深圳市千目通讯科技有限公司

Shenzhen Qianmu Communication Technology Co.,Ltd.

专注天线方案、设计与生产

client: DOOGEE
Project: D16
date: 2023.11.05
versions: A1
Radio frequency: QIU ZHI YUAN

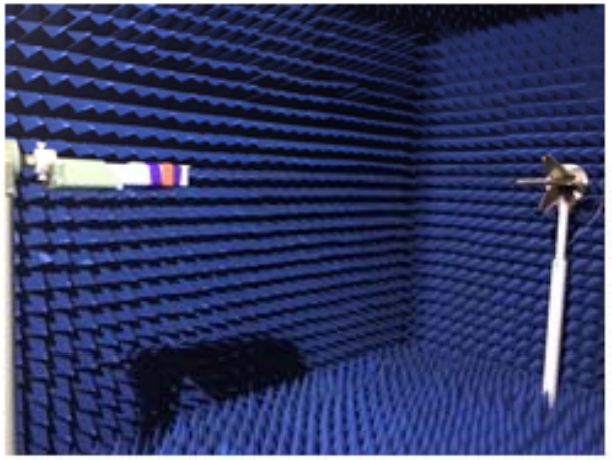
目 录

测试环境

	测试项目	设备
1. S参数 （S-parameter）	1. 回波损耗 （Return Loss） 2. 电压驻波比（VSWR）	网络分析仪: Agilent E5071B HP 8753D
2. 有源测试（Active ）	1. 发射功率 （TRP） 2. 接收灵敏度（TIS） 3.频率误差 4.屏灭、屏亮	1. 暗室： ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2.综合测试仪: Agilent 8960 E5515B ×2 StarPoint SP6011
3.无源测试（Passive）	1.天线增益 （Gain） 2.天线效率 （Efficiency）	1. 暗室： ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. 网络分析仪： Agilent E5071B HP 8753D







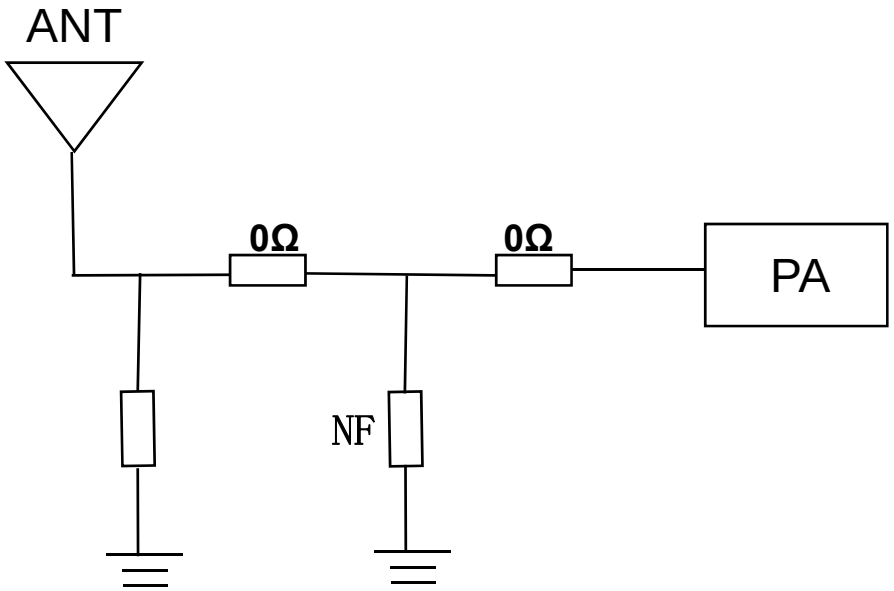
Description of previous debugging records

date	versions	Debug record description
2023-2-20	T:A	FPC sample, test prototype

Debugging instruction of the whole machine

type	Bluetooth watch						
Plate type	mainboard						
Antenna profile		Antenna state		Antenna state	Antenna form	Design area	Matching change
	Bluetooth antenna	BT	2.4GHz~2.5GHz	FPC sample	Monopole	holder	not have
Prototype status	Debugging machine			Environmental treatment			

Matching circuit -BT antenna



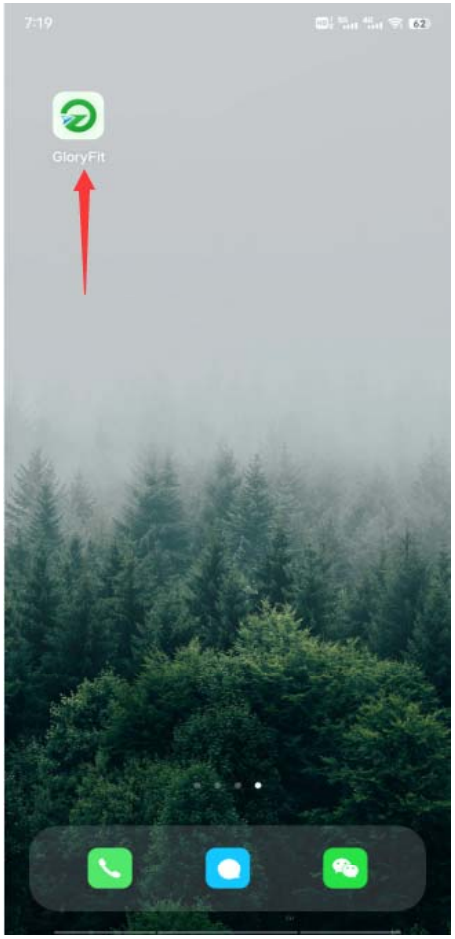
The original match was not changed

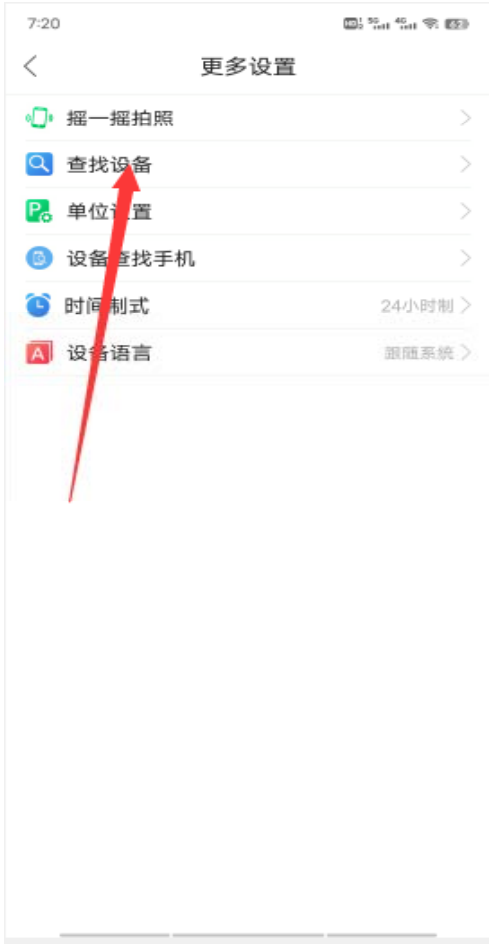
蓝牙天线效率

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-9.64	-9.72	-9.68	-9.50	-9.48	-9.18	-9.25	-9.46	-9.43	-9.29	-9.22
Peak EIRP (dBm)	-4.84	-4.91	-4.94	-4.91	-4.91	-4.65	-4.82	-5.13	-5.11	-4.81	-4.66
Directivity (dBi)	4.80	4.81	4.74	4.59	4.56	4.52	4.44	4.33	4.32	4.47	4.56
Efficiency (dB)	-9.64	-9.72	-9.68	-9.50	-9.48	-9.18	-9.25	-9.46	-9.43	-9.29	-9.22
Efficiency (%)	10.90	10.70	10.80	11.20	11.30	12.10	11.90	11.30	11.40	11.80	12.00
Gain (dBi)	-4.84	-4.91	-4.94	-4.91	-4.91	-4.65	-4.82	-5.13	-5.11	-4.81	-4.66
NHPRP ±Pi/4 (dBm)	-11.35	-11.42	-11.40	-11.23	-11.20	-10.88	-10.92	-11.09	-11.03	-10.85	-10.76
NHPRP ±Pi/6 (dBm)	-12.97	-13.04	-13.02	-12.85	-12.82	-12.50	-12.56	-12.75	-12.71	-12.54	-12.43
NHPRP ±Pi/8 (dBm)	-14.13	-14.20	-14.19	-14.01	-13.99	-13.67	-13.74	-13.93	-13.90	-13.72	-13.60
Upper Hem. PRP (dBm)	-13.41	-13.47	-13.46	-13.32	-13.33	-13.06	-13.16	-13.39	-13.39	-13.28	-13.24
Lower Hem. PRP (dBm)	-12.01	-12.10	-12.05	-11.83	-11.78	-11.46	-11.52	-11.71	-11.67	-11.50	-11.42
Upper Hem. PRP (%)	4.56	4.50	4.51	4.66	4.65	4.94	4.83	4.58	4.58	4.70	4.75
Lower Hem. PRP (%)	6.29	6.17	6.24	6.55	6.63	7.15	7.05	6.75	6.81	7.09	7.21

Matching circuit -BT antenna：

Test: Use APP to find the actual test of the bracelet





Indoor test: APP search bracelet
straight line test 40m

Prompt note

Hint:

I. This data only refers to the data generated by the prototype provided by the customer, and does not represent the final mass production status of the customer;

2. Please carefully confirm the description of matching circuit modification and environmental treatment in our report;

Iii. Please provide trial production prototype to our company for secondary verification before mass production; Please inform us in advance of material replacement, software update and environmental treatment.

Iv. If the customer needs the third party to retest, or send the customer to test, please come to our company for verification before sending the prototype; To prevent the difference between the machine and the test machine;

V: Our company does not accept the machine data other than our debugging and other dark room test data, but you can refer to it, except the certification dark room. If there is any difference in data, all the reasons will be based on the commissioning machine.

谢谢!