



深圳市星源创科技有限公司

SHENZHEN Xingyuanchuang TECHNOLOGY CO., LTD

天线测试报告

Antenna Test Report

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REV :V1. 0



ANTENNA

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测试信息

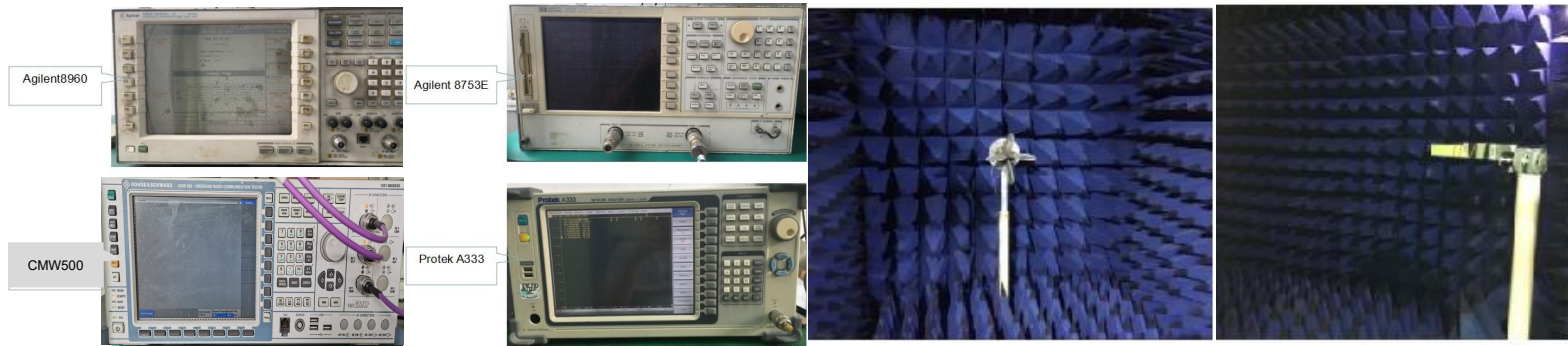
Test information

| | Antenna band | Antenna state | Antenna form | Match changes | Note |
|----------|--------------|---------------|--------------|---------------|------|
| Main ANT | 2G | | | | |
| | 3G | | | NO | |
| | 4G | | | | |
| AUX ANT | BT/WIFI | 2.4/5G | FPC | PIFA | NO |
| | GPS | | | | NO |
| | DIV | | | | NO |

测试环境

Test environment

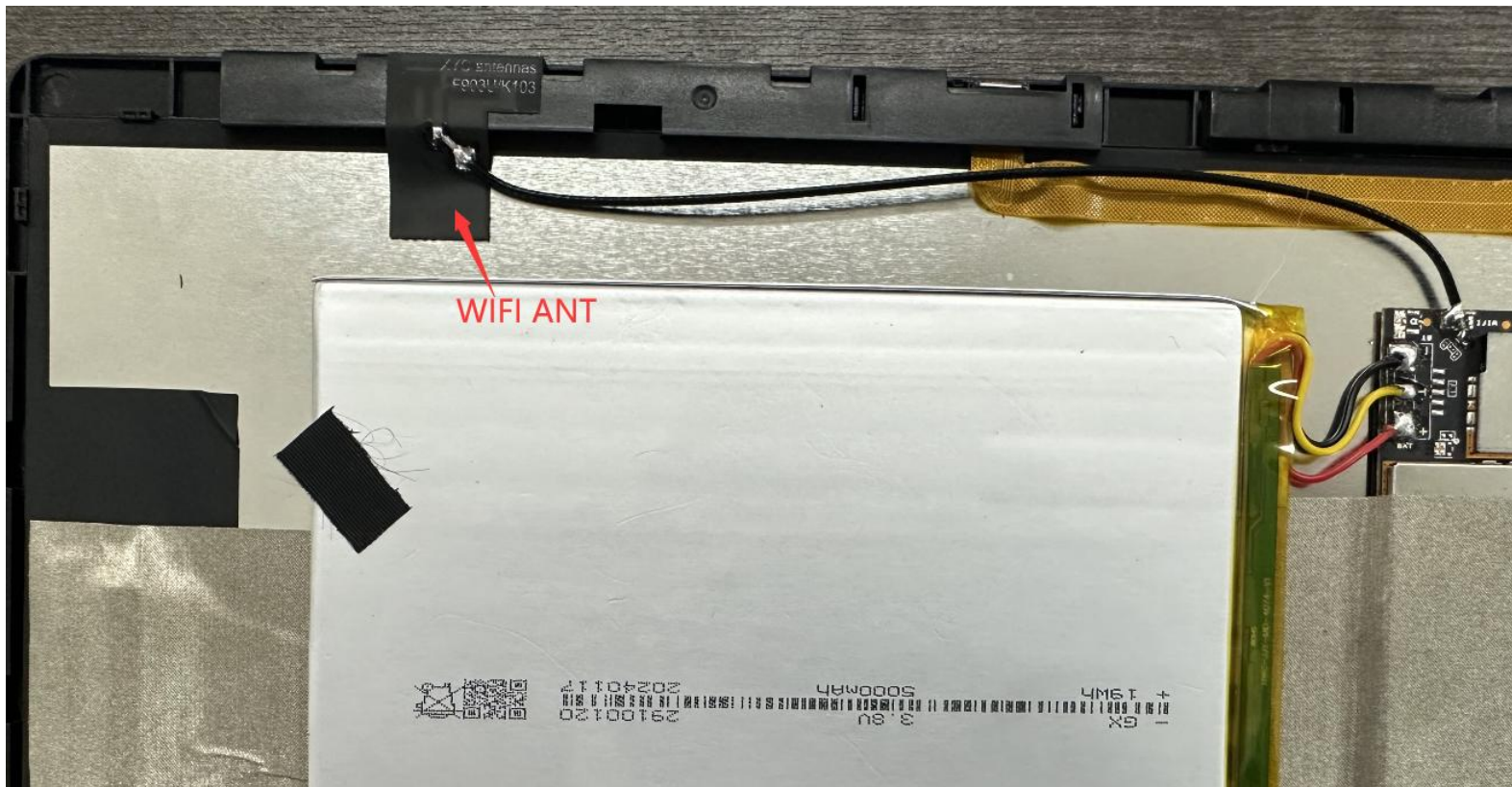
| | 测试项目 | 测试设备 |
|----------------------|---|--|
| S参数 (S-parameter) | 1. 电压驻波比 (VSWR) 2. 回波损耗 (Rrtun Loss) | 网络分析仪: Agilent8753ES |
| 2. 有源测试 (Active) | 1. 发射功率 (TRP) 2. 接收灵敏度 (TIS) 3. 屏灭/屏亮 | 1. 暗室: 5*3*3m (3D) Chamber 2. 综测仪: Agilent8960 CMW500 |
| 3. 无源测试 (Passive) | 1. 天线增益 (Gain) 2. 天线效率 (Efficiency) | 1. 暗室: 5*3*3m (3D) Chamber 2. 网络分析仪: Agilent 8753ES |





天线位置

Antenna position



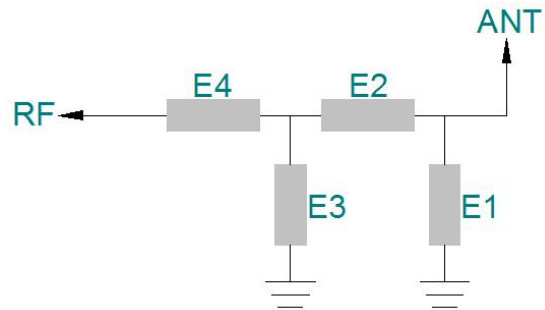


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匹配电路
Matching circuit



| | 电容 (PF) | 电感 (NH) |
|----------|---------|---------|
| E1(0402) | | |
| E2(0402) | | |
| E3(0402) | | |
| E4(0402) | | |

匹配电路原理图&位号图



有源测试数据 Active test data

| 802.11b | Frequency | TRP | | TIS | |
|---------|-------------|-------------|-------------|--------------|--------|
| | 2412 | CH1 11Mbps | 15.13 | CH1 11Mbps | -80.79 |
| 2437 | CH6 11Mbps | 16.89 | CH6 11Mbps | -81.31 | |
| 2467 | CH11 11Mbps | 16.79 | CH11 11Mbps | -81.57 | |
| 802.11a | | TRP | | TIS | |
| | 5180 | CH36 6Mbps | 14.22 | CH36 54Mbps | -70.99 |
| | 5300 | CH60 6Mbps | 14.54 | CH60 54Mbps | -71.48 |
| | 5805 | CH161 6Mbps | 13.45 | CH161 54Mbps | -70.89 |



Wifi/BT天线实测

Wifi Antenna test

WIFI

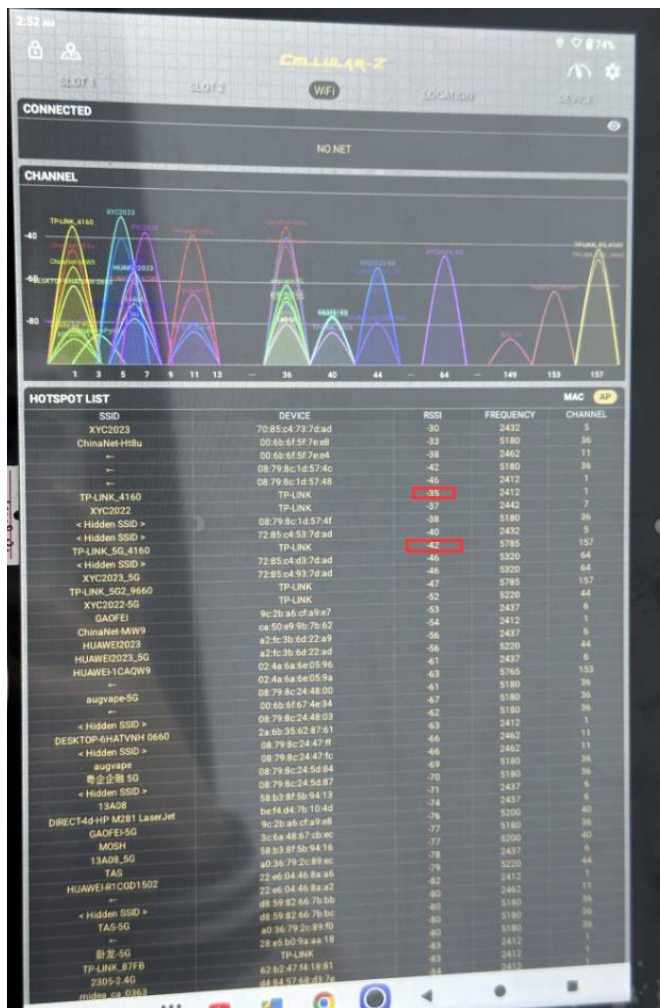
测试环境：开放空间

测试工具：Wifi Analytical Assistant

测试距离：10m

信号强度：2.4G :-35dBm 5G:-42dBm

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

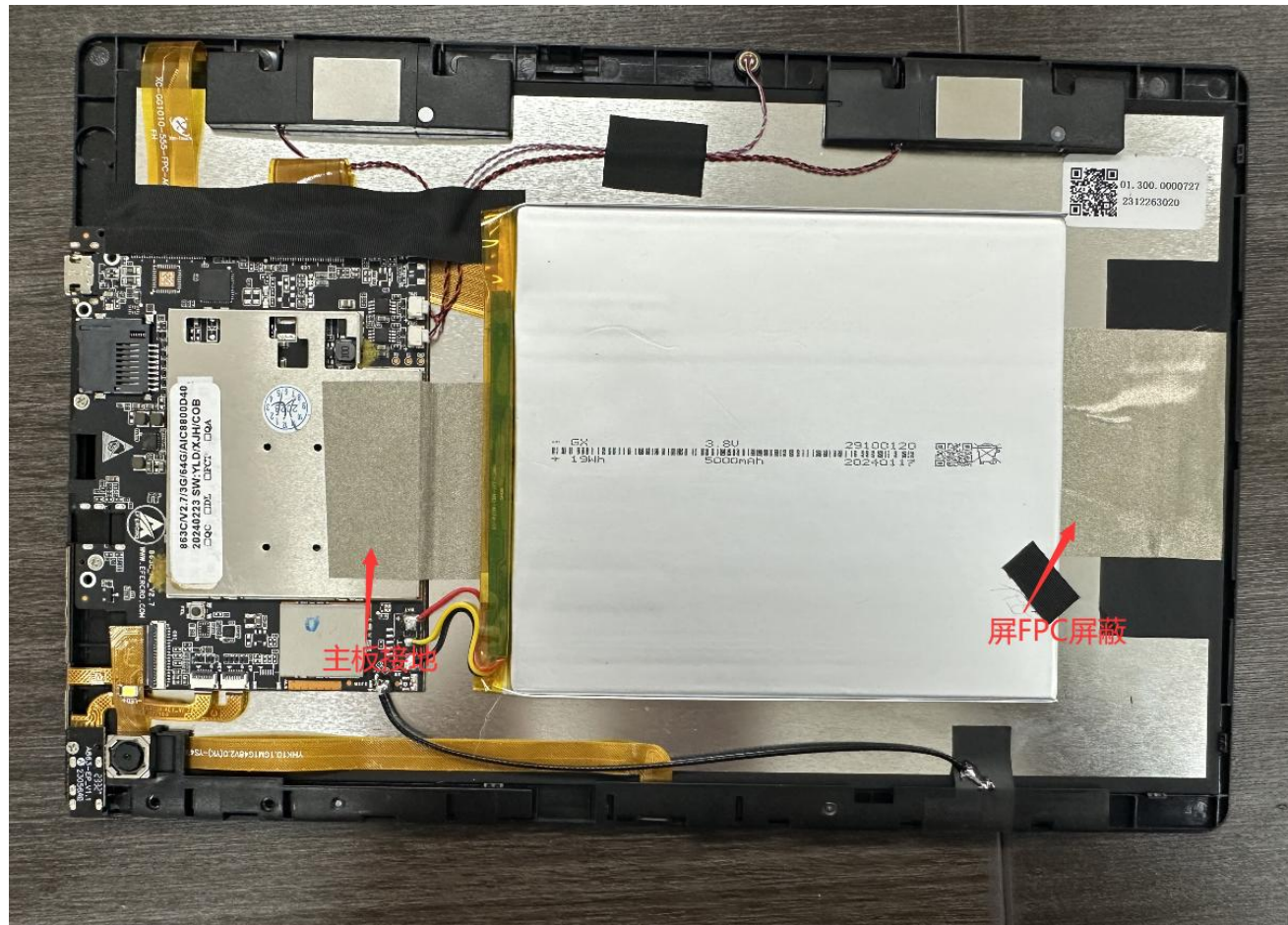
测试距离：10m

结果：播放音乐流畅，无杂音。



环境处理

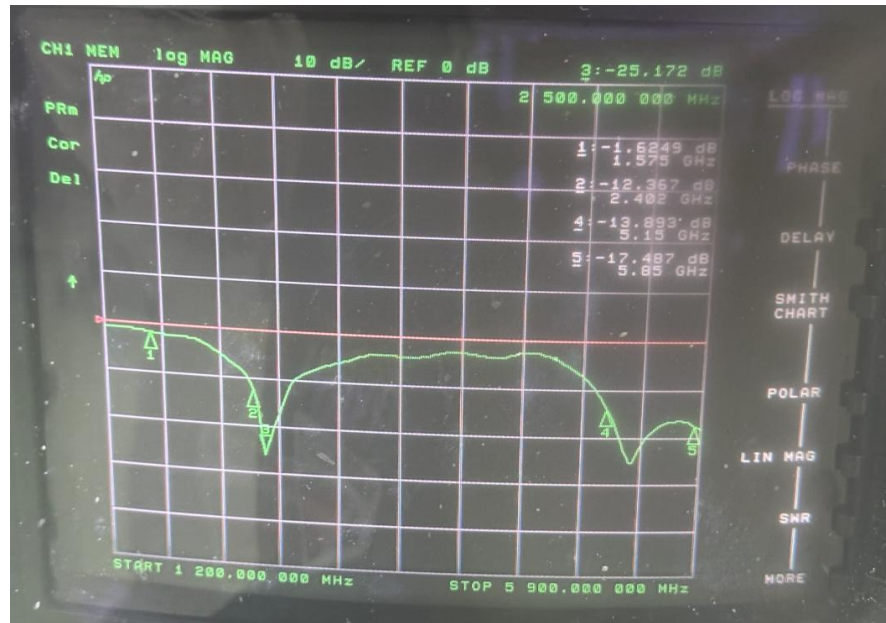
Environmental treatment





无源测试数据 Passive test data

ANT1 S11-VSWR&Return Loss



| Frequency (MHZ) | 2400 | 2500 | 5150 | 5850 |
|------------------|--------|--------|--------|--------|
| VSWR | 1.63 | 1.11 | 1.5 | 1.3 |
| Return Loss (DB) | -12.36 | -25.17 | -13.89 | -17.48 |



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无源测试数据

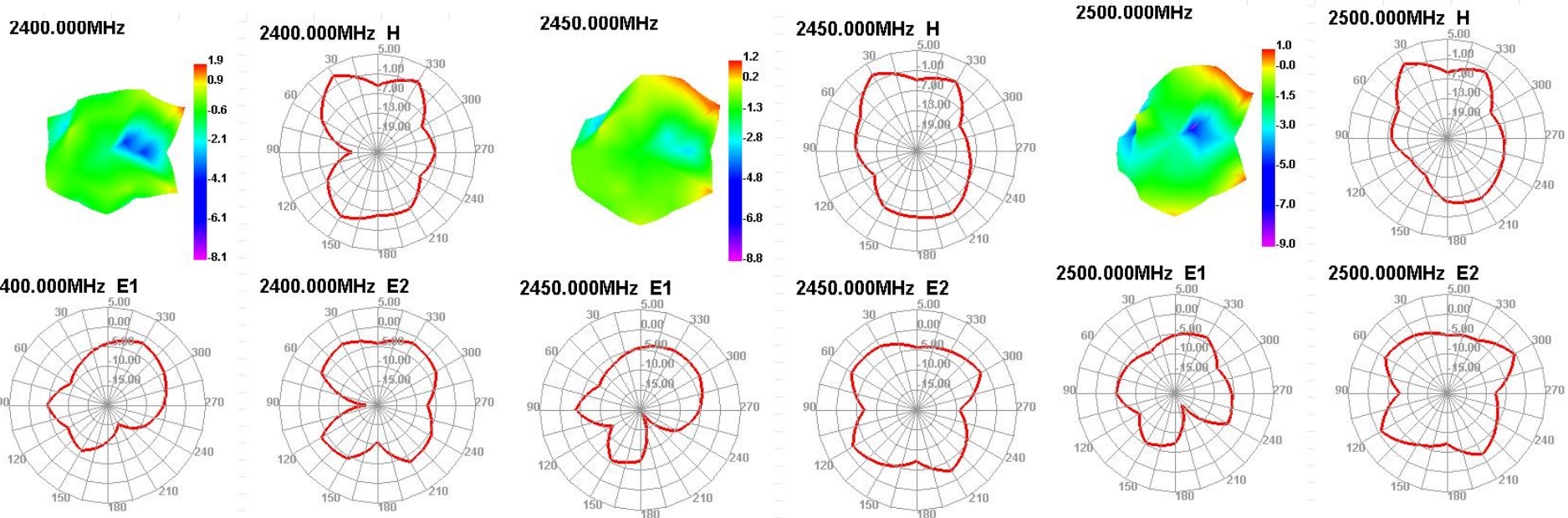
Passive test data

ANT1 GAIN&Efficiency-WIFI2.4G/BT

| Passive Test For WIFI2.4 | | | | | | | | |
|--------------------------|----------|-----------|------------|------------|---------|---------|----------|----------|
| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | UHS (%) | DHS (%) | Max (dB) | Min (dB) |
| 2400 | 41.16 | -3.86 | 1.91 | -0.24 | 24.956 | 16.206 | 1.91 | -17.36 |
| 2410 | 38.02 | -4.2 | 1.38 | -0.77 | 23.009 | 15.015 | 1.38 | -18 |
| 2420 | 39.9 | -3.99 | 1.47 | -0.68 | 24.147 | 15.756 | 1.47 | -17.4 |
| 2430 | 40.86 | -3.89 | 1.53 | -0.62 | 25.056 | 15.806 | 1.53 | -17.84 |
| 2440 | 42.23 | -3.74 | 1.49 | -0.66 | 26.217 | 16.016 | 1.49 | -18.02 |
| 2450 | 39.45 | -4.04 | 1.23 | -0.92 | 24.519 | 14.935 | 1.23 | -20.4 |
| 2460 | 38.01 | -4.2 | 0.99 | -1.16 | 23.491 | 14.518 | 0.99 | -20.41 |
| 2470 | 41.73 | -3.8 | 1.35 | -0.8 | 25.35 | 16.377 | 1.35 | -17.4 |
| 2480 | 42.69 | -3.7 | 1.46 | -0.69 | 25.743 | 16.948 | 1.46 | -15.91 |
| 2490 | 40.63 | -3.91 | 1.28 | -0.87 | 24.343 | 16.289 | 1.28 | -15.84 |
| 2500 | 37.64 | -4.24 | 0.97 | -1.18 | 22.394 | 15.25 | 0.97 | -16.77 |

无源测试数据 Passive test data

ANT1 Direction of figure (2.4/BT)





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无源测试数据

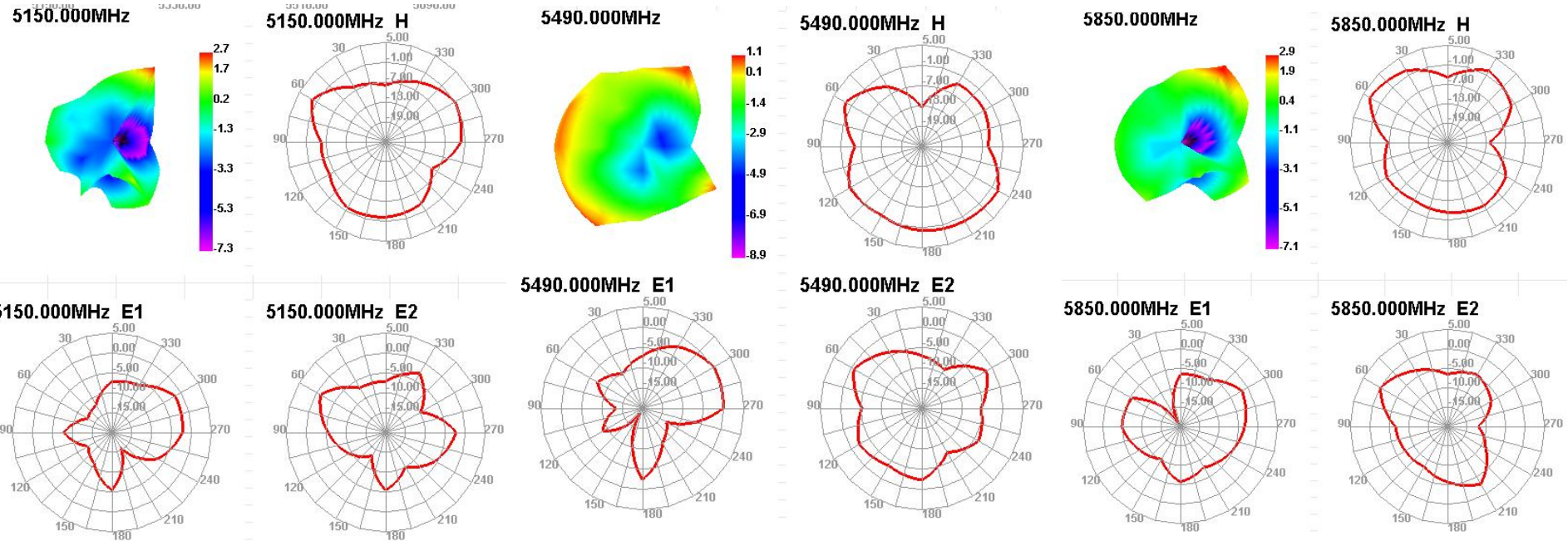
Passive test data

ANT1 GAIN&Efficiency-WIFI 5G

| Passive Test For WIFI5G | | | | | | | | |
|-------------------------|----------|-----------|------------|------------|---------|----------|----------|----------|
| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | UHS (%) | DHIS (%) | Max (dB) | Min (dB) |
| 5150 | 36.48 | -4.38 | 2.7 | 0.55 | 21.396 | 15.085 | 2.7 | -15.44 |
| 5170 | 37.37 | -4.28 | 2.76 | 0.61 | 22.043 | 15.323 | 2.76 | -16.16 |
| 5190 | 39.3 | -4.06 | 3.01 | 0.86 | 23.239 | 16.063 | 3.01 | -16.88 |
| 5210 | 42.59 | -3.71 | 3.32 | 1.17 | 24.979 | 17.614 | 3.32 | -18.78 |
| 5230 | 42.44 | -3.72 | 3.34 | 1.19 | 25.001 | 17.441 | 3.34 | -20.19 |
| 5250 | 45.89 | -3.38 | 3.64 | 1.49 | 27.184 | 18.71 | 3.64 | -18.61 |
| 5270 | 46.6 | -3.32 | 3.42 | 1.27 | 27.56 | 19.044 | 3.42 | -18.36 |
| 5290 | 51.83 | -2.85 | 3.48 | 1.33 | 30.674 | 21.152 | 3.48 | -16.78 |
| 5310 | 48.85 | -3.11 | 2.7 | 0.55 | 28.927 | 19.922 | 2.7 | -17.71 |
| 5330 | 52.37 | -2.81 | 2.92 | 0.77 | 31.094 | 21.278 | 2.92 | -18.83 |
| 5350 | 53 | -2.76 | 2.94 | 0.79 | 31.527 | 21.468 | 2.94 | -18.55 |
| 5370 | 51.7 | -2.86 | 2.54 | 0.39 | 30.841 | 20.861 | 2.54 | -17.7 |
| 5390 | 45.98 | -3.37 | 1.77 | -0.38 | 27.489 | 18.495 | 1.77 | -20.21 |
| 5410 | 52.81 | -2.77 | 2.19 | 0.04 | 31.34 | 21.473 | 2.19 | -26.55 |
| 5430 | 46.92 | -3.29 | 1.34 | -0.81 | 27.274 | 19.648 | 1.34 | -19.49 |
| 5450 | 51.1 | -2.92 | 2.31 | 0.16 | 29.296 | 21.808 | 2.31 | -18.17 |
| 5470 | 50.6 | -2.96 | 1.67 | -0.48 | 29.539 | 21.066 | 1.67 | -19.34 |
| 5490 | 50.58 | -2.96 | 1.13 | -1.02 | 29.897 | 20.679 | 1.13 | -18.41 |
| 5510 | 53.64 | -2.71 | 1.55 | -0.6 | 31.275 | 22.36 | 1.55 | -16.75 |
| 5530 | 54.65 | -2.62 | 1.8 | -0.35 | 31.073 | 23.573 | 1.8 | -13.8 |
| 5550 | 58.84 | -2.3 | 2.16 | 0.01 | 33.035 | 25.804 | 2.16 | -12.79 |
| 5570 | 53.21 | -2.74 | 2.4 | 0.25 | 30.005 | 23.206 | 2.4 | -14.71 |
| 5590 | 54.93 | -2.6 | 2.52 | 0.37 | 31.032 | 23.897 | 2.52 | -14.08 |
| 5610 | 51.53 | -2.88 | 2.25 | 0.1 | 28.902 | 22.63 | 2.25 | -15.99 |
| 5630 | 53.94 | -2.68 | 2.68 | 0.53 | 29.925 | 24.012 | 2.68 | -15.01 |
| 5650 | 51.55 | -2.88 | 2.79 | 0.64 | 28.459 | 23.091 | 2.79 | -14.72 |
| 5670 | 51.61 | -2.87 | 2.86 | 0.71 | 28.346 | 23.26 | 2.86 | -15.21 |
| 5690 | 49.48 | -3.06 | 3.05 | 0.9 | 27.064 | 22.411 | 3.05 | -16.25 |
| 5710 | 50.05 | -3.01 | 3.19 | 1.04 | 27.495 | 22.553 | 3.19 | -15.85 |
| 5730 | 51.85 | -2.85 | 3.28 | 1.13 | 28.785 | 23.068 | 3.28 | -15.55 |
| 5750 | 47.36 | -3.25 | 2.98 | 0.83 | 26.539 | 20.823 | 2.98 | -16.67 |
| 5770 | 48.41 | -3.15 | 3.2 | 1.05 | 27.357 | 21.048 | 3.2 | -18.18 |
| 5790 | 46.24 | -3.35 | 2.75 | 0.6 | 26.478 | 19.759 | 2.75 | -18.42 |
| 5810 | 47.01 | -3.28 | 2.55 | 0.4 | 27.451 | 19.557 | 2.55 | -19.65 |
| 5830 | 46.71 | -3.31 | 2.78 | 0.63 | 27.503 | 19.208 | 2.78 | -20.88 |
| 5850 | 45.87 | -3.38 | 2.94 | 0.79 | 27.273 | 18.595 | 2.94 | -19.06 |

无源测试数据 Passive test data

ANT1 Direction of figure (5G)



合作 共赢

