

# SPECIFICATION

Shenzhen Guandetong Electronic Limited



## 深圳市冠得通电子有限公司

*Shenzhen Guandetong Electronic Co., Ltd.*2.4 G/5.8 G 3DB blade antenna 1.13 gray line length 350MM strip terminal

### Product Specification

|                          |     |                        |                              |
|--------------------------|-----|------------------------|------------------------------|
| connection               |     | frequency range        | 2400-2500MHz<br>5200-5800MHZ |
| Frequency band wire name |     | edition                | A1                           |
| Customer part number     |     | Guandetong part number |                              |
| Guandetong No            |     |                        |                              |
| R F design               | 肖彬  | RF Manager             | 刘亮                           |
| Structural design        | 王栋  | Structure Manager      | 王华                           |
| Technical Director       | 叶定坤 | Date                   | 2024-7-1                     |

Customer confirmation:

Does the assembly meet your company's requirements: ☐OK ☐NG

## catalogue

|                                                |     |
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## 保 密 要 求

本公司已拥有专有技术所提供的资料，这些专有资料应严加保密，在未经深圳冠得通电子有限公司事先书面同意的时不允许透露给任何人或公司。

### 一、 Product pictures



### 二、 Product parameters

| Product testing parameters         |                                    |                            |                   |
|------------------------------------|------------------------------------|----------------------------|-------------------|
| <b>Product name</b>                | 2.4 g/5.8 g blade glue rod antenna | <b>(Model Type)</b>        | GDT-P2.4-5.8-L350 |
| <b>(Electrical Specifications)</b> |                                    |                            |                   |
| <b>(Frequency Range)</b>           | 2400-2500MHz<br>5200-5800MHZ       | <b>(Polarization)</b>      | perpendicular     |
| <b>(Impedance)</b>                 | 50Ω                                | <b>Radiation</b>           | QXCOMM            |
| <b>(VSWR)</b>                      | ≤ 2.0                              | <b>(Power)</b>             | 50W               |
| <b>(Gain)</b>                      | 3.47dBi                            | <b>(Bandwidth)</b>         | 100M              |
| <b>(Mechanical Specifications)</b> |                                    |                            |                   |
| <b>(Dimensions)</b>                | 149±0.3                            | <b>(Chassis Color)</b>     | White             |
| <b>(Connector)</b>                 | IPEX                               | <b>(Cable Length)</b>      | 350±5MM           |
| <b>(Chassis Material)</b>          | ABS                                |                            |                   |
| <b>(Working Temperature)</b>       | -40℃-+85℃                          | <b>(Limit Temperature)</b> | -40℃-+85℃         |

### 三、 S11(VSWR、 Return、 Smith)

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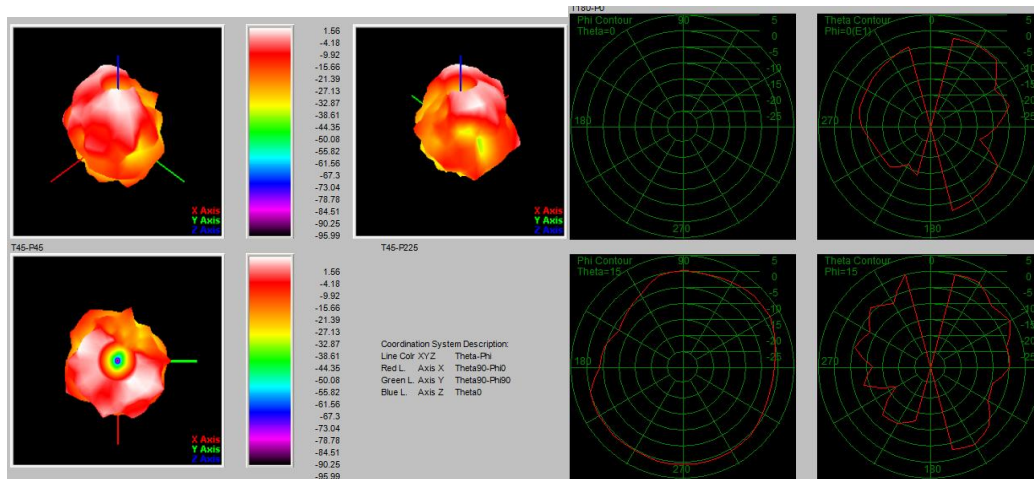
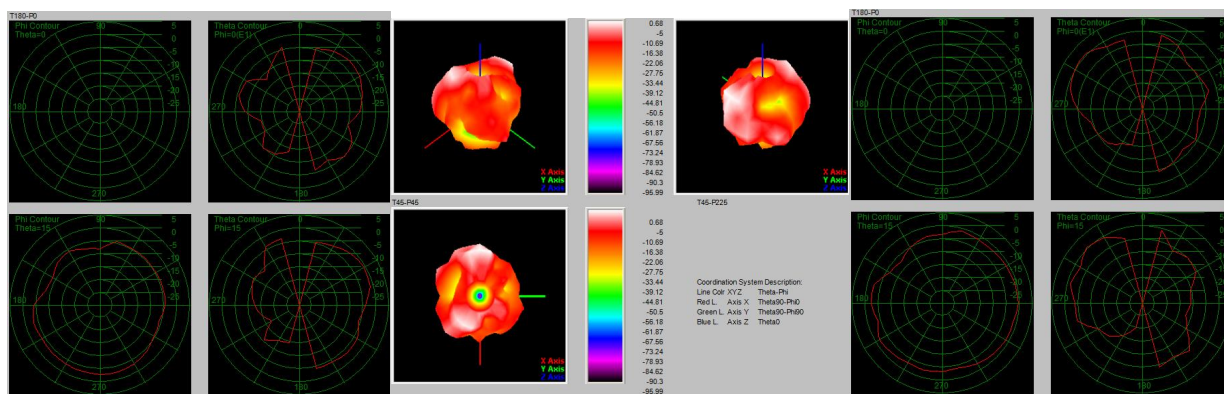
## 四、Antenna gain and efficiency&Apple in 3D

| Test Point ID | Freq. (MHz) | TRP (dBm) | Gain (dBm) | Directivity (dB) | Efficiency (%) | Efficiency (dB) | Max (dBm) | Theta of Max | Phi of Max | Min (dBm) | Theta of Min | Phi of Min | AVG (dBm) | Max/Min (dB) | Max/AVG (dB) | Min/AVG (dB) |
|---------------|-------------|-----------|------------|------------------|----------------|-----------------|-----------|--------------|------------|-----------|--------------|------------|-----------|--------------|--------------|--------------|
| 1             | 2400.0      | 2400.0    | 2.49       | 6.78             | 37.2%          | -4.29           | 2.49      | 75           | 60         | -95.99    | 0            | 0          | -4.42     | 98.48        | 6.91         | -91.57       |
| 2             | 2410.0      | 2410.0    | 2.63       | 6.96             | 36.9%          | -4.33           | 2.63      | 75           | 60         | -95.99    | 0            | 0          | -4.25     | 98.62        | 6.88         | -91.74       |
| 3             | 2420.0      | 2420.0    | 3.03       | 7.16             | 36.6%          | -4.13           | 3.03      | 75           | 45         | -95.99    | 0            | 0          | -3.82     | 99.02        | 6.85         | -92.17       |
| 4             | 2430.0      | 2430.0    | 3.47       | 7.25             | 41.9%          | -3.78           | 3.47      | 75           | 45         | -95.99    | 0            | 0          | -3.34     | 99.46        | 6.81         | -92.65       |
| 5             | 2440.0      | 2440.0    | 3.07       | 7.13             | 39.3%          | -4.06           | 3.07      | 75           | 60         | -95.99    | 0            | 0          | -3.68     | 99.06        | 6.75         | -92.31       |
| 6             | 2450.0      | 2450.0    | 3.16       | 7.15             | 39.8%          | -4.00           | 3.16      | 75           | 60         | -95.99    | 0            | 0          | -3.64     | 99.15        | 6.80         | -92.35       |
| 7             | 2460.0      | 2460.0    | 3.23       | 7.15             | 40.5%          | -3.92           | 3.23      | 75           | 60         | -95.99    | 0            | 0          | -3.59     | 99.22        | 6.82         | -92.40       |
| 8             | 2470.0      | 2470.0    | 3.07       | 6.93             | 41.1%          | -3.86           | 3.07      | 75           | 60         | -95.99    | 0            | 0          | -3.75     | 99.06        | 6.82         | -92.24       |
| 9             | 2480.0      | 2480.0    | 2.71       | 6.51             | 41.7%          | -3.79           | 2.71      | 75           | 60         | -95.99    | 0            | 0          | -4.09     | 98.70        | 6.81         | -91.90       |
| 10            | 2490.0      | 2490.0    | 2.06       | 6.25             | 38.1%          | -4.19           | 2.06      | 75           | 45         | -95.99    | 0            | 0          | -4.57     | 98.05        | 6.83         | -91.42       |
| 11            | 2500.0      | 2500.0    | 2.25       | 6.39             | 38.5%          | -4.14           | 2.25      | 90           | 60         | -95.99    | 0            | 0          | -4.61     | 98.24        | 6.86         | -91.38       |
| 12            | 5000.0      | 5000.0    | 0.68       | 5.84             | 30.5%          | -5.16           | 0.68      | 45           | 165        | -95.99    | 0            | 0          | -5.47     | 96.67        | 6.15         | -90.52       |
| 13            | 5020.0      | 5020.0    | 0.69       | 5.62             | 31.4%          | -5.03           | 0.69      | 45           | 165        | -95.99    | 0            | 0          | -5.37     | 96.58        | 5.96         | -90.62       |
| 14            | 5040.0      | 5040.0    | 0.43       | 5.44             | 31.6%          | -5.01           | 0.43      | 45           | 165        | -95.99    | 0            | 0          | -5.18     | 96.42        | 5.61         | -90.81       |
| 15            | 5060.0      | 5060.0    | 0.86       | 5.77             | 32.3%          | -4.91           | 0.86      | 30           | 330        | -95.99    | 0            | 0          | -4.71     | 96.85        | 5.56         | -91.28       |
| 16            | 5080.0      | 5080.0    | 0.87       | 6.50             | 27.3%          | -5.63           | 0.87      | 30           | 330        | -95.99    | 0            | 0          | -5.02     | 96.86        | 5.89         | -90.97       |
| 17            | 5100.0      | 5100.0    | 2.28       | 7.41             | 30.6%          | -5.14           | 2.28      | 30           | 330        | -95.99    | 0            | 0          | -4.18     | 98.27        | 6.46         | -91.80       |
| 18            | 5120.0      | 5120.0    | 2.30       | 7.40             | 31.0%          | -5.09           | 2.30      | 30           | 330        | -95.99    | 0            | 0          | -4.36     | 98.29        | 6.66         | -91.63       |
| 19            | 5140.0      | 5140.0    | 2.60       | 7.46             | 31.9%          | -4.96           | 2.60      | 30           | 330        | -95.99    | 0            | 0          | -4.21     | 98.49        | 6.70         | -91.78       |
| 20            | 5160.0      | 5160.0    | 2.27       | 7.11             | 32.8%          | -4.84           | 2.27      | 30           | 330        | -95.99    | 0            | 0          | -4.36     | 98.26        | 6.63         | -91.63       |
| 21            | 5180.0      | 5180.0    | 2.45       | 7.17             | 33.7%          | -4.72           | 2.45      | 30           | 330        | -95.99    | 0            | 0          | -4.34     | 98.44        | 6.79         | -91.65       |
| 22            | 5200.0      | 5200.0    | 2.64       | 6.88             | 37.7%          | -4.24           | 2.64      | 30           | 330        | -95.99    | 0            | 0          | -4.28     | 98.63        | 6.92         | -91.71       |
| 23            | 5220.0      | 5220.0    | 1.94       | 6.52             | 34.8%          | -4.58           | 1.94      | 30           | 330        | -95.99    | 0            | 0          | -4.80     | 97.93        | 6.74         | -91.19       |
| 24            | 5240.0      | 5240.0    | 2.02       | 6.39             | 36.6%          | -4.37           | 2.02      | 30           | 330        | -95.99    | 0            | 0          | -4.59     | 98.01        | 6.61         | -91.40       |
| 25            | 5260.0      | 5260.0    | 1.81       | 6.64             | 32.9%          | -4.83           | 1.81      | 30           | 330        | -95.99    | 0            | 0          | -4.72     | 97.80        | 6.52         | -91.27       |
| 26            | 5280.0      | 5280.0    | 1.26       | 6.26             | 31.7%          | -4.99           | 1.26      | 30           | 330        | -95.99    | 0            | 0          | -4.88     | 97.25        | 6.14         | -91.11       |
| 27            | 5300.0      | 5300.0    | 0.66       | 5.91             | 29.9%          | -5.25           | 0.66      | 30           | 330        | -95.99    | 0            | 0          | -5.09     | 96.65        | 5.75         | -90.90       |
| 28            | 5320.0      | 5320.0    | 0.61       | 5.45             | 32.8%          | -4.85           | 0.61      | 30           | 330        | -95.99    | 0            | 0          | -5.01     | 96.60        | 5.62         | -90.98       |
| 29            | 5340.0      | 5340.0    | 0.70       | 5.62             | 32.2%          | -4.92           | 0.70      | 15           | 75         | -95.99    | 0            | 0          | -4.97     | 96.69        | 5.67         | -91.02       |
| 30            | 5360.0      | 5360.0    | 0.74       | 5.62             | 32.5%          | -4.88           | 0.74      | 15           | 75         | -95.99    | 0            | 0          | -4.89     | 96.73        | 5.63         | -91.10       |
| 31            | 5380.0      | 5380.0    | 1.29       | 5.97             | 34.1%          | -4.68           | 1.29      | 15           | 75         | -95.99    | 0            | 0          | -4.51     | 97.28        | 5.80         | -91.48       |
| 32            | 5400.0      | 5400.0    | 1.29       | 6.01             | 33.7%          | -4.72           | 1.29      | 15           | 45         | -95.99    | 0            | 0          | -4.38     | 97.28        | 5.68         | -91.61       |
| 33            | 5420.0      | 5420.0    | 1.94       | 6.71             | 33.3%          | -4.77           | 1.94      | 15           | 45         | -95.99    | 0            | 0          | -4.03     | 97.93        | 5.97         | -91.96       |
| 34            | 5440.0      | 5440.0    | 2.33       | 7.23             | 32.4%          | -4.90           | 2.33      | 15           | 45         | -95.99    | 0            | 0          | -3.97     | 98.32        | 6.30         | -92.02       |
| 35            | 5460.0      | 5460.0    | 2.69       | 7.34             | 34.3%          | -4.65           | 2.69      | 30           | 30         | -95.99    | 0            | 0          | -3.60     | 98.68        | 6.29         | -92.39       |
| 36            | 5480.0      | 5480.0    | 2.65       | 7.06             | 36.4%          | -4.51           | 2.65      | 30           | 30         | -95.99    | 0            | 0          | -3.69     | 98.54        | 6.24         | -92.30       |
| 37            | 5500.0      | 5500.0    | 2.88       | 7.12             | 37.7%          | -4.23           | 2.88      | 30           | 30         | -95.99    | 0            | 0          | -3.54     | 98.87        | 6.42         | -92.45       |
| 38            | 5520.0      | 5520.0    | 2.60       | 6.76             | 37.4%          | -4.27           | 2.60      | 30           | 30         | -95.99    | 0            | 0          | -3.85     | 98.49        | 6.34         | -92.14       |
| 39            | 5540.0      | 5540.0    | 1.90       | 6.65             | 34.3%          | -4.65           | 1.90      | 30           | 30         | -95.99    | 0            | 0          | -4.32     | 97.89        | 6.22         | -91.67       |
| 40            | 5560.0      | 5560.0    | 1.91       | 6.59             | 34.1%          | -4.68           | 1.91      | 30           | 30         | -95.99    | 0            | 0          | -4.44     | 97.90        | 6.35         | -91.55       |
| 41            | 5580.0      | 5580.0    | 1.92       | 6.97             | 31.3%          | -5.05           | 1.92      | 30           | 30         | -95.99    | 0            | 0          | -4.65     | 97.91        | 6.57         | -91.34       |
| 42            | 5600.0      | 5600.0    | 1.50       | 6.80             | 29.5%          | -5.30           | 1.50      | 30           | 30         | -95.99    | 0            | 0          | -5.07     | 97.49        | 6.57         | -90.92       |
| 43            | 5620.0      | 5620.0    | 1.31       | 6.90             | 27.6%          | -5.69           | 1.31      | 30           | 30         | -95.99    | 0            | 0          | -5.15     | 97.30        | 6.47         | -90.83       |
| 44            | 5640.0      | 5640.0    | 1.86       | 7.07             | 30.1%          | -5.21           | 1.86      | 30           | 30         | -95.99    | 0            | 0          | -4.72     | 97.85        | 6.58         | -91.27       |
| 45            | 5660.0      | 5660.0    | 1.70       | 6.87             | 30.4%          | -5.18           | 1.70      | 30           | 30         | -95.99    | 0            | 0          | -4.76     | 97.69        | 6.46         | -91.23       |
| 46            | 5680.0      | 5680.0    | 1.24       | 6.39             | 30.6%          | -5.15           | 1.24      | 30           | 30         | -95.99    | 0            | 0          | -4.95     | 97.23        | 6.19         | -91.04       |
| 47            | 5700.0      | 5700.0    | 1.66       | 6.80             | 30.0%          | -5.24           | 1.66      | 30           | 30         | -95.99    | 0            | 0          | -4.80     | 97.55        | 6.36         | -91.19       |
| 48            | 5720.0      | 5720.0    | 2.44       | 7.05             | 34.6%          | -4.61           | 2.44      | 30           | 15         | -95.99    | 0            | 0          | -4.00     | 98.43        | 6.44         | -91.99       |
| 49            | 5740.0      | 5740.0    | 2.19       | 6.61             | 36.2%          | -4.42           | 2.19      | 30           | 15         | -95.99    | 0            | 0          | -3.90     | 98.18        | 6.10         | -92.09       |
| 50            | 5760.0      | 5760.0    | 1.98       | 6.42             | 36.0%          | -4.43           | 1.98      | 30           | 255        | -95.99    | 0            | 0          | -3.92     | 97.97        | 5.90         | -92.07       |
| 51            | 5780.0      | 5780.0    | 1.88       | 6.62             | 33.6%          | -4.74           | 1.88      | 30           | 240        | -95.99    | 0            | 0          | -4.20     | 97.87        | 6.09         | -91.79       |
| 52            | 5800.0      | 5800.0    | 1.66       | 6.51             | 32.0%          | -4.96           | 1.66      | 15           | 30         | -95.99    | 0            | 0          | -4.73     | 97.55        | 6.29         | -91.26       |



保 密 要 求

Figure 1 consists of two main panels, (a) and (b), each showing a 3D volume rendering of an electron density distribution, a 2D color scale bar, and a 2D contour plot. Panel (a) shows the reconstruction using the proposed method, and panel (b) shows the reconstruction using the standard method. The 3D renderings are color-coded from blue (low density) to red (high density). The 2D contour plots show the density distribution in the X-Y plane. The color scale bars indicate the density values, ranging from -95.99 to 1.37. The contour plots are labeled with 'Phi Contour' and 'Theta Contour'.

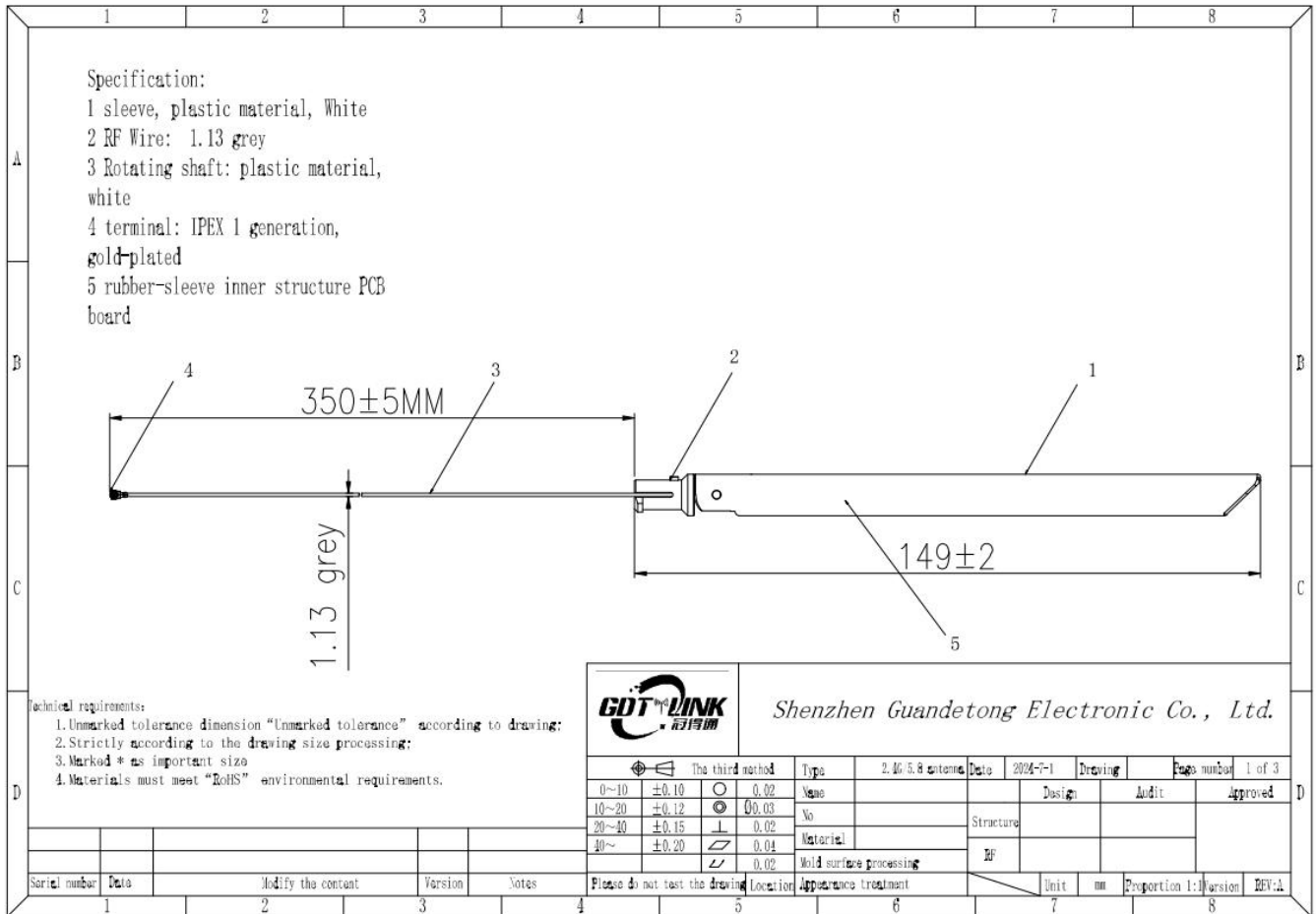


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## 五、Structural drawings



## 六、Environmental performance test

| project                       | Project test conditions                                                                                                                                                                                                                                                                 | Specifications                               |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Storage environment           | <p>The test temperature, humidity and air pressure are as follows when there is no specific condition:</p> <ol style="list-style-type: none"> <li>1. The temperature is - 30 °C~+80 °C</li> <li>2. Relative humidity: 45% - 85%</li> <li>3. The air pressure is 86kpa-106kpa</li> </ol> | Normal electrical and mechanical performance |
| High and low temperature test | 5 cycles between 70 °C and 40 °C, then under normal conditions 1-2H, check the appearance quality.                                                                                                                                                                                      | The size shall meet the requirements and     |

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|                                    |                                                                                                                                                                                                                                                                                                                                                      |                                                                                              |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
|                                    |                                                                                                                                                                                                                                                                                                                                                      | Mechanical and electrical performance                                                        |
| Constant damp heat resistance test | <p>Relative humidity: <math>95 \pm 3\%</math>, test temperature: <math>40\text{ }^{\circ}\text{C}</math>.<br/>After lasting for 2h,</p> <p>The electrical performance shall be measured within 5 minutes after the test object is taken out, and the test object shall be within the normal range</p> <p>Part 1-2H, check the appearance quality</p> | <p>The size shall meet the requirements and</p> <p>Mechanical and electrical performance</p> |
| vibration test                     | <p>Vibration frequency range: 10-55HZ, displacement amplitude: 0.35MM, acceleration amplitude:</p> <p>50.0M/s, frequency sweep cycles: 30 times</p>                                                                                                                                                                                                  | Normal electrical and mechanical performance                                                 |
| Drop test                          | Free fall for 3 times in the direction of mutually perpendicular axes at a height of 1M                                                                                                                                                                                                                                                              | Normal electrical and mechanical performance                                                 |

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