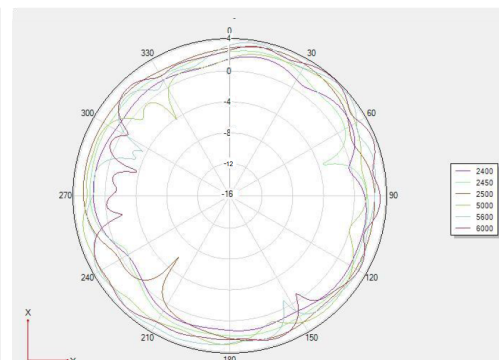
### 3DPattern@2400-2500MHz 5150-5850MHz

| Frequency | MaxEphi/d | Efficiency / % |
|-----------|-----------|----------------|
| 2400      | 3.22      | 63.18          |
| 2410      | 3.29      | 64.14          |
| 2420      | 3.13      | 66.7           |
| 2430      | 3.17      | 65.7           |
| 2440      | 3.34      | 65.31          |
| 2450      | 3.64      | 65.31          |
| 2460      | 3.25      | 67.7           |
| 2470      | 3.97      | 67.1           |
| 2480      | 3.34      | 65.31          |
| 2490      | 3.15      | 65.7           |
| 2500      | 3.12      | 66.9           |
| 5000      | 3.23      | 55.51          |
| 5100      | 3.42      | 59.33          |
| 5200      | 3.26      | 58.72          |
| 5300      | 3.34      | 54.92          |
| 5400      | 3.6       | 58.51          |
| 5500      | 3.24      | 55.53          |
| 5600      | 3.97      | 53.95          |
| 5700      | 3.03      | 54.92          |
| 5800      | 3.15      | 54.33          |
| 5900      | 3.91      | 58.16          |
| 6000      | 3.5       | 58.55          |

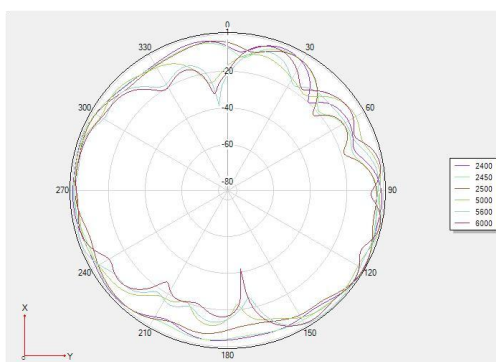
XOZ



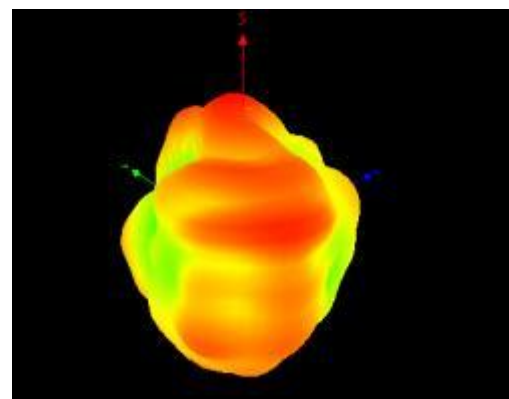
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YOZ



3D





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## Antenna -OTA test data

|                 |                  |
|-----------------|------------------|
| AdditionalInfor | 802.11b : 11Mbps |
|-----------------|------------------|

| Test            | Wifi 2G TRP |      |       |
|-----------------|-------------|------|-------|
| Result          | 1           | 6    | 11    |
| Frequency (MHz) | 2412        | 2437 | 2462  |
| Txp Ave(dBm)    | 17.68       | 18.3 | 17.65 |

| Test            | Wifi 2G TIS |        |        |
|-----------------|-------------|--------|--------|
| Result          | 1           | 6      | 11     |
| Frequency (MHz) | 2412        | 2437   | 2462   |
| Sens Ave(dBm)   | -85.78      | -84.81 | -85.07 |

|                 |                  |
|-----------------|------------------|
| AdditionalInfor | 802.11a : 54Mbps |
|-----------------|------------------|

| Test            | Wifi 5G TRP |      |       |
|-----------------|-------------|------|-------|
| Result          | 36          | 64   | 161   |
| Frequency (MHz) | 5180        | 5320 | 5805  |
| Txp Ave(dBm)    | 15.67       | 14.9 | 16.04 |

| Test            | Wifi 5G TIS |       |        |
|-----------------|-------------|-------|--------|
| Result          | 36          | 64    | 161    |
| Frequency (MHz) | 5180        | 5320  | 5805   |
| Sens Ave(dBm)   | -72.73      | -72.4 | -70.35 |



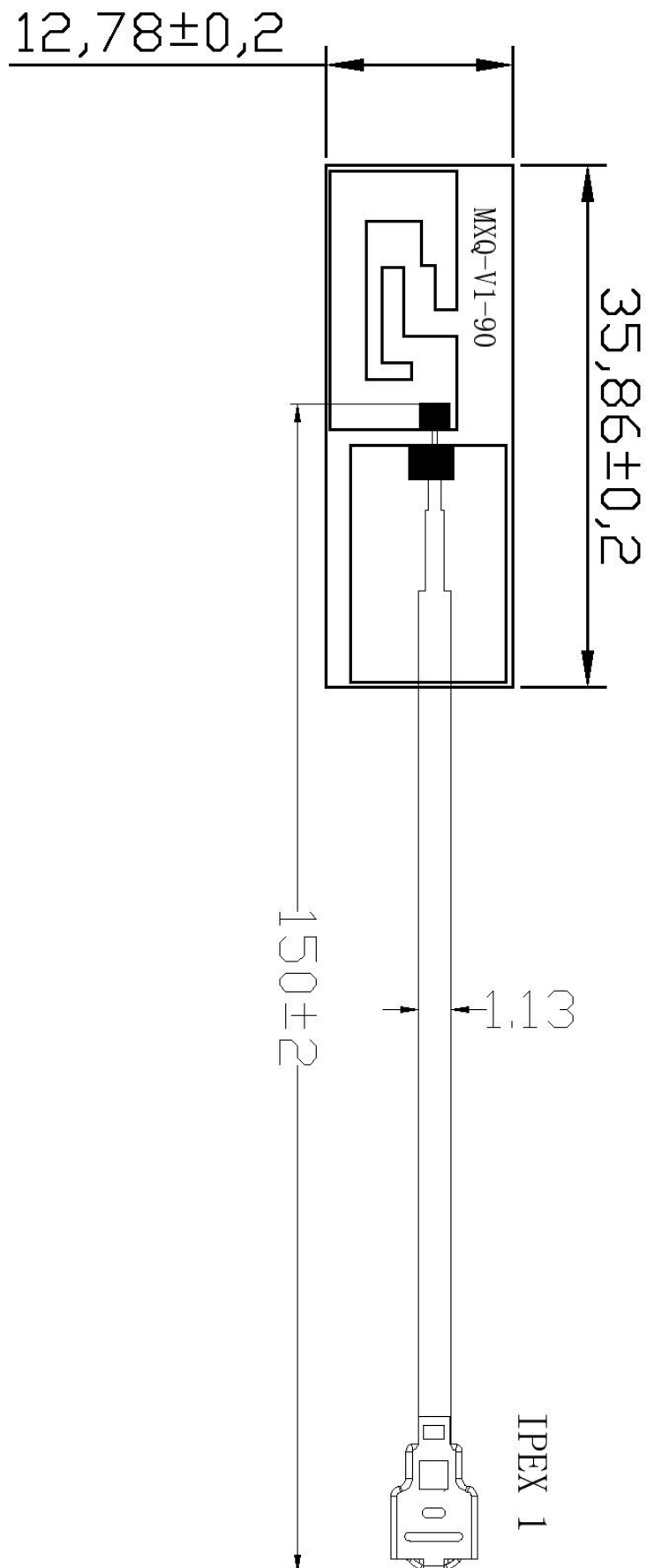
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Antenna structure diagram:





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## **Electrical performance index**

|                                |                                |
|--------------------------------|--------------------------------|
| <b>Frequency range (MHZ) :</b> | <b>2400~2500/ 5150~5850MHz</b> |
| <b>Impedance :</b>             | <b>50 <math>\Omega</math></b>  |
| <b>DBI (dBi) :</b>             | <b>3~4</b>                     |
| <b>VSWR :</b>                  | <b><math>\leq 2.0</math></b>   |
| <b>Polarization mode:</b>      | <b>perpendicularity</b>        |
| <b>Radiation mode :</b>        | <b>omnidirectional</b>         |

## **Mechanical property index**

|                             |                   |
|-----------------------------|-------------------|
| <b>Antenna color:</b>       | <b>black</b>      |
| <b>Antenna length:</b>      | <b>150 mm</b>     |
| <b>Wire type:</b>           | <b>1.13 black</b> |
| <b>Antenna connector:</b>   | <b>IPEX 1</b>     |
| <b>Working temperature:</b> | <b>-40℃~85℃</b>   |
| <b>Working humidity:</b>    | <b>20~80%</b>     |



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### Environment performance test:

| Project                                | Test condition                                                                                                                                                                                                      | Test results                                                             |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Storage environment                    | Test temperature, humidity, pressure without stated condition as follwings:1.Temperature: $-30^{\circ}\text{C} \sim +80^{\circ}\text{C}$ ;2.Relative humidity: 45%-85%;3,Pressure: 86kpa-106kpa                     | Electrical and mechanical performance normal                             |
| High and low temperature test          | Having 5 times cycle between $-40^{\circ}\text{C}$ to $70^{\circ}\text{C}$ ,Then in common condition 1-2 hours test exterior quality.                                                                               | Measurement satisfied with electrical and mechanical performance normal. |
| Resistance constant hot and humid test | Relative humidity: $95\pm 3\%$ ,Test temperature: $40^{\circ}\text{C}$ ,last 2 hours ,put it after 5 min test the electrical function .Test products during common condition 1-2 hours ,Then test exterior quality. | Measurement satisfied with electrical and mechanical performance normal. |
| Vibration test                         | Vibrate Frequency:10-55HZ;<br>Distance :0.35mm;Acceleration :50.0m/s;Sweep frequency cycle:30 times                                                                                                                 | Electrical and mechanical performance normal                             |
| Fall test                              | From 1m height fall down 3 times freely (vertical direction)                                                                                                                                                        | Electrical and mechanical performance normal                             |