

# 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/5.8G 3DB ultrasonic antenna 1.13 gray wire length 180MM band 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                   | 2024-7-2                     |

Customer confirmation:

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

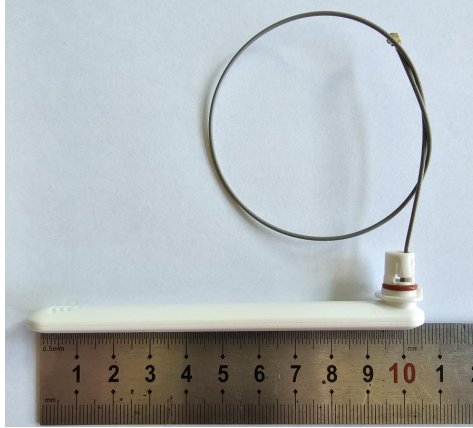
## catalogue

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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



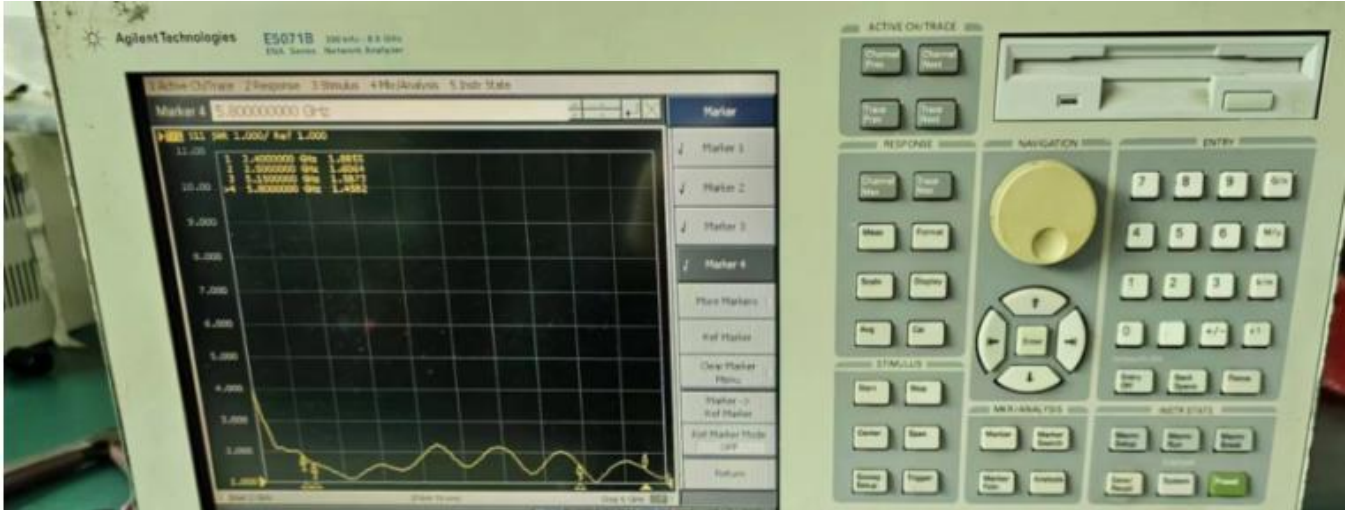
### 二、 Product parameters

| Product testing parameters         |                                             |                            |                   |
|------------------------------------|---------------------------------------------|----------------------------|-------------------|
| <b>Product name</b>                | 2.4 g/5.8 g antenna                         | <b>(Model Type)</b>        | GDT-P2.4-5.8-L180 |
| <b>(Electrical Specifications)</b> |                                             |                            |                   |
| <b>(Frequency Range)</b>           | 2400-2500MHz<br>5100-5850MHz                | <b>(Polarization)</b>      | perpendicular     |
| <b>(Impedance)</b>                 | 50Ω                                         | <b>Radiation</b>           | QXCOMM            |
| <b>(VSWR)</b>                      | ≤2.0                                        | <b>(Power)</b>             | 50W               |
| <b>(Gain)</b>                      | 2.4G:2.91dBi; 5.2G:1.98dBi;<br>5.8G:2.12dBi | <b>(Bandwidth)</b>         | 100M              |
| <b>(Mechanical Specifications)</b> |                                             |                            |                   |
| <b>(Dimensions)</b>                | 104.99*11.95-+0.3mm                         | <b>(Chassis Color)</b>     | White             |
| <b>(Connector)</b>                 | IPEX                                        | <b>(Cable Length)</b>      | 180±5MM           |
| <b>(Chassis Material)</b>          | ABS                                         |                            |                   |
| <b>(Working Temperature)</b>       | -40℃-+85℃                                   | <b>(Limit Temperature)</b> | -40℃-+85℃         |

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### 三、S11(VSWR、Return、Smith)



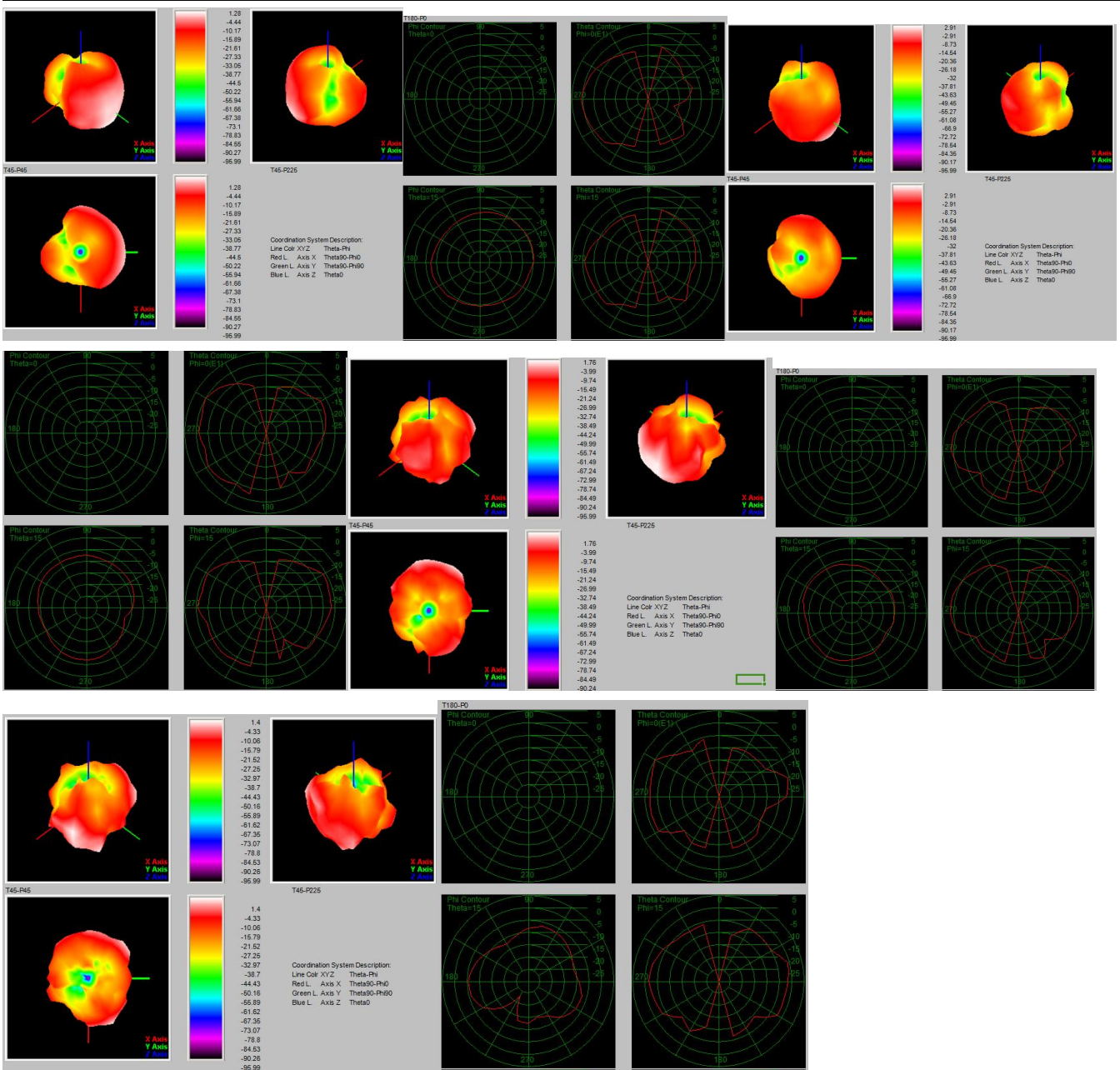
### 四、Antenna gain and efficiency&Apple in 3D

| 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      | 2400.00   | 1.28       | 5.27             | 39.9%          | -3.99           | 1.28      | 105          | 90         | -95.99    | 0            | 0          | -4.49     | 97.27        | 5.76         | -91.50       |
| 2             | 2410.0      | 2410.00   | 1.51       | 5.55             | 39.5%          | -4.04           | 1.51      | 105          | 90         | -95.99    | 0            | 0          | -4.32     | 97.50        | 5.84         | -91.66       |
| 3             | 2420.0      | 2420.00   | 2.02       | 5.92             | 40.8%          | -3.89           | 2.02      | 105          | 90         | -95.99    | 0            | 0          | -3.93     | 98.01        | 5.96         | -92.06       |
| 4             | 2430.0      | 2430.00   | 2.56       | 6.24             | 42.9%          | -3.67           | 2.56      | 105          | 90         | -95.99    | 0            | 0          | -3.57     | 98.55        | 6.14         | -92.42       |
| 5             | 2440.0      | 2440.00   | 2.51       | 6.36             | 41.2%          | -3.85           | 2.51      | 105          | 90         | -95.99    | 0            | 0          | -3.82     | 98.50        | 6.33         | -92.17       |
| 6             | 2450.0      | 2450.00   | 2.63       | 6.46             | 41.4%          | -3.84           | 2.63      | 105          | 90         | -95.99    | 0            | 0          | -3.81     | 98.62        | 6.44         | -92.18       |
| 7             | 2460.0      | 2460.00   | 2.84       | 6.64             | 42.7%          | -3.70           | 2.84      | 105          | 90         | -95.99    | 0            | 0          | -3.67     | 98.83        | 6.51         | -92.32       |
| 8             | 2470.0      | 2470.00   | 2.90       | 6.68             | 43.0%          | -3.66           | 2.90      | 120          | 105        | -95.99    | 0            | 0          | -3.61     | 98.89        | 6.70         | -92.18       |
| 9             | 2480.0      | 2480.00   | 2.73       | 6.51             | 41.9%          | -3.78           | 2.73      | 120          | 90         | -95.99    | 0            | 0          | -4.25     | 98.72        | 6.99         | -91.73       |
| 10            | 2490.0      | 2490.00   | 2.81       | 6.72             | 40.8%          | -3.91           | 2.81      | 120          | 90         | -95.99    | 0            | 0          | -4.43     | 98.80        | 7.25         | -91.56       |
| 11            | 2500.0      | 2500.00   | 2.91       | 6.64             | 42.3%          | -3.74           | 2.91      | 120          | 90         | -95.99    | 0            | 0          | -4.31     | 98.90        | 7.22         | -91.68       |
| 12            | 5000.0      | 5000.00   | 1.37       | 5.92             | 35.1%          | -4.54           | 1.37      | 90           | 195        | -95.99    | 0            | 0          | -5.61     | 97.38        | 6.98         | -90.38       |
| 13            | 5020.0      | 5020.00   | 1.29       | 5.73             | 36.0%          | -4.44           | 1.29      | 90           | 195        | -95.99    | 0            | 0          | -5.57     | 97.28        | 6.86         | -90.42       |
| 14            | 5040.0      | 5040.00   | 1.38       | 5.76             | 36.5%          | -4.38           | 1.38      | 90           | 195        | -95.99    | 0            | 0          | -5.40     | 97.37        | 6.78         | -90.59       |
| 15            | 5060.0      | 5060.00   | 1.80       | 6.00             | 38.0%          | -4.20           | 1.80      | 90           | 195        | -95.99    | 0            | 0          | -4.96     | 97.79        | 6.76         | -91.03       |
| 16            | 5080.0      | 5080.00   | 1.90       | 6.46             | 35.0%          | -4.56           | 1.90      | 90           | 195        | -95.99    | 0            | 0          | -5.06     | 97.89        | 6.96         | -90.93       |
| 17            | 5100.0      | 5100.00   | 2.66       | 6.79             | 38.8%          | -4.14           | 2.66      | 90           | 195        | -95.99    | 0            | 0          | -4.42     | 98.65        | 7.08         | -91.57       |
| 18            | 5120.0      | 5120.00   | 2.04       | 6.43             | 36.4%          | -4.39           | 2.04      | 90           | 195        | -95.99    | 0            | 0          | -4.85     | 98.03        | 6.90         | -91.13       |
| 19            | 5140.0      | 5140.00   | 2.01       | 6.44             | 36.0%          | -4.43           | 2.01      | 90           | 195        | -95.99    | 0            | 0          | -4.85     | 98.00        | 6.85         | -91.14       |
| 20            | 5160.0      | 5160.00   | 1.85       | 6.27             | 36.2%          | -4.42           | 1.85      | 90           | 165        | -95.99    | 0            | 0          | -5.05     | 97.84        | 6.91         | -90.94       |
| 21            | 5180.0      | 5180.00   | 1.76       | 6.04             | 37.4%          | -4.28           | 1.76      | 90           | 165        | -95.99    | 0            | 0          | -4.99     | 97.75        | 6.75         | -91.00       |
| 22            | 5200.0      | 5200.00   | 1.63       | 5.49             | 41.1%          | -3.86           | 1.63      | 75           | 195        | -95.99    | 0            | 0          | -4.97     | 97.62        | 6.59         | -91.02       |
| 23            | 5220.0      | 5220.00   | 1.46       | 5.65             | 38.0%          | -4.20           | 1.46      | 75           | 195        | -95.99    | 0            | 0          | -5.44     | 97.45        | 6.89         | -90.55       |
| 24            | 5240.0      | 5240.00   | 1.98       | 5.92             | 40.3%          | -3.94           | 1.98      | 75           | 195        | -95.99    | 0            | 0          | -5.15     | 97.97        | 7.13         | -90.84       |
| 25            | 5260.0      | 5260.00   | 1.96       | 6.34             | 36.5%          | -4.38           | 1.96      | 75           | 195        | -95.99    | 0            | 0          | -5.21     | 97.95        | 7.17         | -90.78       |
| 26            | 5280.0      | 5280.00   | 1.92       | 6.38             | 35.8%          | -4.46           | 1.92      | 75           | 195        | -95.99    | 0            | 0          | -5.26     | 97.91        | 7.18         | -90.73       |
| 27            | 5300.0      | 5300.00   | 1.56       | 6.25             | 34.0%          | -4.69           | 1.56      | 75           | 195        | -95.99    | 0            | 0          | -5.43     | 97.55        | 6.99         | -90.56       |
| 28            | 5320.0      | 5320.00   | 1.56       | 5.79             | 37.8%          | -4.23           | 1.56      | 75           | 195        | -95.99    | 0            | 0          | -5.30     | 97.55        | 6.86         | -90.69       |
| 29            | 5340.0      | 5340.00   | 1.22       | 5.62             | 36.3%          | -4.40           | 1.22      | 75           | 195        | -95.99    | 0            | 0          | -5.37     | 97.21        | 6.59         | -90.62       |
| 30            | 5360.0      | 5360.00   | 1.29       | 5.62             | 36.9%          | -4.34           | 1.29      | 75           | 150        | -95.99    | 0            | 0          | -5.30     | 97.28        | 6.58         | -90.69       |
| 31            | 5380.0      | 5380.00   | 1.54       | 5.80             | 37.5%          | -4.26           | 1.54      | 75           | 150        | -95.99    | 0            | 0          | -5.05     | 97.53        | 6.59         | -90.94       |
| 32            | 5400.0      | 5400.00   | 1.55       | 5.78             | 37.8%          | -4.22           | 1.55      | 75           | 150        | -95.99    | 0            | 0          | -4.92     | 97.54        | 6.48         | -91.07       |
| 33            | 5420.0      | 5420.00   | 2.10       | 6.20             | 38.9%          | -4.10           | 2.10      | 90           | 210        | -95.99    | 0            | 0          | -4.51     | 98.09        | 6.61         | -91.48       |
| 34            | 5440.0      | 5440.00   | 2.22       | 6.26             | 39.5%          | -4.04           | 2.22      | 75           | 150        | -95.99    | 0            | 0          | -4.34     | 98.21        | 6.56         | -91.65       |
| 35            | 5460.0      | 5460.00   | 2.78       | 6.56             | 41.9%          | -3.77           | 2.78      | 75           | 150        | -95.99    | 0            | 0          | -4.00     | 98.77        | 6.78         | -91.99       |
| 36            | 5480.0      | 5480.00   | 2.66       | 6.42             | 42.0%          | -3.76           | 2.66      | 75           | 150        | -95.99    | 0            | 0          | -4.22     | 98.65        | 6.88         | -91.77       |
| 37            | 5500.0      | 5500.00   | 2.79       | 6.25             | 45.0%          | -3.47           | 2.79      | 75           | 150        | -95.99    | 0            | 0          | -4.02     | 98.78        | 6.80         | -91.97       |
| 38            | 5520.0      | 5520.00   | 2.20       | 5.71             | 44.8%          | -3.51           | 2.20      | 75           | 150        | -95.99    | 0            | 0          | -4.31     | 98.19        | 6.52         | -91.67       |
| 39            | 5540.0      | 5540.00   | 1.76       | 5.70             | 40.4%          | -3.94           | 1.76      | 75           | 210        | -95.99    | 0            | 0          | -4.83     | 97.75        | 6.59         | -91.16       |
| 40            | 5560.0      | 5560.00   | 1.61       | 5.53             | 40.5%          | -3.93           | 1.61      | 75           | 210        | -95.99    | 0            | 0          | -4.92     | 97.60        | 6.52         | -91.07       |
| 41            | 5580.0      | 5580.00   | 1.46       | 5.77             | 37.0%          | -4.32           | 1.46      | 105          | 210        | -95.99    | 0            | 0          | -5.15     | 97.45        | 6.61         | -90.84       |
| 42            | 5600.0      | 5600.00   | 1.16       | 5.82             | 34.2%          | -4.66           | 1.16      | 105          | 210        | -95.99    | 0            | 0          | -5.66     | 97.16        | 6.82         | -90.33       |
| 43            | 5620.0      | 5620.00   | 1.14       | 6.14             | 31.6%          | -5.00           | 1.14      | 105          | 210        | -95.99    | 0            | 0          | -5.78     | 97.13        | 6.92         | -90.21       |
| 44            | 5640.0      | 5640.00   | 1.59       | 6.12             | 35.3%          | -4.52           | 1.59      | 105          | 210        | -95.99    | 0            | 0          | -5.27     | 97.58        | 6.86         | -90.72       |
| 45            | 5660.0      | 5660.00   | 1.25       | 5.81             | 34.9%          | -4.57           | 1.25      | 75           | 30         | -95.99    | 0            | 0          | -5.40     | 97.24        | 6.64         | -90.59       |
| 46            | 5680.0      | 5680.00   | 1.14       | 5.68             | 35.1%          | -4.54           | 1.14      | 75           | 30         | -95.99    | 0            | 0          | -5.61     | 97.13        | 6.75         | -90.38       |
| 47            | 5700.0      | 5700.00   | 1.24       | 5.84             | 34.7%          | -4.60           | 1.24      | 75           | 30         | -95.99    | 0            | 0          | -5.47     | 97.23        | 6.71         | -90.52       |
| 48            | 5720.0      | 5720.00   | 2.19       | 6.14             | 40.2%          | -3.95           | 2.19      | 75           | 30         | -95.99    | 0            | 0          | -4.70     | 98.18        | 6.89         | -91.29       |
| 49            | 5740.0      | 5740.00   | 2.12       | 6.02             | 40.7%          | -3.90           | 2.12      | 75           | 30         | -95.99    | 0            | 0          | -4.76     | 98.11        | 6.89         | -91.23       |
| 50            | 5760.0      | 5760.00   | 2.07       | 5.98             | 40.5%          | -3.91           | 2.07      | 75           | 30         | -95.99    | 0            | 0          | -4.81     | 98.08        | 6.88         | -91.18       |
| 51            | 5780.0      | 5780.00   | 1.88       | 5.94             | 39.3%          | -4.06           | 1.88      | 75           | 30         | -95.99    | 0            | 0          | -5.00     | 97.87        | 6.88         | -90.99       |
| 52            | 5800.0      | 5800.00   | 1.40       | 5.64             | 37.7%          | -4.24           | 1.40      | 120          | 60         | -95.99    | 0            | 0          | -5.51     | 97.39        | 6.91         | -90.48       |

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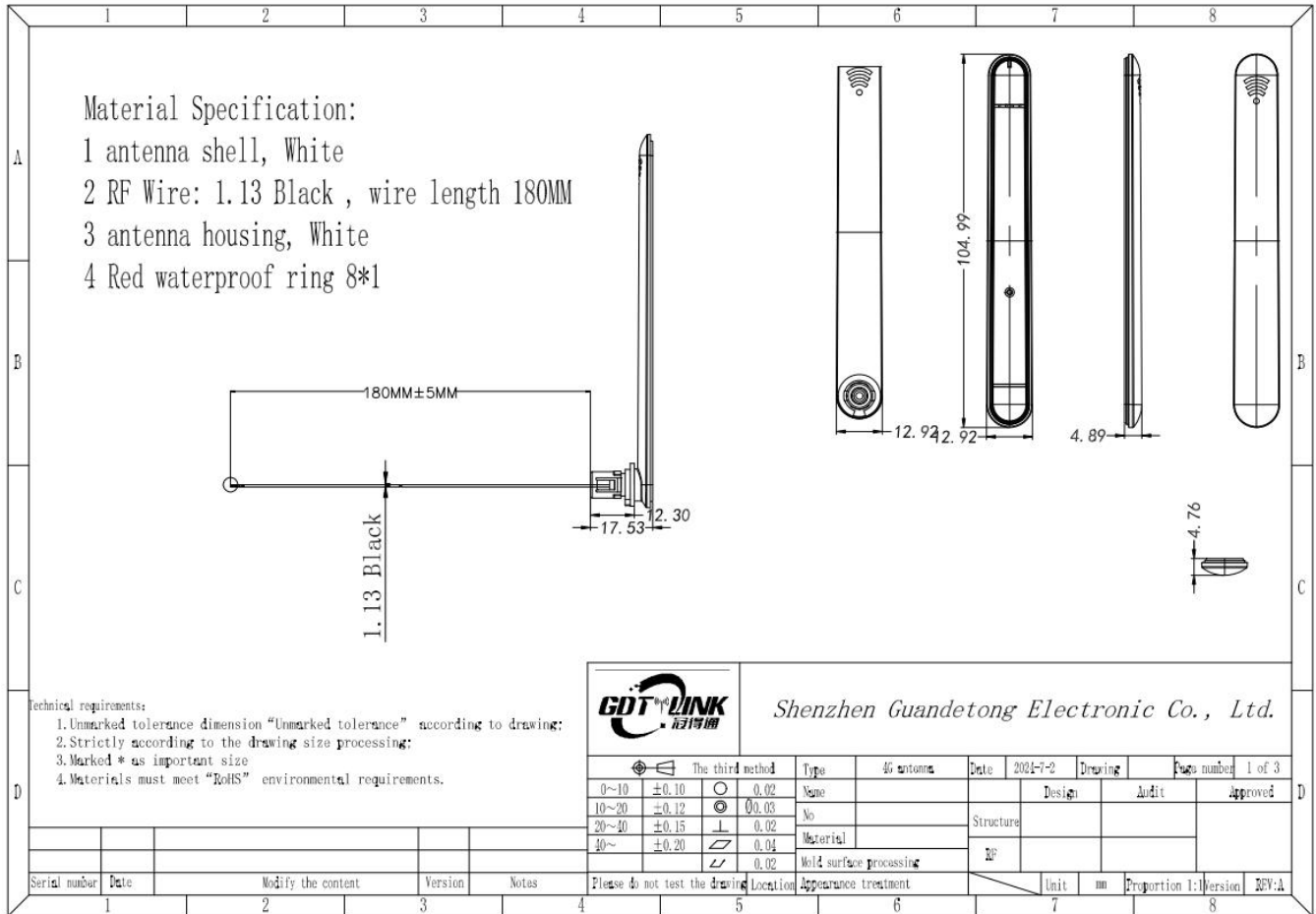
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## 五、Structural drawings



## 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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