深圳市艾汇科技有限公司

Shenzhen Aihui Technology Co., Ltd.

天线测试报告

Test report

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2023/2/06

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6.总结（Summary）

1、项目信息（Model Information）

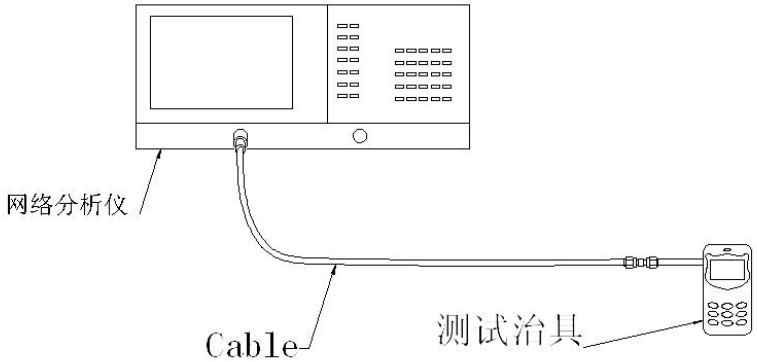
SF960C-K					
主板 (Motherboard)		天线状态	天线状态	设计区域	匹配改动
频段(Frequency band)		Antenna status	Antenna form	Design area	Match changes
2.4GWIFI /Bluetooth	2400-2500	FPC	PIFA	内壳(Inner shell)	/

2、无源驻波及匹配（Passive and Matching）

2.1无源测试示意图 (Schematic diagram of passive test)

S11测试方法说明(S11 Test Method Description)
测试设备(Test Equipment)：
网络分析仪(Network Analyzer)(E5071C 30k-8.5Ghz)
测试方法(Test Methods)：

用一根50欧姆CABLE电缆从仪器测试端口导出，使用校准件校准后连接样机(Use a 50 ohm CABLE cable to export from the test port of the instrument, use the calibration parts to calibrate and connect the prototype)　　制具的SMA接头，记录相关频点对应的回波损耗和驻波比。(Prepare the SMA connector of the tool, and record the return loss and standing wave ratio corresponding to the relevant frequency point.)



2.2有源测试示意图(Active Test Schematic)

3D测试系统(3D test system): 屏蔽暗室(Shielded chamber)

测试环境(Test environment): 温度 22℃±3℃，湿度 50%±15% (Temperature 22℃±3℃, Humidity 50%±15%)

测试设备(Test Equipment): 测试无源数据时，使用网络分析仪 Agilent (When testing passive data, use a network analyzer Agilent)E5071C

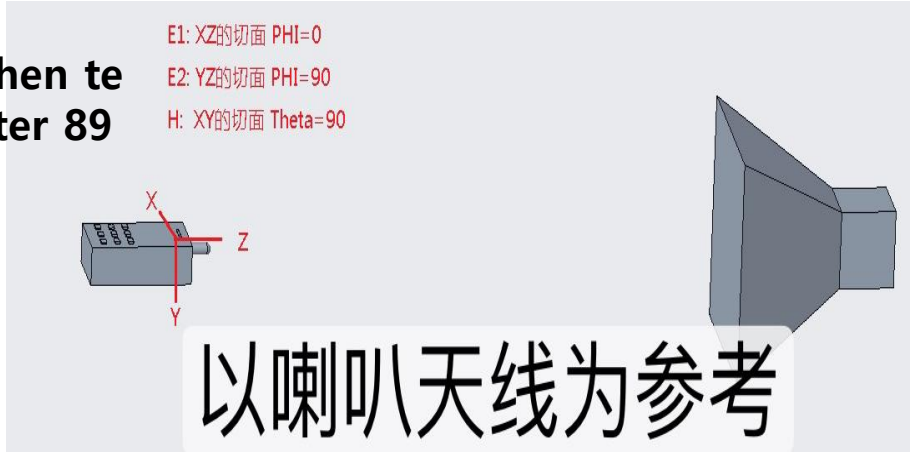
测试有源数据时, 使用综测仪8960/CMW500(When testing active data, use comprehensive tester 8960/CMW500)

总全向辐射功率（TIRP）

$$TIRP \cong \frac{\pi}{2NM}\sum_{i=1}^{N-1}\sum_{j=0}^{M-1}\left[Eirp_{\theta}(\theta_i,\phi_j)+Eirp_{\phi}(\theta_i,\phi_j)\right]\sin(\theta_i)$$

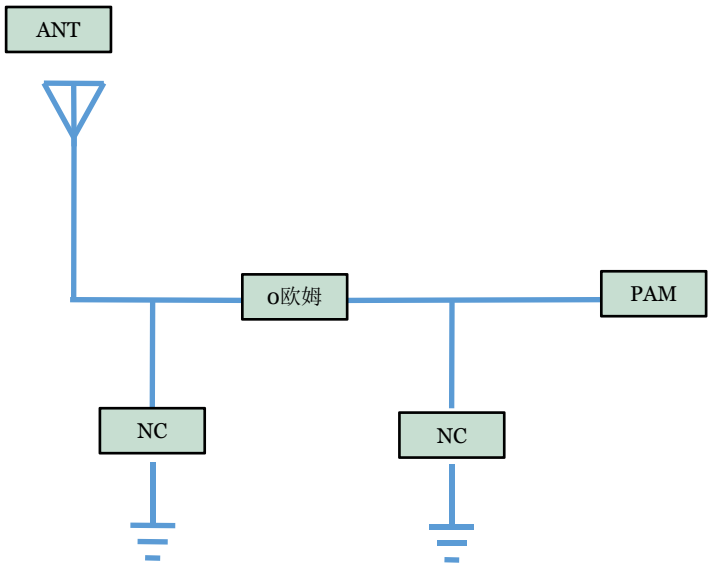
总全向辐射灵敏度（TIRS）

$$TIRS \cong \frac{2NM}{\pi\sum_{i=1}^{N-1}\sum_{j=0}^{M-1}\left[\frac{1}{EIS_{\theta}(\theta_i,\phi_j)}+\frac{1}{EIS_{\phi}(\theta_i,\phi_j)}\right]\sin(\theta_i)}$$



Using Horn Antenna as a Reference

2. 3天线匹配（Matching Circuit）



主板匹配没有做更改
(Motherboard matching has not been changed.)

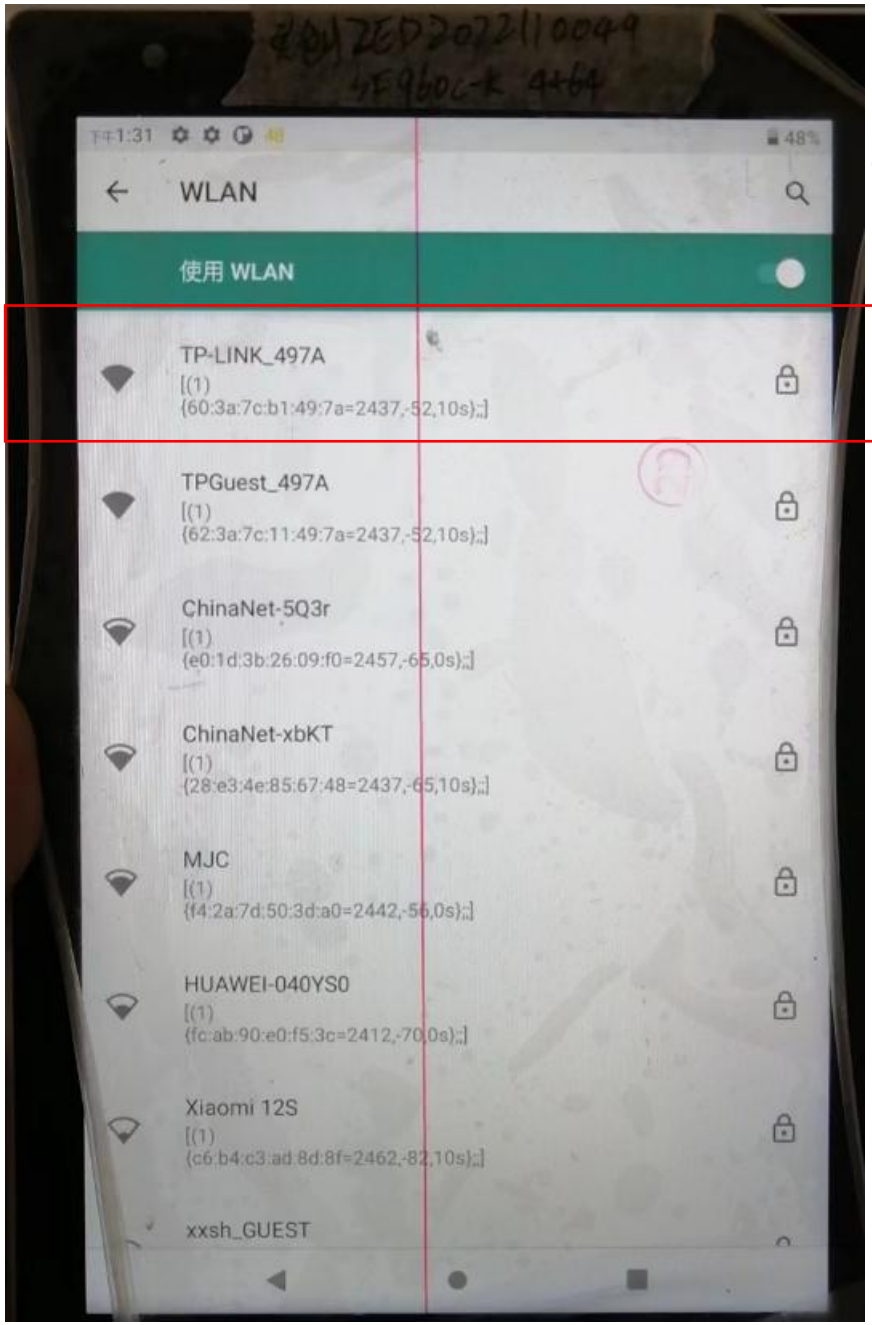
注：原串0欧姆，从天线-----串0欧姆电阻 -----PA
(Note: The original string is 0 ohm, from the antenna ----- string 0 ohm resistor ----- PA)

4.1 天线有源测试数据&增益(Antenna active test data & Gain)

Frequency Band	2.4G WIFI / Bluetooth					
channel	L	M	H			
TRP (%)	9.56	10.01	10.24			
Gain (dBi)			1.0			

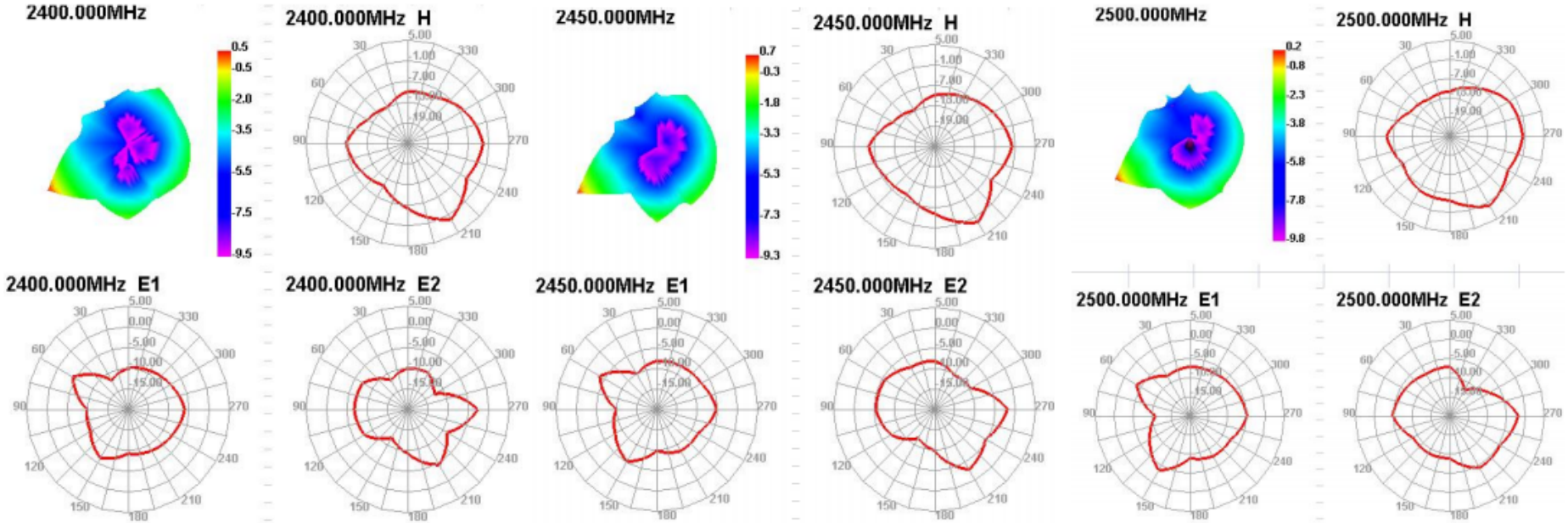
4.3WIFI实测
(WIFI measured)

WIFI距离路由器10米，信号满格，效果正常。(The WIFI is 10 meters away from the router, the signal is full, and the effect is normal.)



4.3WIFI实测
(WIFI measured)

GPS在我司窗口搜星测试，星值达40的有1-2颗，定位时间1分钟，天气晴。(GPS star search test in our window, there are 1-2 stars with a star value of 40, the positioning time is 1 minute, and the weather is fine.)


2400.000MHz
0.5
-0.5
-2.0
-3.5
-5.5
-7.5
-9.5
2400.000MHz H
2450.000MHz
0.7
-0.3
-1.8
-3.3
-5.3
-7.3
-9.3
2450.000MHz H
2500.000MHz
0.2
-0.8
-2.3
-3.8
-5.8
-7.8
-9.8
2500.000MHz H
2400.000MHz E1
2400.000MHz E2
2450.000MHz E1
2450.000MHz E2
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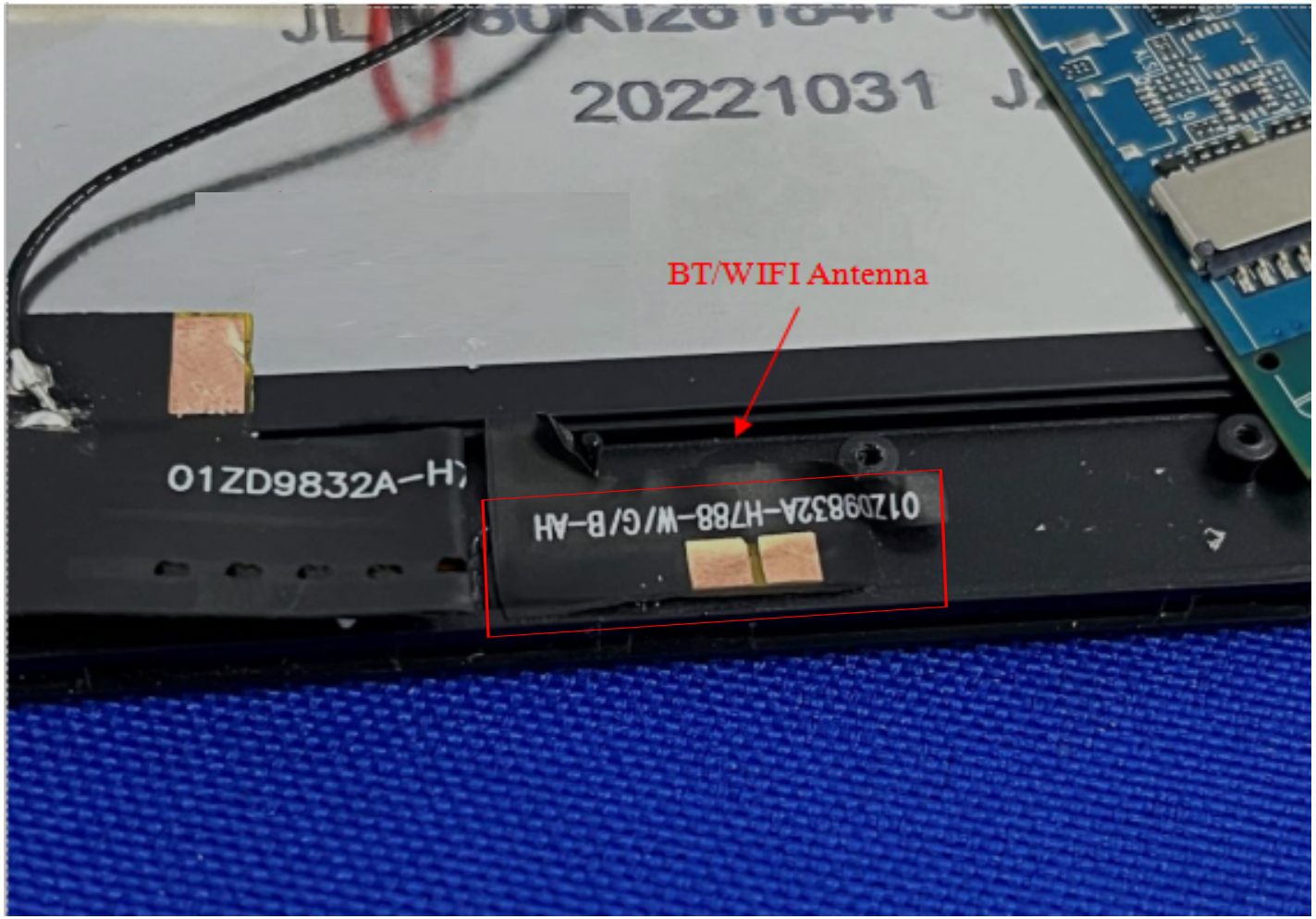
2500.000MHz E2

5.1天线装配图(Antenna Assembly Drawing)