

深圳辉信通讯科技有限公司

Shenzhen Huixin Communication Technology Co., Ltd.

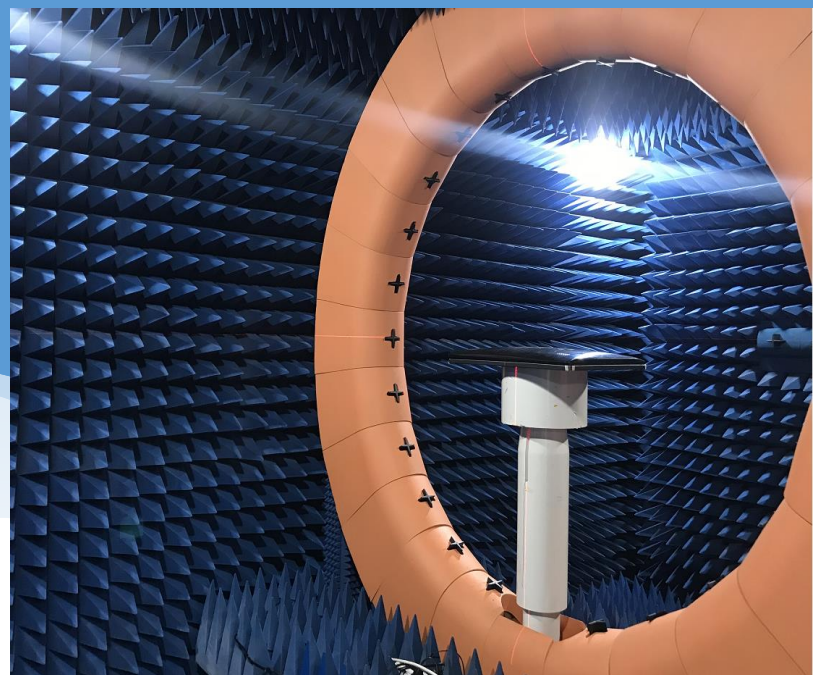
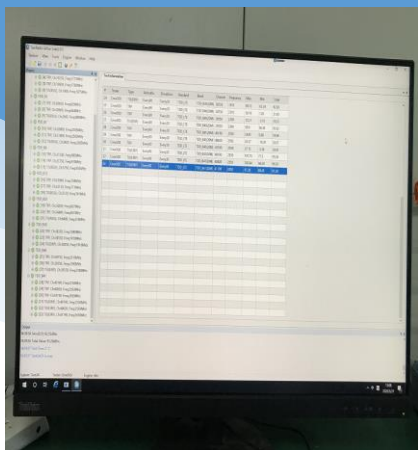
天线测试报告

Test report

2021年 10月 18日

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1、项目信息 (Model Information)

Manufacturer		RF	
Model Name	S10	Email	fwh@kenhaitong.com
Antenna Type	FPC	Band	
Model pictures :			

2、无源驻波及匹配 (Passive and Matching)

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

S11测试方法说明(Description of the test method)

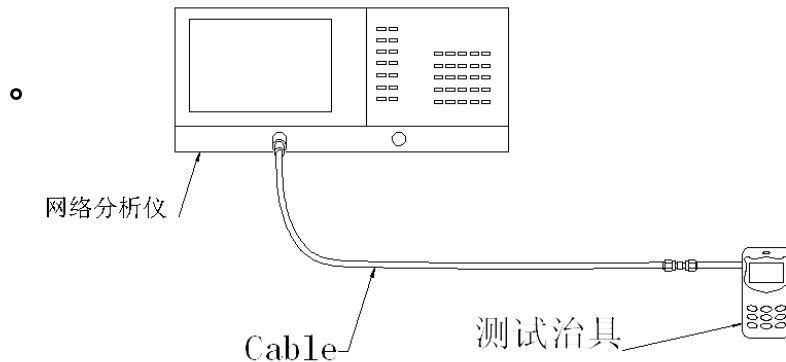
测试设备(Test the device):

网络分析仪(E5071C 30k-8.5Ghz)

测试方法(test method):

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
制具的SMA接头，记录相关频点对应的回波损耗和驻波比

Export from the instrument test port with a 50 ohm CABLE, calibrate with calibrators, and connect the prototype
The SMA connector of the device records the return loss and standing wave ratio corresponding to the relevant
frequency point



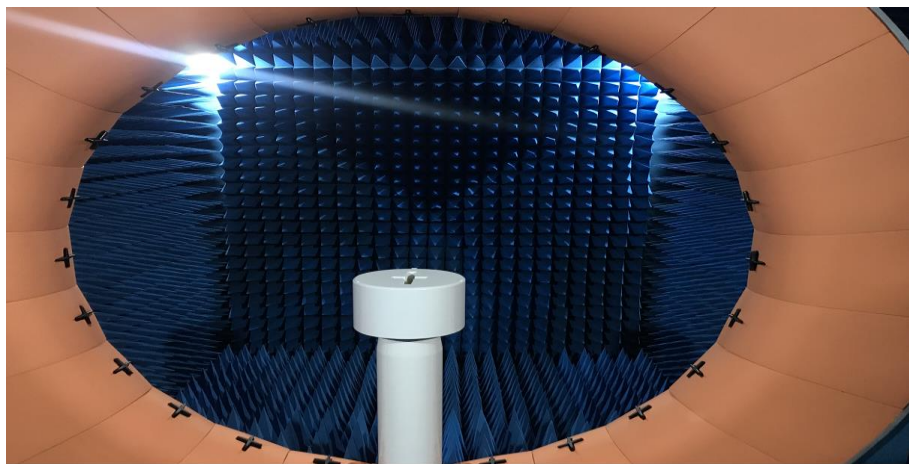
2.2有源测试示意图

3D测试系统: 屏蔽暗室(Shield the darkroom)

测试环境: 温度 $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 湿度 $50\% \pm 15\%$

测试设备: 测试无源数据时, 使用网络分析仪 **Agilent E5071C**

测试有源数据时, 使用综测仪**8960/CMW500**



总全向辐射功率 (TIRP)

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

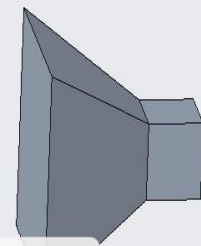
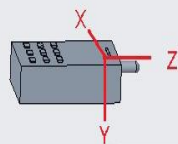
总全向辐射灵敏度 (TIRS)

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

E1: XZ的切面 PHI=0

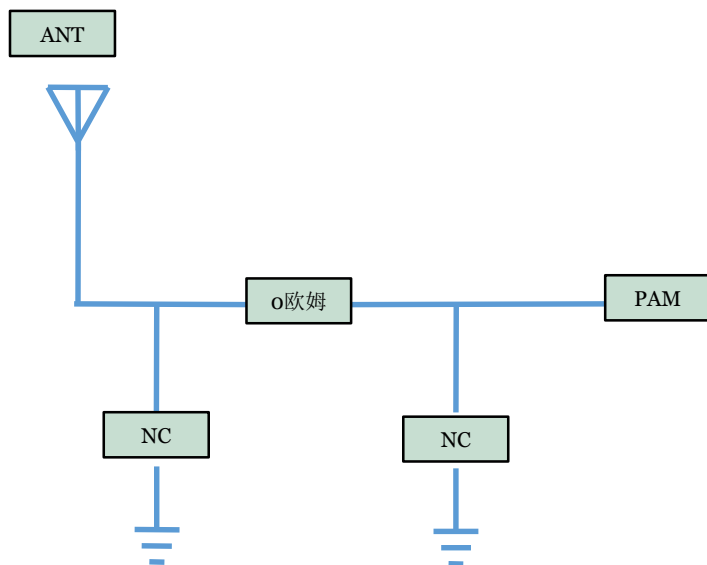
E2: YZ的切面 PHI=90

H: XY的切面 Theta=90



以喇叭天线为参考

2.3 天线匹配 (Matching Circuit)



主板匹配没有做更改。
No changes have
been made to the
motherboard match

注：原串0欧姆，从天线-----串0欧姆
电阻 -----PA



2. 4 WIFI天线无源驻波 (Antenna passive standing wave)

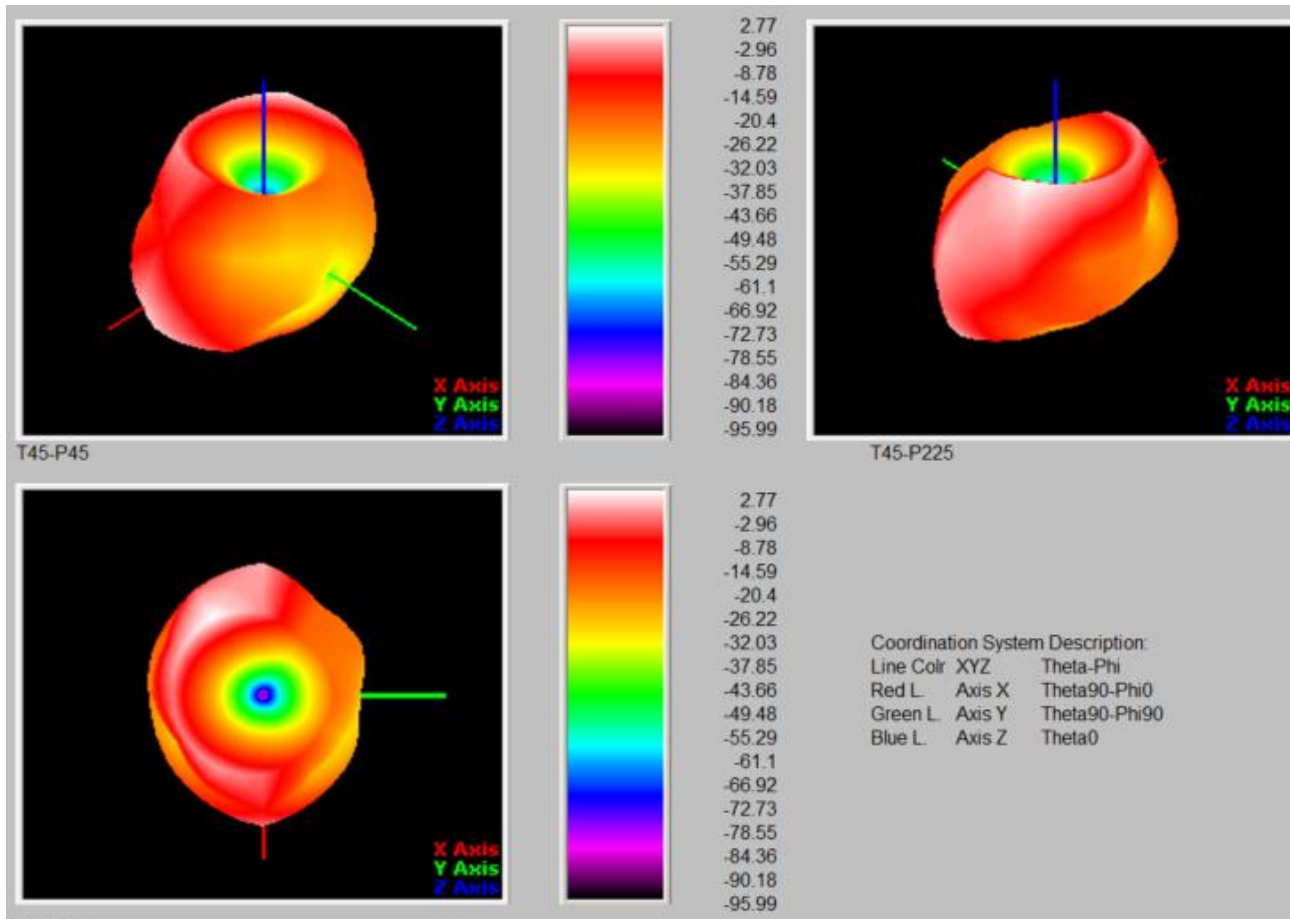


频率 (MH z)	1575 .42	2400	2500	5150	5500	5800
驻波比	1.38	1.42	1.45	1.58	1.32	1.34

VSWR

2.5 WiFi天线无源效率和增益 (Antenna passive efficiency and gain)

天线与主板垂直放置		
Freq	Effi	Effi
(MHz)	(%)	(dBi)
2400	50.55	1.86
2410	52.43	2.29
2420	51.79	2.07
2430	52.52	2.33
2440	53.42	2.53
2450	53.75	2.77
2460	52.79	2.28
2470	51.42	2.12
2480	49.75	1.89
2490	48.48	1.82
2500	52.43	2.23

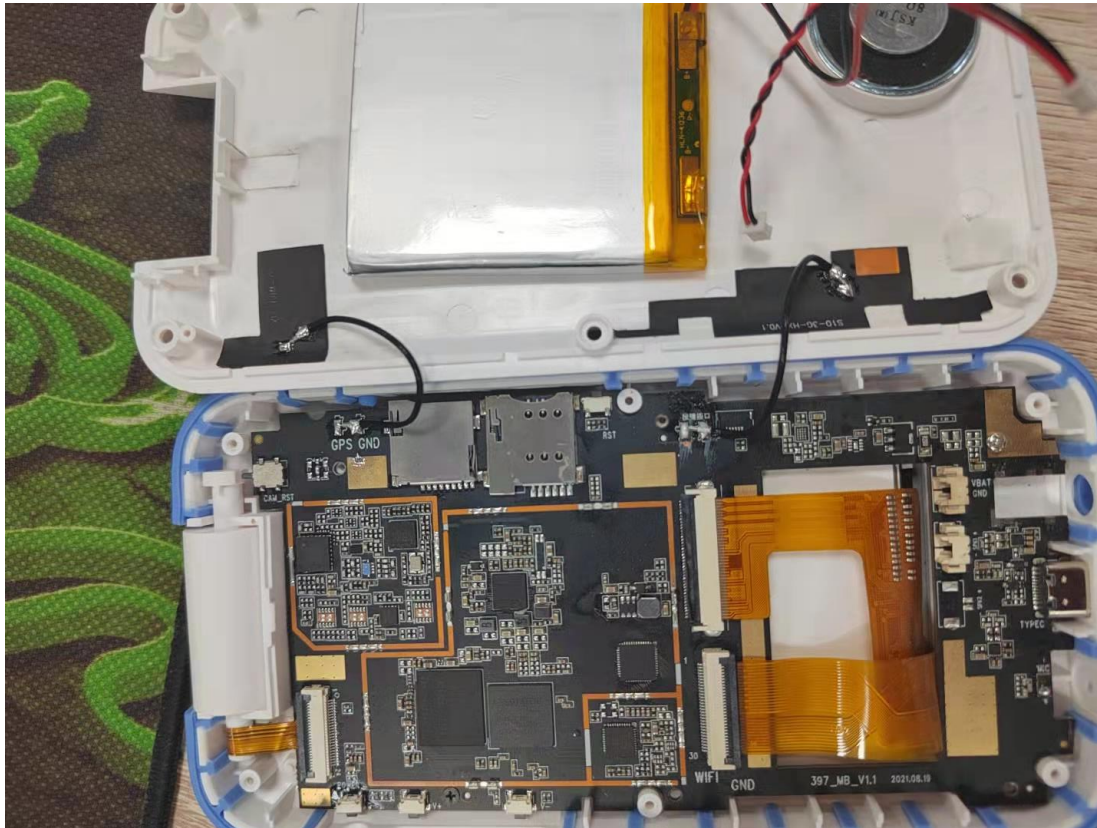


3、3D有源测试数据 (3D Active Test Data)

Model:				天线实现方式: PIFA						单位: dBm					
信道	802.11b (11Mbps)			802.11g (54Mbps)			802.11n (MCS7-65Mbps)			802.11a (54Mbps)			802.11N_UNII (65Mbps)		
	CH1	CH6	CH11	CH1	CH6	CH11	CH1	CH6	CH11	CH36	CH100	CH165	CH36	CH100	CH165
TRP	14.09	14.57	14.76	12.31	12.19	12.48	12.8	11.17	11.37						
TIS	-81.7	-81.48	-81.01	-69.92	-69.75	-70.11	-69.47	-69.17	-69.66						

4.1、环境处理及装配说明 (Environmental handling and assembly instructions)

天线布局



Antenna
location



5、**总结** (Summary)

目前天线从无源，有源，及实测信号强度，效率等数据测试，天线性能验证OK
At present, the antenna is tested from passive, active, and measured signal strength, efficiency and other data, and the antenna performance is verified OK