

# SPECIFICATION



Shenzhen Guandetong Electronic Limited

Copper tube antenna 1.13 black line total length 75mm with IPEX terminal (full coverage sleeve) According to 2.4G 5.8G dual band

## Product specification

|                    |       |                   |                              |
|--------------------|-------|-------------------|------------------------------|
| Customers          | 深圳市丽欧 | Frequency         | 2400-2500MHz<br>5150-5800MHZ |
| Name of wire rod   |       | Version           | A1                           |
| Customer data      |       | GuandetongNo      |                              |
| GuandetongNo       |       |                   |                              |
| R FDesign          | 肖彬    | RF manager        | 刘亮                           |
| Structural design  | 王栋    | Structure manager | 王华                           |
| Technical Director | ANDY  | Date              | 2024-12-09                   |

Customer confirmation:

Whether the Assembly meets your requirements: ☐OK ☐NG

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## catalogue

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一、 Product pictures



二、 Product parameters

| Product test parameters     |                                    |                                  |                    |
|-----------------------------|------------------------------------|----------------------------------|--------------------|
| (Name)                      | 2.4G/5.8G dual copper tube antenna | (Model Type)                     | GDT-2.4G-5.8G-75MM |
| (Electrical Specifications) |                                    |                                  |                    |
| (Frenquency Range)          | 2400-2500MHz<br>5150-5800MHZ       | (Polarization)                   | perpendicular      |
| (Impedance)                 | 50 欧                               | Radiation                        | QXCOMM             |
| (VSWR)                      | ≤2.0                               | (Power)                          | 50W                |
| (Gain)                      | 0.65dBi                            | (Bandwidth                       | 100M               |
| (Mechanical Specifications) |                                    |                                  |                    |
| (Copper tube dimensions )   | 24.5*4.4*75MM                      | (Chassis Color)                  | black              |
| (Connector)                 | IPEX                               | (Cable Length)                   | 75±2mm             |
| (Chassis Material)          | copper tube                        | (Wire specifications and colors) | 1.13 black         |
| (Working Temperature)       | -40℃--+85℃                         | (Limit Temperature)              | -40℃--+85℃         |

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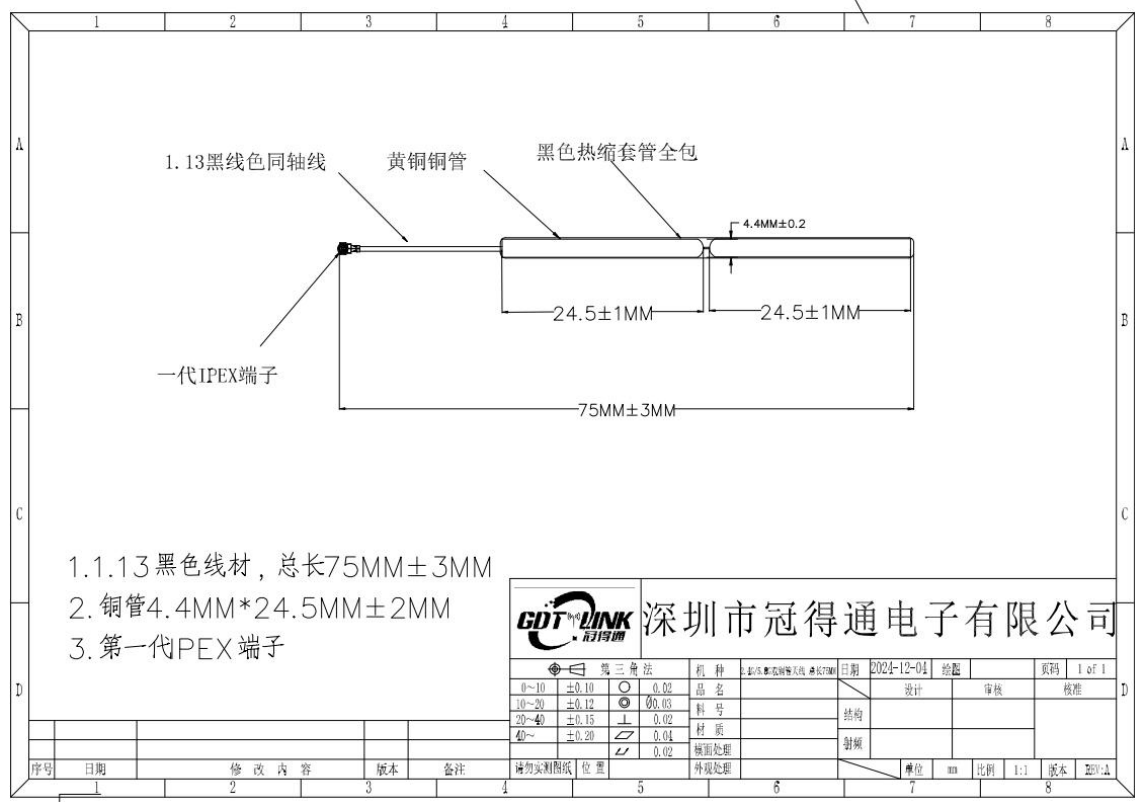
<http://www.szgdtrf.com>

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三、S11(VSWR/Return/Smith



四、Structural drawings



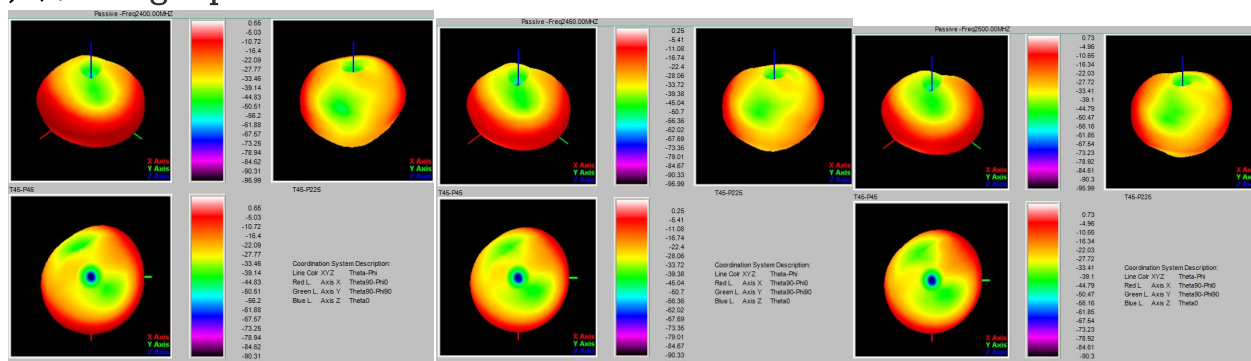


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## 五、Antenna gain and efficiency

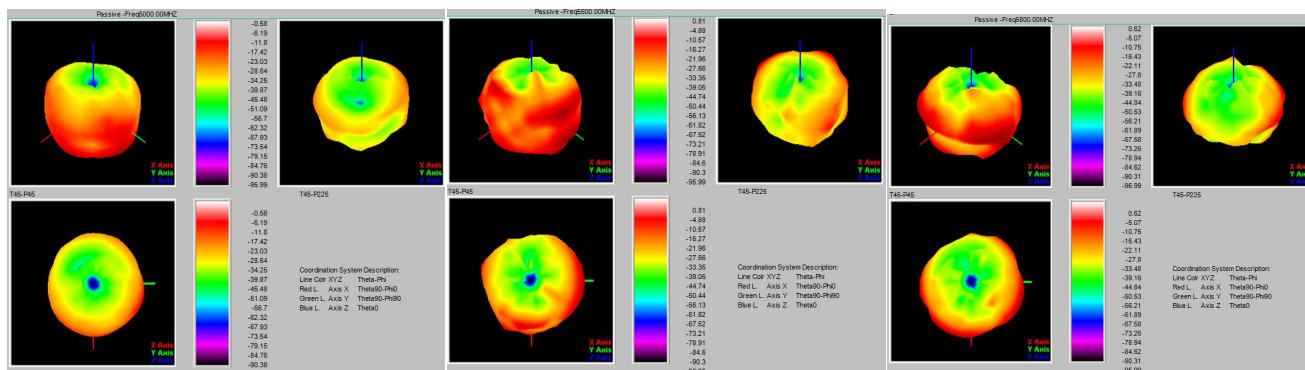
| Test Point ID | Freq. (MHz) | TRP (dBm) | Gain (dBi) | Directivity (dB) | Efficiency (%) | Efficiency (dB) | Max (dBm) | Theta of Max | Phi of Max | Min (dBm) | Theta of Min | Phi of Min | AVG (dBm) | Max/Min (dB) | Max/AVG (dB) | Min/AVG (dB) |
|---------------|-------------|-----------|------------|------------------|----------------|-----------------|-----------|--------------|------------|-----------|--------------|------------|-----------|--------------|--------------|--------------|
| 1             | 2400.0      | 2400.00   | 0.65       | 4.96             | 37.1%          | -4.31           | 0.65      | 7500         | 0          | -95.99    | 0            | 0          | -5.41     | 96.64        | 6.06         | -90.58       |
| 2             | 2410.0      | 2410.00   | 0.44       | 4.86             | 36.1%          | -4.42           | 0.44      | 7500         | 0          | -95.99    | 0            | 0          | -5.49     | 96.43        | 5.94         | -90.50       |
| 3             | 2420.0      | 2420.00   | 0.02       | 4.70             | 34.1%          | -4.67           | 0.02      | 7500         | 0          | -95.99    | 0            | 0          | -5.72     | 96.01        | 5.75         | -90.27       |
| 4             | 2430.0      | 2430.00   | 0.26       | 4.73             | 35.7%          | -4.47           | 0.26      | 9000         | 12000      | -95.99    | 0            | 0          | -5.52     | 96.25        | 5.78         | -90.47       |
| 5             | 2440.0      | 2440.00   | 0.35       | 4.89             | 35.2%          | -4.54           | 0.35      | 9000         | 13500      | -95.99    | 0            | 0          | -5.61     | 96.34        | 5.97         | -90.38       |
| 6             | 2450.0      | 2450.00   | 0.25       | 4.98             | 33.7%          | -4.73           | 0.25      | 9000         | 13500      | -95.99    | 0            | 0          | -5.82     | 96.24        | 6.06         | -90.17       |
| 7             | 2460.0      | 2460.00   | 0.12       | 5.07             | 32.0%          | -4.95           | 0.12      | 9000         | 13500      | -95.99    | 0            | 0          | -6.05     | 96.11        | 6.17         | -89.94       |
| 8             | 2470.0      | 2470.00   | 0.20       | 5.10             | 32.3%          | -4.90           | 0.20      | 9000         | 13500      | -95.99    | 0            | 0          | -6.00     | 96.18        | 6.20         | -89.99       |
| 9             | 2480.0      | 2480.00   | 0.40       | 5.11             | 33.8%          | -4.71           | 0.40      | 9000         | 13500      | -95.99    | 0            | 0          | -5.80     | 96.39        | 6.20         | -90.19       |
| 10            | 2490.0      | 2490.00   | 0.60       | 5.16             | 35.0%          | -4.56           | 0.60      | 9000         | 13500      | -95.99    | 0            | 0          | -5.65     | 96.59        | 6.25         | -90.34       |
| 11            | 2500.0      | 2500.00   | 0.73       | 5.23             | 35.5%          | -4.50           | 0.73      | 9000         | 13500      | -95.99    | 0            | 0          | -5.59     | 96.72        | 6.32         | -90.40       |
| 12            | 5000.0      | 5000.00   | -0.58      | 6.25             | 20.8%          | -6.83           | -0.58     | 10500        | 7500       | -95.99    | 0            | 0          | -8.10     | 95.41        | 7.52         | -87.89       |
| 13            | 5020.0      | 5020.00   | -0.20      | 6.03             | 23.8%          | -6.24           | -0.20     | 10500        | 7500       | -95.99    | 0            | 0          | -7.52     | 95.79        | 7.32         | -88.47       |
| 14            | 5040.0      | 5040.00   | -0.11      | 5.86             | 25.3%          | -5.97           | -0.11     | 10500        | 7500       | -95.99    | 0            | 0          | -7.25     | 95.88        | 7.15         | -88.74       |
| 15            | 5060.0      | 5060.00   | 0.24       | 6.07             | 26.1%          | -5.83           | 0.24      | 10500        | 7500       | -95.99    | 0            | 0          | -7.13     | 96.22        | 7.36         | -88.86       |
| 16            | 5080.0      | 5080.00   | 0.14       | 5.76             | 27.4%          | -5.62           | 0.14      | 10500        | 7500       | -95.99    | 0            | 0          | -6.91     | 96.13        | 7.06         | -89.08       |
| 17            | 5100.0      | 5100.00   | 0.44       | 6.09             | 27.2%          | -5.66           | 0.44      | 10500        | 7500       | -95.99    | 0            | 0          | -6.96     | 96.43        | 7.40         | -89.03       |
| 18            | 5120.0      | 5120.00   | 0.55       | 6.33             | 26.4%          | -5.78           | 0.55      | 10500        | 7500       | -95.99    | 0            | 0          | -7.07     | 96.54        | 7.62         | -88.92       |
| 19            | 5140.0      | 5140.00   | 0.58       | 6.43             | 26.0%          | -5.86           | 0.58      | 10500        | 7500       | -95.99    | 0            | 0          | -7.12     | 96.57        | 7.70         | -88.87       |
| 20            | 5160.0      | 5160.00   | 0.68       | 5.89             | 30.2%          | -5.21           | 0.68      | 10500        | 7500       | -95.99    | 0            | 0          | -6.42     | 96.67        | 7.10         | -89.57       |
| 21            | 5180.0      | 5180.00   | 1.40       | 6.15             | 33.5%          | -4.75           | 1.40      | 10500        | 7500       | -95.99    | 0            | 0          | -5.94     | 97.39        | 7.34         | -90.05       |
| 22            | 5200.0      | 5200.00   | 0.80       | 6.11             | 29.5%          | -5.30           | 0.80      | 10500        | 9000       | -95.99    | 0            | 0          | -6.44     | 96.79        | 7.24         | -89.55       |
| 23            | 5220.0      | 5220.00   | 0.96       | 6.51             | 27.8%          | -5.55           | 0.96      | 10500        | 7500       | -95.99    | 0            | 0          | -6.61     | 96.95        | 7.57         | -89.38       |
| 24            | 5240.0      | 5240.00   | 1.09       | 6.82             | 26.7%          | -5.73           | 1.09      | 10500        | 7500       | -95.99    | 0            | 0          | -6.72     | 97.08        | 7.81         | -89.27       |
| 25            | 5260.0      | 5260.00   | 1.08       | 7.01             | 25.5%          | -5.94           | 1.08      | 10500        | 7500       | -95.99    | 0            | 0          | -6.82     | 97.07        | 7.90         | -89.17       |
| 26            | 5280.0      | 5280.00   | 0.48       | 6.26             | 26.4%          | -5.78           | 0.48      | 10500        | 7500       | -95.99    | 0            | 0          | -6.63     | 96.47        | 7.11         | -89.36       |
| 27            | 5300.0      | 5300.00   | 0.51       | 5.89             | 29.0%          | -5.38           | 0.51      | 10500        | 7500       | -95.99    | 0            | 0          | -6.19     | 96.50        | 6.71         | -89.79       |
| 28            | 5320.0      | 5320.00   | 0.57       | 5.83             | 29.8%          | -5.25           | 0.57      | 10500        | 7500       | -95.99    | 0            | 0          | -6.08     | 96.56        | 6.86         | -89.91       |
| 29            | 5340.0      | 5340.00   | -0.02      | 5.51             | 27.9%          | -5.54           | -0.02     | 12000        | 7500       | -95.99    | 0            | 0          | -6.39     | 95.97        | 6.36         | -89.60       |
| 30            | 5360.0      | 5360.00   | 0.23       | 6.18             | 25.4%          | -5.95           | 0.23      | 10500        | 9000       | -95.99    | 0            | 0          | -6.81     | 96.22        | 7.04         | -89.18       |
| 31            | 5380.0      | 5380.00   | -0.42      | 5.83             | 23.7%          | -6.25           | -0.42     | 12000        | 9000       | -95.99    | 0            | 0          | -7.17     | 95.57        | 6.75         | -88.82       |
| 32            | 5400.0      | 5400.00   | 0.47       | 6.12             | 27.2%          | -5.66           | 0.47      | 12000        | 7500       | -95.99    | 0            | 0          | -6.60     | 96.46        | 7.07         | -89.39       |
| 33            | 5420.0      | 5420.00   | 0.46       | 5.69             | 30.0%          | -5.23           | 0.46      | 4500         | 0          | -95.99    | 0            | 0          | -6.21     | 96.45        | 6.67         | -89.78       |
| 34            | 5440.0      | 5440.00   | 1.25       | 6.04             | 33.2%          | -4.79           | 1.25      | 12000        | 7500       | -95.99    | 0            | 0          | -5.79     | 97.24        | 7.04         | -90.20       |
| 35            | 5460.0      | 5460.00   | 0.99       | 6.46             | 28.4%          | -5.47           | 0.99      | 12000        | 7500       | -95.99    | 0            | 0          | -6.51     | 96.98        | 7.50         | -89.48       |
| 36            | 5480.0      | 5480.00   | -0.40      | 5.27             | 27.1%          | -5.66           | -0.40     | 12000        | 9000       | -95.99    | 0            | 0          | -6.73     | 95.59        | 6.33         | -89.26       |
| 37            | 5500.0      | 5500.00   | 0.81       | 5.62             | 33.1%          | -4.80           | 0.81      | 12000        | 7500       | -95.99    | 0            | 0          | -5.88     | 96.80        | 6.70         | -90.11       |
| 38            | 5520.0      | 5520.00   | 1.13       | 6.00             | 32.6%          | -4.87           | 1.13      | 12000        | 7500       | -95.99    | 0            | 0          | -5.97     | 97.12        | 7.09         | -90.02       |
| 39            | 5540.0      | 5540.00   | 0.61       | 5.72             | 30.9%          | -5.10           | 0.61      | 9000         | 9000       | -95.99    | 0            | 0          | -6.22     | 96.60        | 6.83         | -89.77       |
| 40            | 5560.0      | 5560.00   | -0.06      | 4.99             | 31.3%          | -5.05           | -0.06     | 9000         | 9000       | -95.99    | 0            | 0          | -6.23     | 95.93        | 6.17         | -89.76       |
| 41            | 5580.0      | 5580.00   | 0.85       | 5.42             | 34.9%          | -4.57           | 0.85      | 9000         | 9000       | -95.99    | 0            | 0          | -5.79     | 96.84        | 6.63         | -90.20       |
| 42            | 5600.0      | 5600.00   | 0.56       | 5.18             | 34.5%          | -4.63           | 0.56      | 9000         | 7500       | -95.99    | 0            | 0          | -5.87     | 96.55        | 6.43         | -90.12       |
| 43            | 5620.0      | 5620.00   | 0.39       | 5.22             | 32.9%          | -4.82           | 0.39      | 9000         | 7500       | -95.99    | 0            | 0          | -6.03     | 96.38        | 6.42         | -89.96       |
| 44            | 5640.0      | 5640.00   | 0.44       | 5.58             | 30.7%          | -5.13           | 0.44      | 9000         | 9000       | -95.99    | 0            | 0          | -6.35     | 96.43        | 6.79         | -89.64       |
| 45            | 5660.0      | 5660.00   | 0.01       | 4.99             | 31.8%          | -4.98           | 0.01      | 7500         | 9000       | -95.99    | 0            | 0          | -6.22     | 96.00        | 6.23         | -89.77       |
| 46            | 5680.0      | 5680.00   | 0.44       | 5.53             | 30.9%          | -5.10           | 0.44      | 9000         | 9000       | -95.99    | 0            | 0          | -6.33     | 96.42        | 6.76         | -89.66       |
| 47            | 5700.0      | 5700.00   | 0.34       | 5.71             | 29.0%          | -5.38           | 0.34      | 7500         | 6000       | -95.99    | 0            | 0          | -6.59     | 96.32        | 6.92         | -89.40       |
| 48            | 5720.0      | 5720.00   | 0.86       | 6.08             | 30.1%          | -5.22           | 0.86      | 9000         | 7500       | -95.99    | 0            | 0          | -6.48     | 96.85        | 7.34         | -89.51       |
| 49            | 5740.0      | 5740.00   | 0.73       | 6.05             | 29.4%          | -5.32           | 0.73      | 7500         | 7500       | -95.99    | 0            | 0          | -6.59     | 96.72        | 7.32         | -89.40       |
| 50            | 5760.0      | 5760.00   | 1.13       | 5.85             | 33.7%          | -4.73           | 1.13      | 10500        | 0          | -95.99    | 0            | 0          | -5.98     | 97.12        | 7.11         | -90.00       |
| 51            | 5780.0      | 5780.00   | 1.36       | 5.89             | 35.3%          | -4.53           | 1.36      | 7500         | 7500       | -95.99    | 0            | 0          | -5.78     | 97.35        | 7.14         | -90.21       |
| 52            | 5800.0      | 5800.00   | 0.62       | 6.06             | 28.5%          | -5.45           | 0.62      | 7500         | 6000       | -95.99    | 0            | 0          | -6.68     | 96.61        | 7.30         | -89.31       |

## 六、3D graph



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## 七、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 <math>-30^{\circ}\text{C}\sim+80^{\circ}\text{C}</math></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 $70^{\circ}\text{C}$ and $40^{\circ}\text{C}$ , then under normal conditions 1-2H, check the appearance quality.                                                                                                                                                                                                        | The size shall meet the requirements and<br>Mechanical and electrical performance |
| Constant damp heat resistance test | <p>Relative humidity: <math>95 \pm 3\%</math>, test temperature: <math>40^{\circ}\text{C}</math>. 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> | The size shall meet the requirements and<br>Mechanical and electrical performance |
| 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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