

## 样品承认规格书

### PART SHEET FOR APPROVAL

|                            |                                                   |
|----------------------------|---------------------------------------------------|
| 制造商名称:<br>Manufacturer:    | 深圳顶益电子有限公司<br>ShenZhen TipTop Electronic Co.,Ltd. |
| 供应商名称<br>Supplier::        | 深圳顶益电子有限公司<br>ShenZhen TipTop Electronic Co.,Ltd. |
| 产品名称:<br>Part Description: | 2.4G/5GHz PCB 天线<br>2.4G/5GHz PCB ANT             |
| 规格型号:<br>Model No:         | DV8935-PCB-B                                      |
| 物料编码:<br>Cust P/N:         |                                                   |
| 日期:<br>Issued Date:        | 2021.06.29                                        |

供应商确认 Supplier confirmation

|            |             |             |
|------------|-------------|-------------|
| 承办 Made By | 审核 Engineer | 批准 Approver |
| 肖凡         | 柏礼祥         | 柏礼祥         |

华曦达确认 SDMC confirmation

|                           |                                                                                    |        |             |
|---------------------------|------------------------------------------------------------------------------------|--------|-------------|
| 承认原因:<br>Approval Reason: | <input type="checkbox"/> 新物料 New Part <input type="checkbox"/> 替代料 Substitute Part |        |             |
| 承办 Made By                | 审核 Engineer                                                                        |        | 批准 Approver |
|                           | 品质 Quality                                                                         | 研发 R&D | 业务 Sales    |
|                           |                                                                                    |        |             |

备注: 签名表明提交样品获得承认, 图纸规格已经受控。Note: Signature indicates that the submitted sample is approved and the drawing/specification is now the controlling document.

地址: 深圳市南山区高新科技园科技南十二路 18 号长虹科技大厦 19 层  
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深圳顶益电子有限公司



深圳市亿嘉欣盛科技有限公司

## 产 品 承 认 书

客 户： 华曦达

物料编码：

品 名： DV8935-PCB-B

规 格： WIFI-B: 35.00\*12.20\*0.40mm, 油墨绿色, 丝印白色字符: YJXS-DV8935-B, 线长 100mm+一代端子,  $\phi 1.13\text{mm}$ , 黑色, 背面带 3M 胶+离型纸手撕位。

日 期： 2021-06-29

客户确认/日期

地址:深圳市光明区公明街道冠城低碳产业园 G 栋 8 楼 B 区

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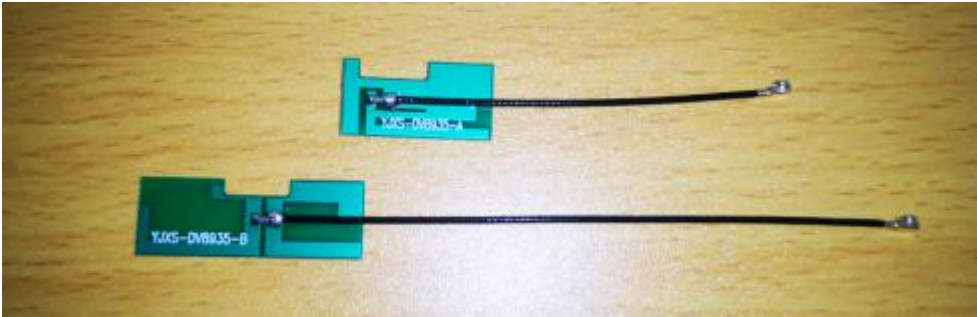
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1. 承认书概述

该承认书描述了华曦达 DV8935-PCB-B 的 WIFI 天线状况，其频段为 **2.4G/5GHz**，厂家为深圳顶益电子有限公司。

2. 外观

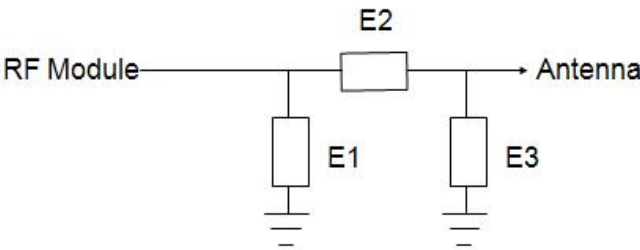


3. 电性能

3.1 天线频段

| 发射/接收频段<br>(Hz) | WIFI      |           |
|-----------------|-----------|-----------|
|                 | 2.4G~2.5G | 5.1G~5.9G |

3.2 匹配电路

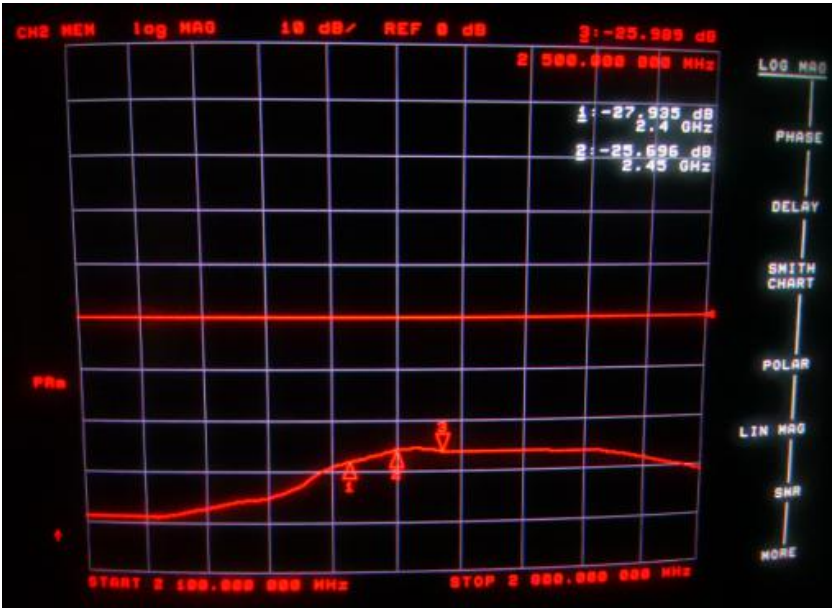


| Element  | Value |
|----------|-------|
| E1(0402) | 原匹配   |
| E2(0402) | 原匹配   |
| E3(0402) | 原匹配   |

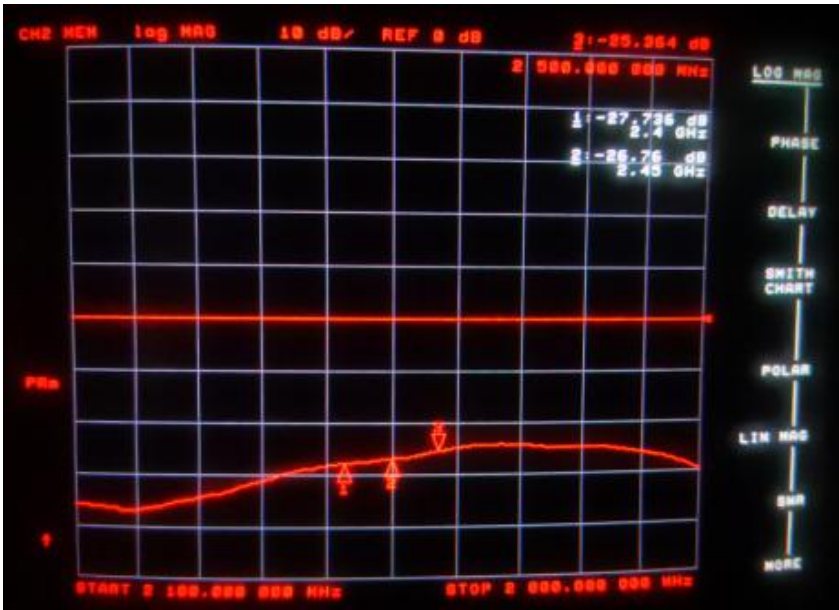
3.3 阻抗要求

50 ohm

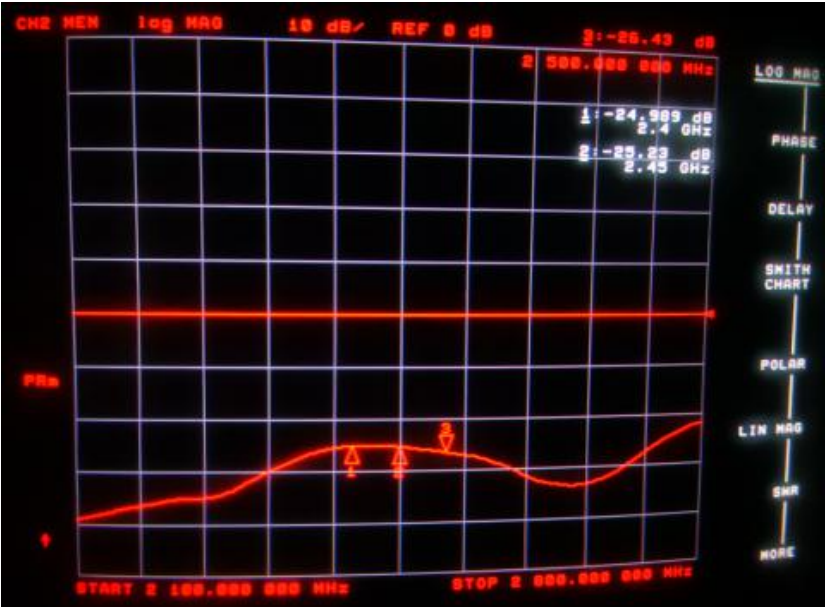
3.4 隔离度:



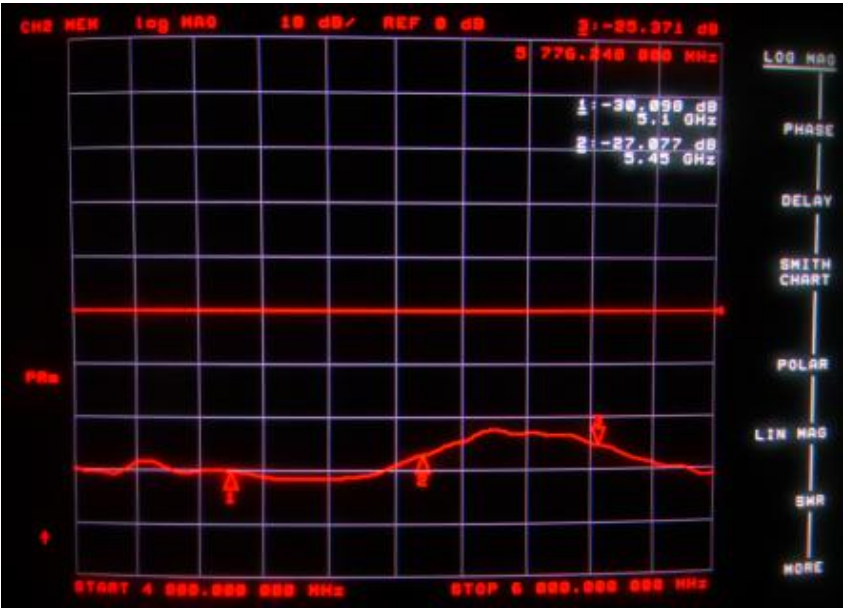
WIFI-A 与 BT 的隔离度\_2.4GHz



WIFI-B 与 BT 的隔离度\_2.4GHz



WIFI-A 与 WIFI-B 的隔离度\_2.4GHz

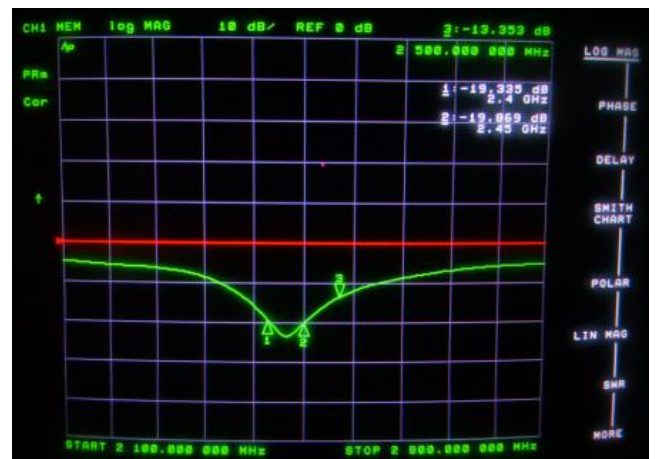
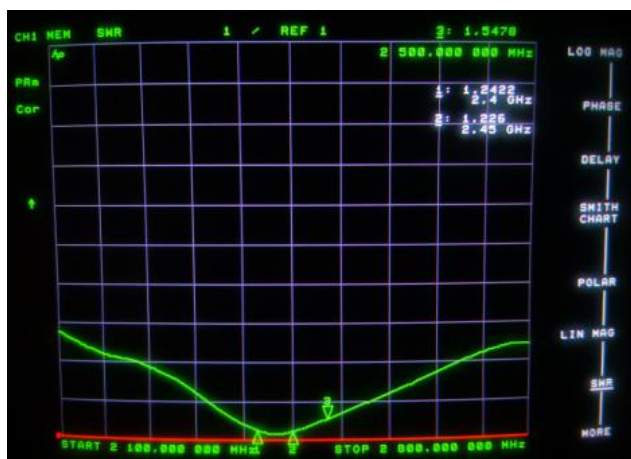


WIFI-A 与 WIFI-B 的隔离度\_5GHz

3.5 无源测试数据:  
WIFI-B 2.4G 数据:

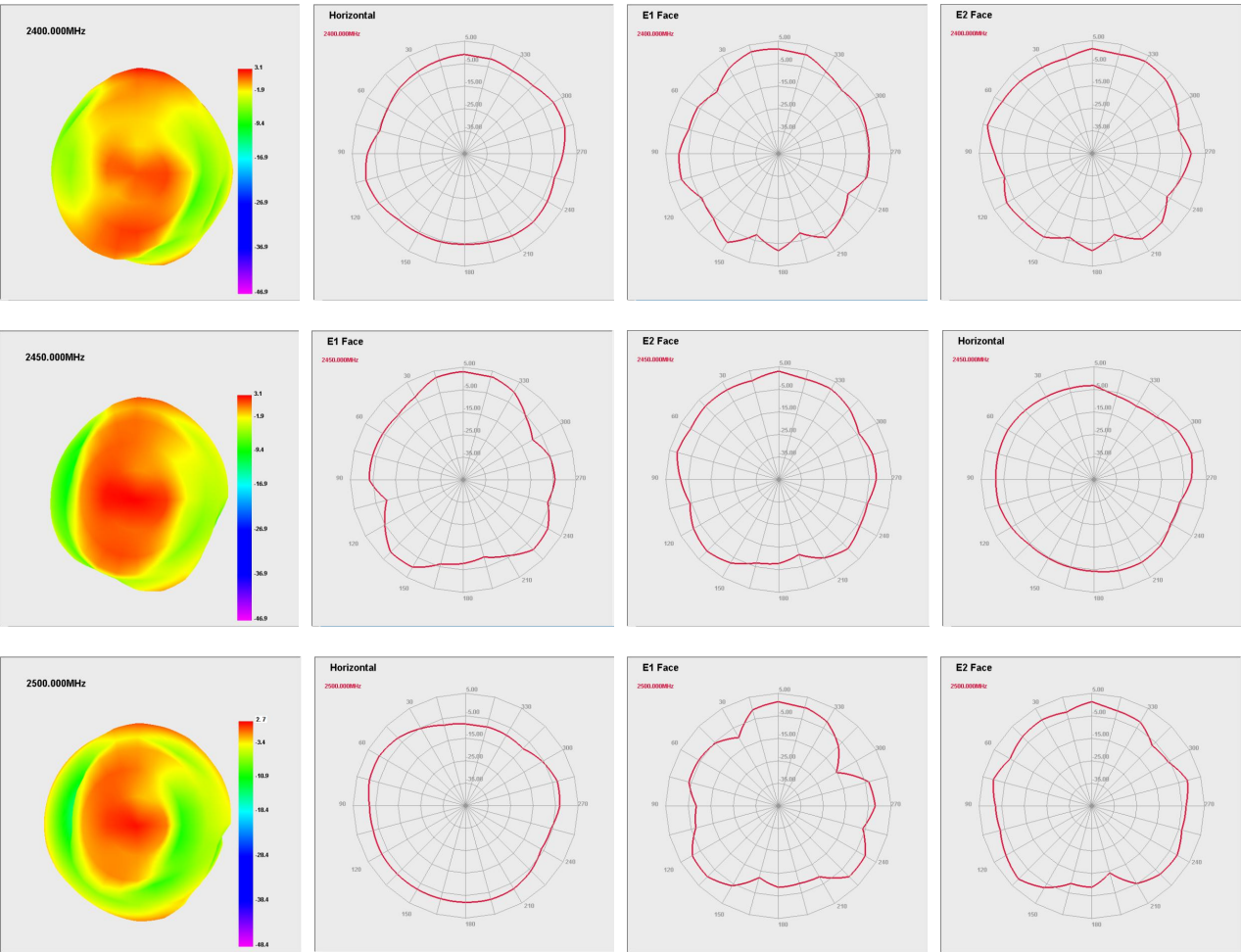
| Electrical Properties |                  |
|-----------------------|------------------|
| Frequency             | 2.4GHz-2.5GHz    |
| Impedance             | 50 ohm Nominal   |
| V. S. W. R            | 1: 1.22 Max      |
| Return Loss           | -19.86dB Max     |
| Radiation             | Omni-directional |
| Polarization          | Linear, Vertical |

VSWR&Return Loss&Smith Chart:



效率、增益、方向性:

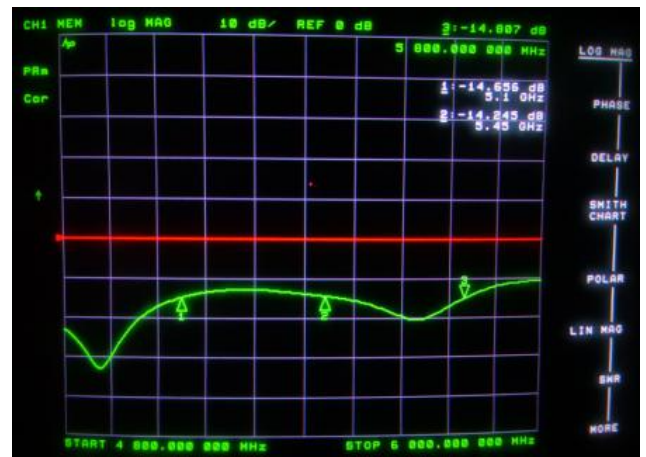
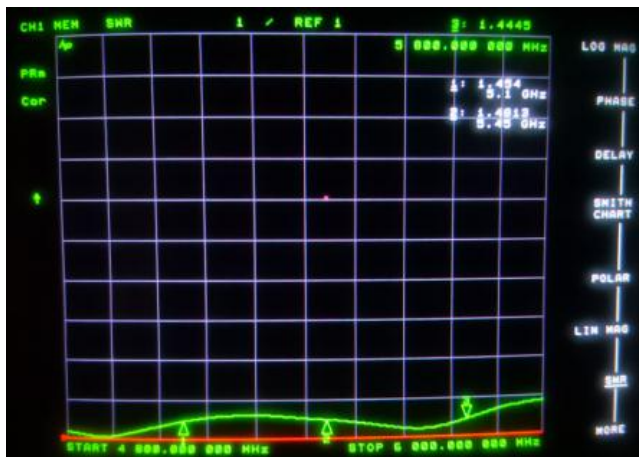
| Passive Test For 2.4G-WIFI |       |       |       |        |        |      |        |
|----------------------------|-------|-------|-------|--------|--------|------|--------|
| Freq                       | Effi  | Gain  | Gain  | UHS    | DHIS   | Max  | Min    |
| (MHz)                      | (%)   | (dBi) | (dBd) | (%)    | (%)    | (dB) | (dB)   |
| 2400                       | 62.34 | 3.05  | 0.90  | 31.435 | 28.462 | 3.05 | -21.11 |
| 2450                       | 63.27 | 3.09  | 0.94  | 32.462 | 26.468 | 3.09 | -15.99 |
| 2500                       | 59.61 | 2.71  | 0.56  | 33.158 | 29.135 | 2.71 | -17.84 |



WIFI-B 5G 数据:

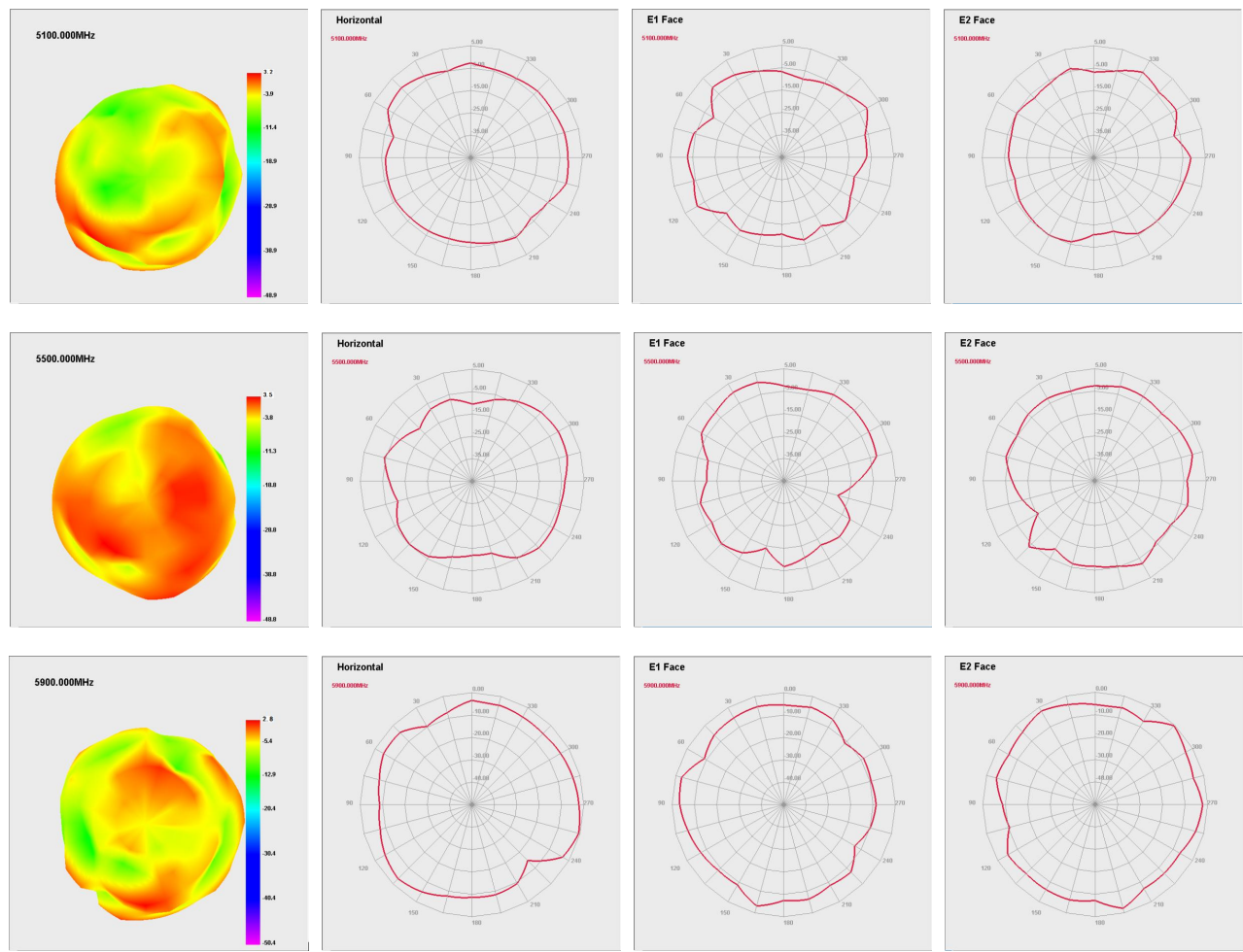
| Electrical Properties |                  |
|-----------------------|------------------|
| Frequency             | 5.1GHz-5.9GHz    |
| Impedance             | 50 ohm Nominal   |
| V. S. W. R            | 1: 1.44 Max      |
| Return Loss           | -14.80dB Max     |
| Radiation             | Omni-directional |
| Polarization          | Linear, Vertical |

VSWR&amp;Return Loss&amp;Smith Chart:



效率、增益、方向性：

| Passive Test For 5G-WIFI |       |       |       |        |        |      |        |
|--------------------------|-------|-------|-------|--------|--------|------|--------|
| Freq                     | Effi  | Gain  | Gain  | UHS    | DHIS   | Max  | Min    |
| (MHz)                    | (%)   | (dBi) | (dBd) | (%)    | (%)    | (dB) | (dB)   |
| 5100                     | 62.13 | 3.21  | 1.06  | 22.134 | 17.284 | 3.21 | -21.19 |
| 5500                     | 63.11 | 3.50  | 1.35  | 23.258 | 19.462 | 3.50 | -16.24 |
| 5900                     | 58.46 | 2.82  | 0.67  | 24.139 | 18.437 | 0.82 | -21.53 |



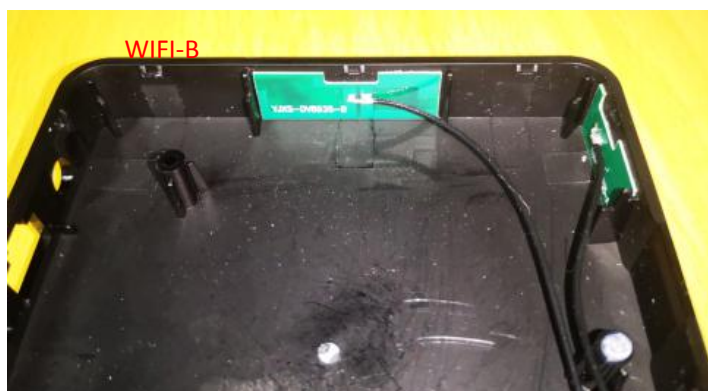
## 3.6 吞吐量测试数据:

注：测试条件为吸波暗室、1.5米、单向10条流、打流30秒，数据取2次或3次测量的最大值（吸波暗室多次测量值非常接近），单位Mbps。

详细测试数据如下：

|         | 角度   | 0     | 30    | 60    | 90    | 120   | 150   | 180   | 210   | AVERAGE | 不圆度   |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-------|
| 加10dB衰减 | 2.4G |       |       |       |       |       |       |       |       |         |       |
|         | RI   | 118.6 | 121.5 | 117.9 | 119.7 | 117.8 | 124.6 | 119.8 | 121.4 | 120.2   | 0.019 |
|         | TX   | 112.5 | 113.4 | 114.1 | 109.8 | 107.6 | 111.4 | 114.2 | 108.6 | 111.5   | 0.023 |
|         | 5G   |       |       |       |       |       |       |       |       |         |       |
|         | RI   | 389.5 | 395.8 | 400.2 | 401.4 | 398.5 | 391.6 | 406.2 | 402.7 | 398.2   | 0.014 |
|         | TX   | 385.3 | 393.8 | 382.4 | 389.5 | 397.4 | 385.6 | 381.4 | 391.2 | 388.3   | 0.014 |
| 加20dB衰减 | 2.4G |       |       |       |       |       |       |       |       |         |       |
|         | RI   | 91.3  | 81.4  | 95.2  | 88.4  | 86.7  | 89.8  | 89.5  | 82.4  | 88.1    | 0.052 |
|         | TX   | 82.8  | 85.6  | 85.4  | 87.1  | 83.4  | 88.9  | 86.2  | 84    | 85.4    | 0.024 |
|         | 5G   |       |       |       |       |       |       |       |       |         |       |
|         | RI   | 302.5 | 301.9 | 307.3 | 295.4 | 301.8 | 288.7 | 296.4 | 292.4 | 298.3   | 0.021 |
|         | TX   | 291.5 | 283.5 | 284.2 | 291.5 | 285.8 | 288.7 | 291.3 | 287.5 | 288.0   | 0.011 |
| 加30dB衰减 | 2.4G |       |       |       |       |       |       |       |       |         |       |
|         | RI   | 64.2  | 61.3  | 58.9  | 60.2  | 61.4  | 59.2  | 58.7  | 59.3  | 60.4    | 0.031 |
|         | TX   | 58.9  | 58.8  | 60.4  | 61.4  | 59.7  | 61.4  | 60.3  | 59.8  | 60.1    | 0.017 |
|         | 5G   |       |       |       |       |       |       |       |       |         |       |
|         | RI   | 183.2 | 185.6 | 184.2 | 171.6 | 172.8 | 176   | 185.6 | 188.7 | 181.0   | 0.036 |
|         | TX   | 163.2 | 159.8 | 160.2 | 161.4 | 164.2 | 159.2 | 158.7 | 158.6 | 160.7   | 0.013 |

#### 4. 天线位置



## 5. 天线结构

