



深圳市星源创科技有限公司

Shen Zhen Xing Yuan Chuang Technology Co., Ltd

规格承认书  
Approval Sheet

|                        |                                                                            |                      |            |  |  |
|------------------------|----------------------------------------------------------------------------|----------------------|------------|--|--|
| 客户名称<br>Customer       | 攻氮                                                                         | 日期<br>Data           | 2025/10/24 |  |  |
| 产品名称<br>Product        | WiFi/BT天线                                                                  | 客户机型<br>Models       | AR16       |  |  |
| 料号<br>P/N              | Main: F1527-14MB-050<br>Aux: F1528-14MB-178                                | 客户料号<br>Customer P/N |            |  |  |
| 规格描述<br>Specifications | 黑色FPC; Main: RF0.81四代端子黑色同轴线, 长度L=50mm,<br>Aux: RF0.81四代端子黑色同轴线, 长度L=178mm |                      |            |  |  |
|                        |                                                                            |                      |            |  |  |
|                        |                                                                            |                      |            |  |  |
|                        |                                                                            |                      |            |  |  |
|                        |                                                                            |                      |            |  |  |
|                        |                                                                            |                      |            |  |  |
|                        |                                                                            |                      |            |  |  |
|                        |                                                                            |                      |            |  |  |
|                        |                                                                            |                      |            |  |  |
|                        |                                                                            |                      |            |  |  |
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|                        |                                                                            |                      |            |  |  |



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地址：深圳市宝安区沙井街道马安山社区马安山锦胜财富广场C栋610-614

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## Specification

### 1.1 Electrical Properties

| Characteristics | Specifications         |
|-----------------|------------------------|
| Working Band    | 2.4GWiFi/BT;<br>5GWiFi |
| Antenna From    | PIFA                   |
| Impedance       | 50 $\Omega$            |
| Polarization    | Linear                 |
|                 |                        |
|                 |                        |

### 1.2 Physical Properties

| Characteristics | Specifications |
|-----------------|----------------|
| Operating Temp  | -10°C~+60°C    |
| Storage Temp    | -10°C~+70°C    |
| Humidity        | 10~95%RH       |

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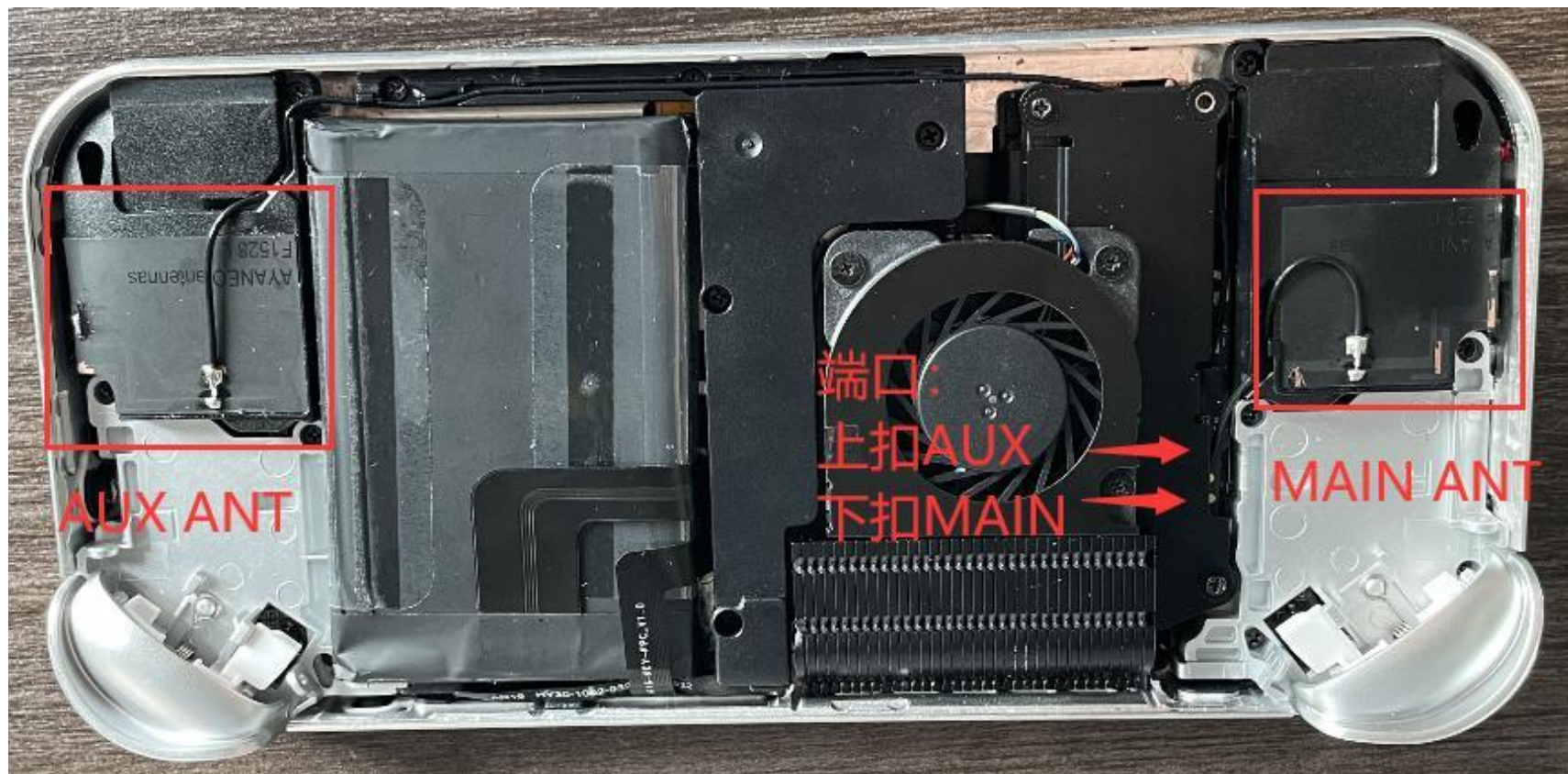
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## Antenna Placement

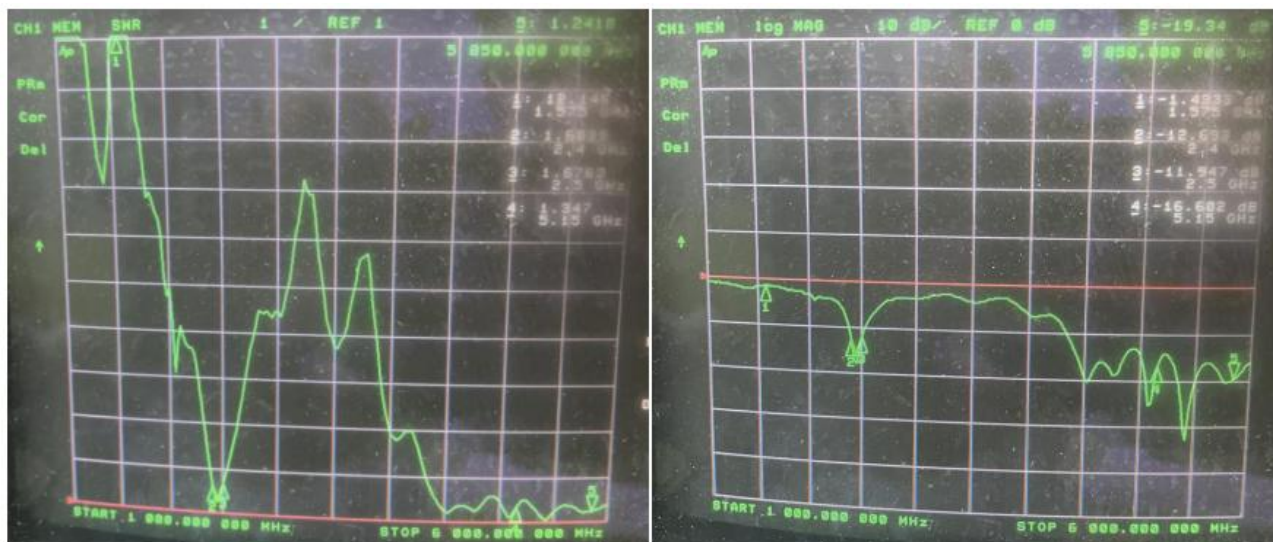


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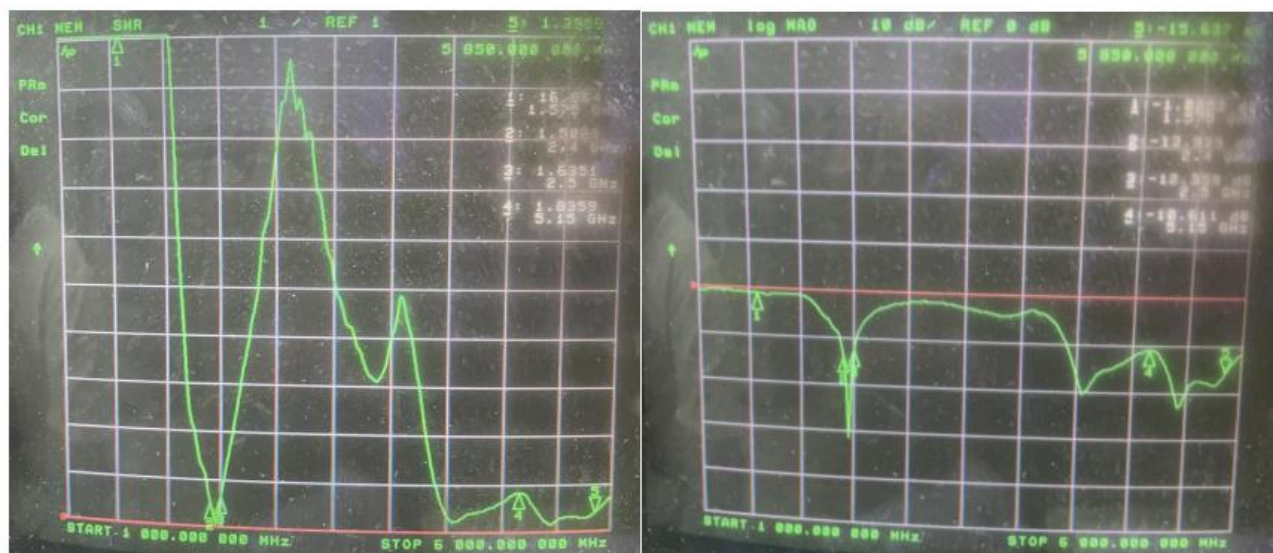
## Test Data

### S11 Parameter-VSWR(ANT1)



| Frequency (MHZ)  | 2400   | 2500   | 5150   | 5850   |
|------------------|--------|--------|--------|--------|
| VSWR             | 1.60   | 1.67   | 1.34   | 1.24   |
| Return Loss (DB) | -12.69 | -11.94 | -16.60 | -19.34 |

### S11 Parameter-VSWR(ANT2)



| Frequency (MHZ)  | 2400   | 2500   | 5150   | 5850   |
|------------------|--------|--------|--------|--------|
| VSWR             | 1.50   | 1.63   | 1.83   | 1.39   |
| Return Loss (DB) | -13.93 | -12.35 | -10.61 | -15.63 |

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Efficiency Table (ANT1 2.4G) MAIN ANT

| Passive Test For WIFI2.4 |             |              |               |               |            |            |
|--------------------------|-------------|--------------|---------------|---------------|------------|------------|
| Freq<br>(MHz)            | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) | Gain<br>(dBd) | UHS<br>(%) | DHS<br>(%) |
| 2400                     | 40.88       | -3.89        | 2.27          | 0.12          | 16.293     | 24.585     |
| 2410                     | 40.18       | -3.96        | 2.3           | 0.15          | 15.975     | 24.203     |
| 2420                     | 39.55       | -4.03        | 2.2           | 0.05          | 15.59      | 23.957     |
| 2430                     | 36.44       | -4.38        | 1.81          | -0.34         | 14.193     | 22.248     |
| 2440                     | 36.35       | -4.39        | 1.77          | -0.38         | 14.071     | 22.283     |
| 2450                     | 38.66       | -4.13        | 2.03          | -0.12         | 14.937     | 23.725     |
| 2460                     | 40.7        | -3.9         | 2.28          | 0.13          | 15.577     | 25.119     |
| 2470                     | 38.48       | -4.15        | 1.8           | -0.35         | 15.073     | 23.411     |
| 2480                     | 39.53       | -4.03        | 1.81          | -0.34         | 15.642     | 23.886     |
| 2490                     | 41.17       | -3.85        | 1.73          | -0.42         | 16.652     | 24.515     |
| 2500                     | 39.37       | -4.05        | 1.38          | -0.77         | 16.305     | 23.067     |

Efficiency Table (ANT2 2.4G) AUX ANT

| Passive Test For WIFI2.4 |             |              |               |               |            |            |
|--------------------------|-------------|--------------|---------------|---------------|------------|------------|
| Freq<br>(MHz)            | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) | Gain<br>(dBd) | UHS<br>(%) | DHS<br>(%) |
| 2400                     | 38.79       | -4.11        | 1.2           | -0.95         | 23.404     | 15.387     |
| 2410                     | 38.61       | -4.13        | 1.26          | -0.89         | 23.357     | 15.257     |
| 2420                     | 37.65       | -4.24        | 1.18          | -0.97         | 22.838     | 14.816     |
| 2430                     | 39.46       | -4.04        | 1.45          | -0.7          | 24.101     | 15.361     |
| 2440                     | 41.07       | -3.86        | 1.63          | -0.52         | 25.263     | 15.812     |
| 2450                     | 39.8        | -4           | 1.46          | -0.69         | 24.751     | 15.047     |
| 2460                     | 38.73       | -4.12        | 1.22          | -0.93         | 24.352     | 14.376     |
| 2470                     | 40.76       | -3.9         | 1.31          | -0.84         | 25.911     | 14.847     |
| 2480                     | 40.32       | -3.94        | 1.17          | -0.98         | 25.889     | 14.432     |
| 2490                     | 38.67       | -4.13        | 0.93          | -1.22         | 25.09      | 13.584     |
| 2500                     | 37.5        | -4.26        | 0.68          | -1.47         | 24.671     | 12.832     |

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Efficiency Table (ANT1 5G) MAIN ANT

| Passive Test For WIFI5G |             |              |               |               |            |            |
|-------------------------|-------------|--------------|---------------|---------------|------------|------------|
| Freq<br>(MHz)           | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) | Gain<br>(dBd) | UHS<br>(%) | DHS<br>(%) |
| 5150                    | 29.22       | -5.34        | 1.12          | -1.03         | 14.245     | 14.975     |
| 5170                    | 27.01       | -5.68        | 1.03          | -1.12         | 12.931     | 14.078     |
| 5190                    | 32.61       | -4.87        | 2.06          | -0.09         | 15.373     | 17.238     |
| 5210                    | 31.17       | -5.06        | 2.22          | 0.07          | 14.597     | 16.576     |
| 5230                    | 33.09       | -4.8         | 2.69          | 0.54          | 15.563     | 17.526     |
| 5250                    | 38.04       | -4.2         | 3.47          | 1.32          | 18.258     | 19.784     |
| 5270                    | 38.17       | -4.18        | 3.45          | 1.3           | 19.015     | 19.159     |
| 5290                    | 44.73       | -3.49        | 4.06          | 1.91          | 23.159     | 21.571     |
| 5310                    | 37.68       | -4.24        | 3.42          | 1.27          | 19.997     | 17.678     |
| 5330                    | 40          | -3.98        | 3.77          | 1.62          | 21.859     | 18.144     |
| 5350                    | 40.97       | -3.88        | 3.8           | 1.65          | 22.842     | 18.126     |
| 5370                    | 40.15       | -3.96        | 3.61          | 1.46          | 22.655     | 17.491     |
| 5390                    | 37.81       | -4.22        | 3.22          | 1.07          | 21.437     | 16.376     |
| 5410                    | 44.05       | -3.56        | 3.98          | 1.83          | 24.65      | 19.397     |
| 5430                    | 41.53       | -3.82        | 3.68          | 1.53          | 22.871     | 18.663     |
| 5450                    | 44.88       | -3.48        | 3.82          | 1.67          | 24.654     | 20.228     |
| 5470                    | 42.68       | -3.7         | 3.47          | 1.32          | 23.095     | 19.582     |
| 5490                    | 41.78       | -3.79        | 3.57          | 1.42          | 22.219     | 19.564     |
| 5510                    | 44.83       | -3.48        | 3.95          | 1.8           | 23.383     | 21.443     |
| 5530                    | 43.81       | -3.58        | 3.95          | 1.8           | 22.596     | 21.214     |
| 5550                    | 48.2        | -3.17        | 4.23          | 2.08          | 24.957     | 23.242     |
| 5570                    | 44.49       | -3.52        | 4.02          | 1.87          | 22.877     | 21.614     |
| 5590                    | 44.19       | -3.55        | 4.09          | 1.94          | 22.362     | 21.827     |
| 5610                    | 42.81       | -3.68        | 3.88          | 1.73          | 21.797     | 21.01      |
| 5630                    | 39.16       | -4.07        | 3.32          | 1.17          | 20.054     | 19.107     |
| 5650                    | 42.67       | -3.7         | 3.62          | 1.47          | 21.994     | 20.681     |
| 5670                    | 43.13       | -3.65        | 3.55          | 1.4           | 21.947     | 21.186     |
| 5690                    | 39.32       | -4.05        | 3.32          | 1.17          | 19.942     | 19.376     |
| 5710                    | 40.89       | -3.88        | 3.69          | 1.54          | 20.871     | 20.018     |
| 5730                    | 40.68       | -3.91        | 3.83          | 1.68          | 20.977     | 19.7       |
| 5750                    | 37.75       | -4.23        | 3.45          | 1.3           | 19.622     | 18.128     |
| 5770                    | 40.91       | -3.88        | 3.7           | 1.55          | 21.423     | 19.485     |
| 5790                    | 37.78       | -4.23        | 3.16          | 1.01          | 19.962     | 17.819     |
| 5810                    | 41.29       | -3.84        | 3.41          | 1.26          | 22.278     | 19.009     |
| 5830                    | 42.47       | -3.72        | 3.47          | 1.32          | 23.212     | 19.254     |
| 5850                    | 45.54       | -3.42        | 3.68          | 1.53          | 24.98      | 20.564     |

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Efficiency Table (ANT2 5G) AUX ANT

| Passive Test For WIFI5G |             |              |               |               |            |            |
|-------------------------|-------------|--------------|---------------|---------------|------------|------------|
| Freq<br>(MHz)           | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) | Gain<br>(dBd) | UHS<br>(%) | DHS<br>(%) |
| 5150                    | 28.51       | -5.45        | -1.04         | -3.19         | 16.361     | 12.15      |
| 5170                    | 26.44       | -5.78        | -1.22         | -3.37         | 15.143     | 11.299     |
| 5190                    | 27.68       | -5.58        | -0.79         | -2.94         | 15.945     | 11.735     |
| 5210                    | 26.16       | -5.82        | -0.72         | -2.87         | 15.139     | 11.02      |
| 5230                    | 28.89       | -5.39        | -0.04         | -2.19         | 16.736     | 12.158     |
| 5250                    | 28.86       | -5.4         | 0.12          | -2.03         | 16.74      | 12.115     |
| 5270                    | 32.21       | -4.92        | 0.85          | -1.3          | 18.752     | 13.46      |
| 5290                    | 31.01       | -5.08        | 0.91          | -1.24         | 18.098     | 12.915     |
| 5310                    | 31.64       | -5           | 1.29          | -0.86         | 18.478     | 13.164     |
| 5330                    | 31.47       | -5.02        | 1.34          | -0.81         | 18.295     | 13.174     |
| 5350                    | 33.2        | -4.79        | 1.48          | -0.67         | 19.277     | 13.922     |
| 5370                    | 33.2        | -4.79        | 1.38          | -0.77         | 19.268     | 13.932     |
| 5390                    | 31.36       | -5.04        | 1.03          | -1.12         | 18.068     | 13.29      |
| 5410                    | 30.59       | -5.14        | 0.89          | -1.26         | 17.414     | 13.179     |
| 5430                    | 26.43       | -5.78        | 0.19          | -1.96         | 14.998     | 11.435     |
| 5450                    | 28.59       | -5.44        | 0.5           | -1.65         | 16.21      | 12.382     |
| 5470                    | 29.33       | -5.33        | 0.58          | -1.57         | 16.593     | 12.741     |
| 5490                    | 31.86       | -4.97        | 0.89          | -1.26         | 18.046     | 13.81      |
| 5510                    | 31.54       | -5.01        | 0.7           | -1.45         | 17.93      | 13.611     |
| 5530                    | 32.95       | -4.82        | 0.67          | -1.48         | 18.845     | 14.104     |
| 5550                    | 30.46       | -5.16        | 0.09          | -2.06         | 17.44      | 13.018     |
| 5570                    | 31.67       | -4.99        | 0.1           | -2.05         | 18.231     | 13.437     |
| 5590                    | 32.57       | -4.87        | 0.2           | -1.95         | 18.813     | 13.762     |
| 5610                    | 30.7        | -5.13        | -0.07         | -2.22         | 17.836     | 12.867     |
| 5630                    | 32.94       | -4.82        | 0.34          | -1.81         | 19.078     | 13.865     |
| 5650                    | 27.33       | -5.63        | -0.37         | -2.52         | 15.829     | 11.497     |
| 5670                    | 34.14       | -4.67        | 0.78          | -1.37         | 19.774     | 14.369     |
| 5690                    | 28.26       | -5.49        | -0.06         | -2.21         | 16.31      | 11.952     |
| 5710                    | 33.65       | -4.73        | 0.61          | -1.54         | 19.4       | 14.252     |
| 5730                    | 26.38       | -5.79        | -0.42         | -2.57         | 15.12      | 11.26      |
| 5750                    | 29.78       | -5.26        | 0.01          | -2.14         | 17.116     | 12.664     |
| 5770                    | 30.06       | -5.22        | 0.23          | -1.92         | 17.187     | 12.872     |
| 5790                    | 31.59       | -5           | 0.67          | -1.48         | 18.186     | 13.407     |
| 5810                    | 29.92       | -5.24        | 0.43          | -1.72         | 17.268     | 12.648     |
| 5830                    | 28.58       | -5.44        | 0.27          | -1.88         | 16.59      | 11.991     |
| 5850                    | 29.5        | -5.3         | 0.41          | -1.74         | 17.098     | 12.398     |

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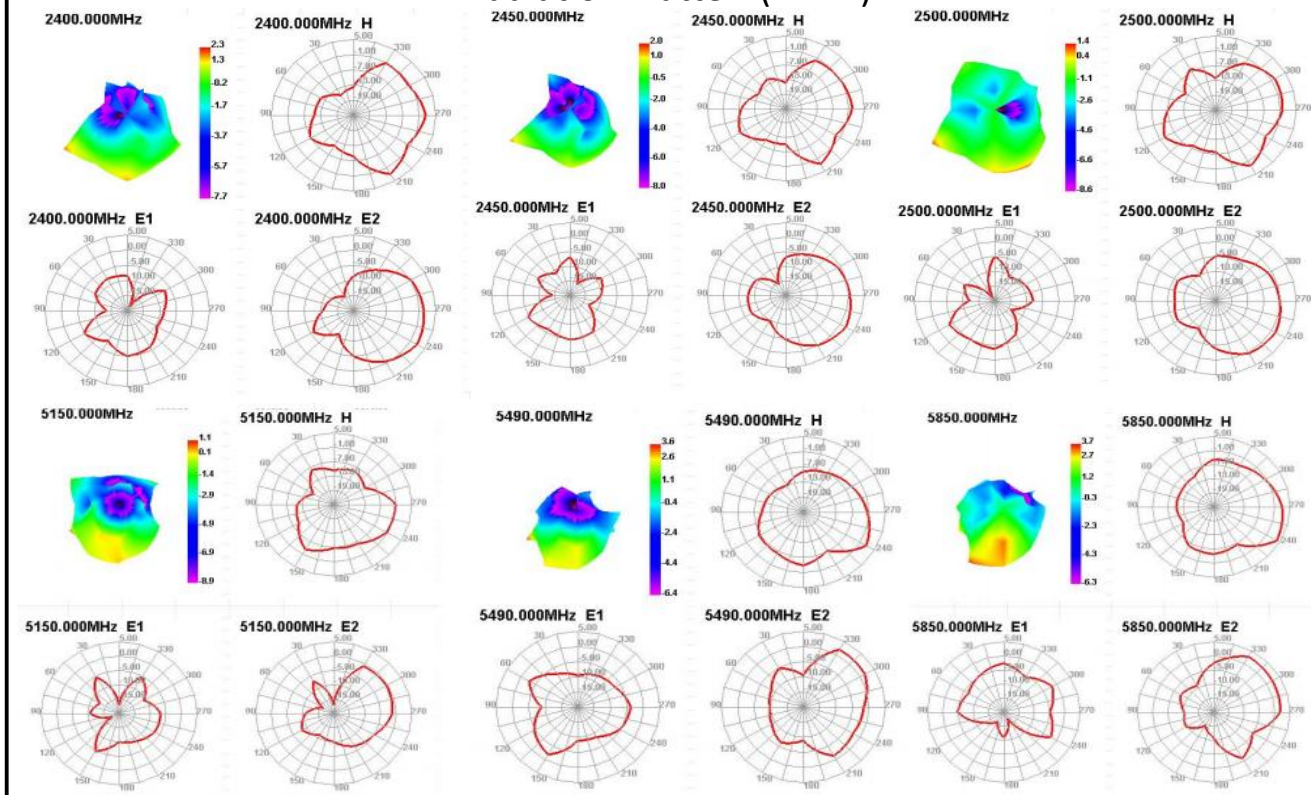


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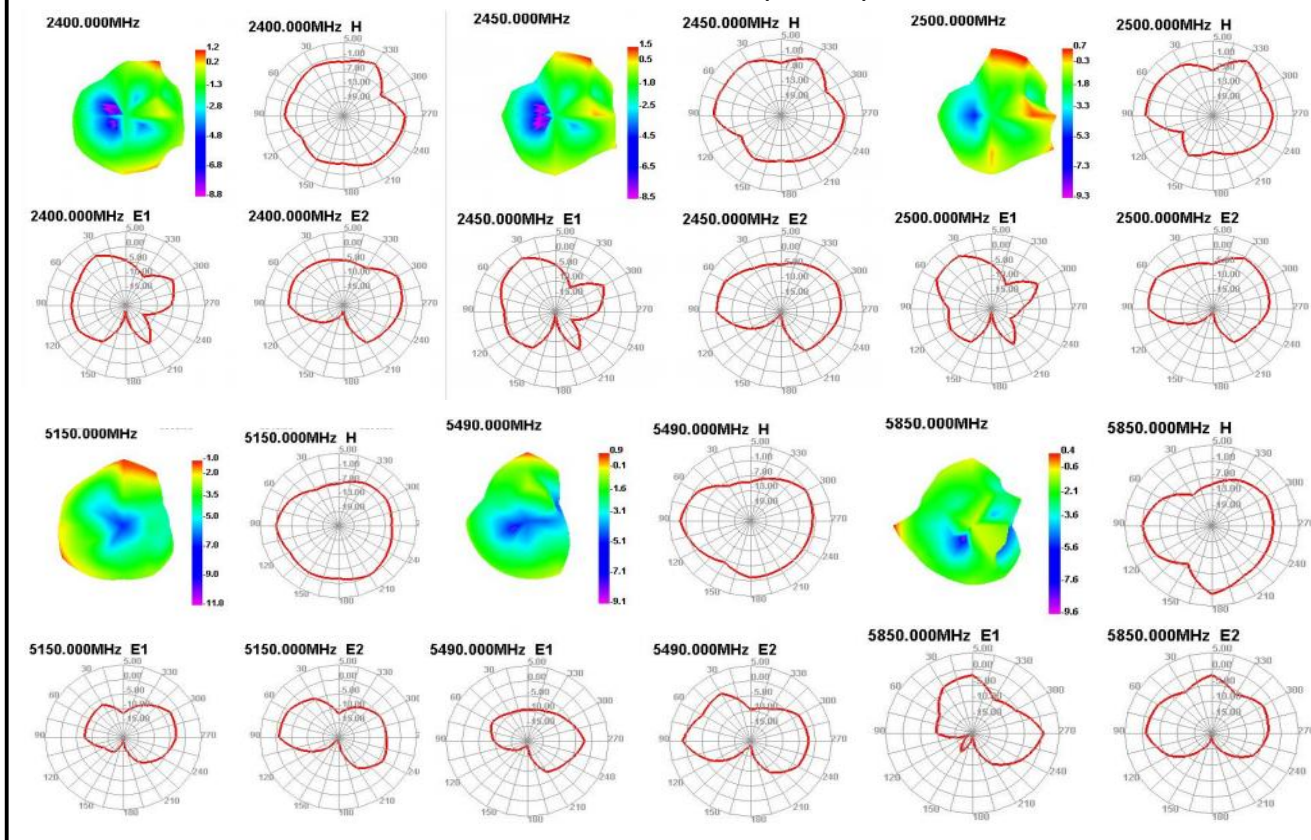
ANTENNA

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### Radiation Pattern(ANT1)



### Radiation Pattern(ANT2)



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### WiFi Active Test Data

| 802.11b | Frequency | TRP          |       | TIS          |        |
|---------|-----------|--------------|-------|--------------|--------|
|         | 2412      | CH1 11Mbps   | 12.81 | CH1 11Mbps   | -78.06 |
|         | 2437      | CH6 11Mbps   | 13.10 | CH6 11Mbps   | -78.83 |
|         | 2467      | CH11 11Mbps  | 13.13 | CH11 11Mbps  | -77.40 |
| 802.11a |           | TRP          |       | TIS          |        |
|         | 5180      | CH36 54Mbps  | 10.87 | CH36 54Mbps  | -70.17 |
|         | 5300      | CH60 54Mbps  | 11.59 | CH60 54Mbps  | -71.31 |
|         | 5805      | CH161 54Mbps | 11.21 | CH161 54Mbps | -71.84 |

### WiFi/BT Measured

| 热点列表           |                   |     |      |     |     |    | MAC | AP |
|----------------|-------------------|-----|------|-----|-----|----|-----|----|
| 名称             | 设备                | 强度  | 频率   | 信道  | 带宽  | 标准 |     |    |
| XYC2025        | c4:b2:5b:28:ee:de | -40 | 5745 | 149 | 80  | 5  |     |    |
|                | c4:b2:5b:29:29:ef | -51 | 5260 | 52  | 80  | 5  |     |    |
|                | c6:b2:5b:89:29:ef | -55 | 2412 | 1   | 20  | 4  |     |    |
|                | c6:b2:5b:88:ee:de | -57 | 2412 | 1   | 40  | 4  |     |    |
| <HiddenSSID>   | 72:85:c4:d3:7d:ad | -40 | 5300 | 60  | 80  | 6  |     |    |
| <HiddenSSID>   | 72:85:c4:53:7d:ad | -42 | 2437 | 6   | 20  | 6  |     |    |
| XYC2023        | 70:85:c4:73:7d:ad | -43 | 2437 | 6   | 20  | 6  |     |    |
| XYC2023_5G     | 72:85:c4:93:7d:ad | -43 | 5300 | 60  | 80  | 6  |     |    |
| ChinaNet-2jvE  | TIANYI COMHEART   | -44 | 2452 | 9   | 20  | 4  |     |    |
| <HiddenSSID>   | c6:b2:5b:59:29:ef | -49 | 5260 | 52  | 80  | 5  |     |    |
| @PHICOMM_60    | Phicomm           | -58 | 2427 | 4   | 20  | 4  |     |    |
| XYC2025-1      | TP-LINK           | -59 | 2442 | 7   | 40  | 4  |     |    |
| NETGEAR95      | 6c:cd:d6:07:22:e8 | -60 | 2457 | 10  | 20  | 6  |     |    |
| XYC2025-5G     | TP-LINK           | -70 | 5220 | 44  | 80  | 5  |     |    |
| C608_5G        | 90:fb:5d:79:6e:22 | -77 | 5180 | 36  | 160 | 7  |     |    |
| @PHICOMM_60_5G | Phicomm           | -78 | 5220 | 44  | 40  | 5  |     |    |
| C608           | 90:fb:5d:79:6e:21 | -79 | 2462 | 11  | 20  | 7  |     |    |

#### WIFI

测试环境：开放空间

测试工具：Wifi Analytical Assistant

测试距离：10/m

信号强度：2.4G :-43dBm 5G:-43dBm

测试结果如右图

#### BT

测试环境：开放空间(通道)

测试工具：蓝牙音响

测试距离：10/m

结果：播放音乐流畅，无杂音。

地址：深圳市宝安区沙井街道马安山社区马安山锦胜财富广场C栋610-614

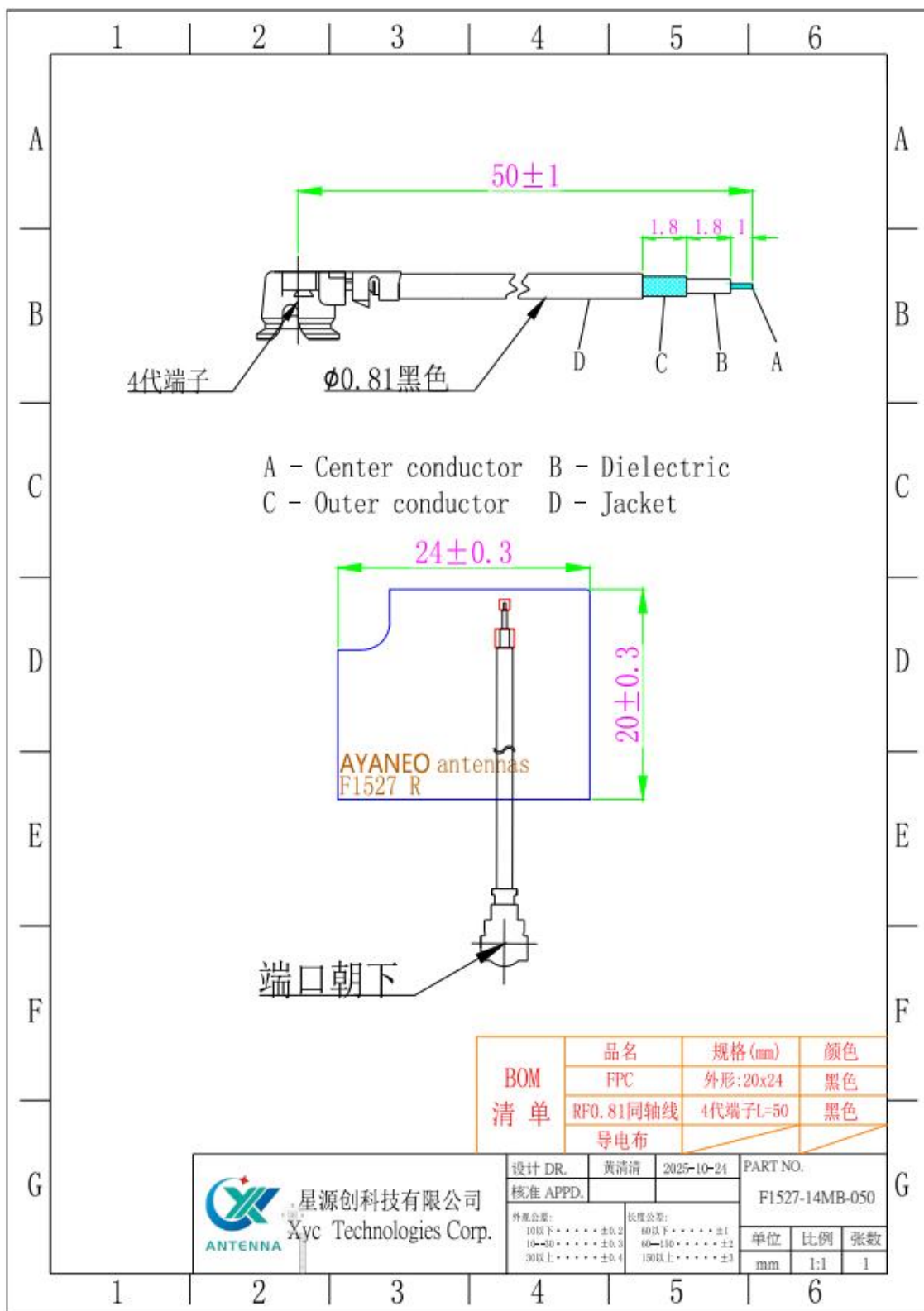
Address: Room 610-614, Building C, Ma 'anshan Jinsheng Fortune Plaza, Ma 'anshan Community, Shajing Sub-district, Bao 'an District, Shenzhen City Tel: 0755-82103639 QQ: 487580356 Email: Stephdeng\_Vis@126.com



深圳市星源创科技有限公司

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## Antenna Assembly



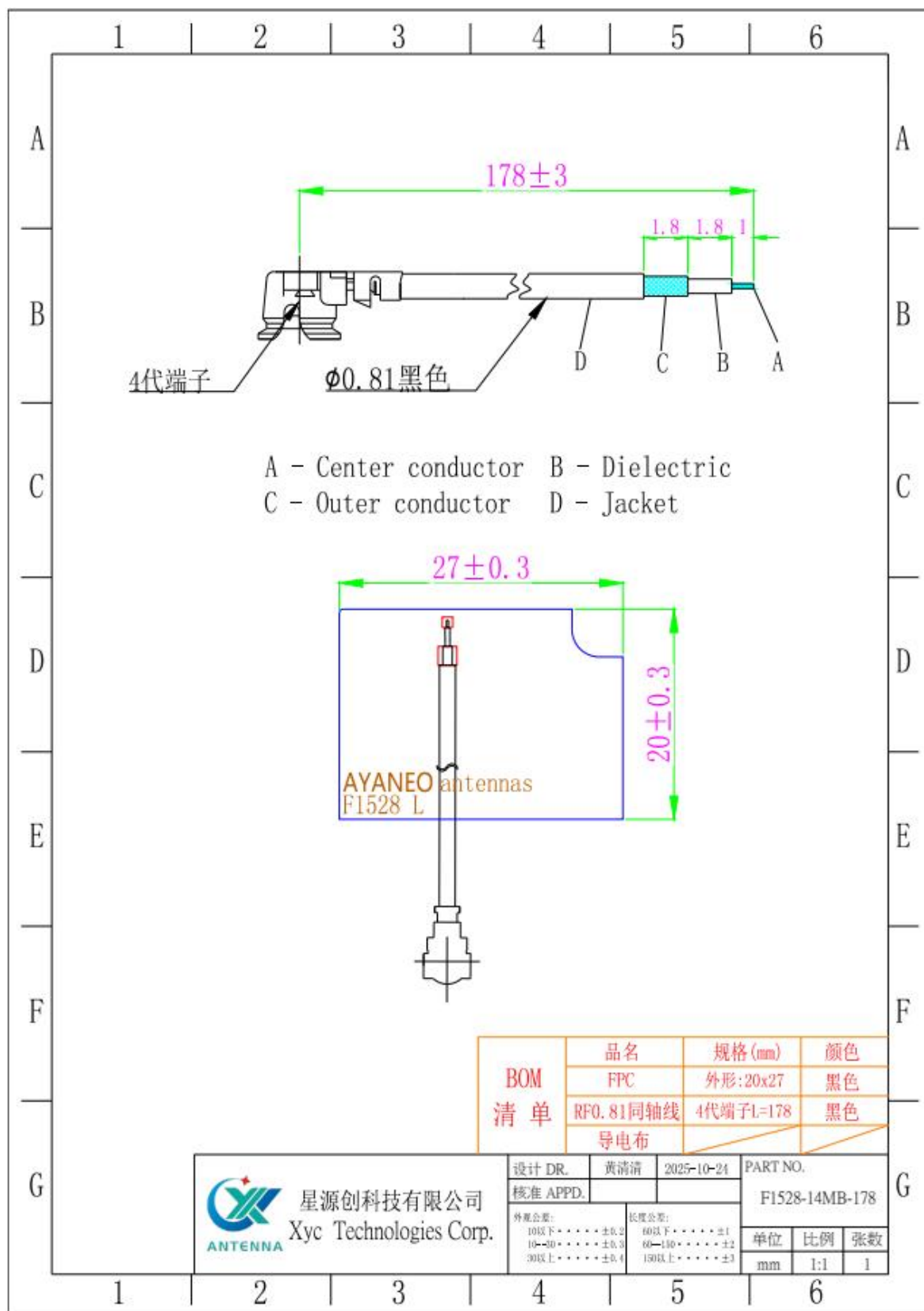
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