

2022

Metal Antenna Matching Debug Report

客户名称：兆博

天线类型：金属天线

调试方式：匹配器件调试

测试时间：2022 年 03 月 15 日

测试设备：安捷伦矢量网络分析仪

Chen Pengfei 18028016875

Guangzhou Cambrian Electronic Technology

Co., Ltd. 2022/3/15



Table of contents

Table of contents..... 1 A

built-in antenna test environment and matching network..... 2 1

 The debugging and testing environment of this product is as follows, which is the whole machine

 test..... 2 2 The matching network of the antenna is as

follows 2 Two measured

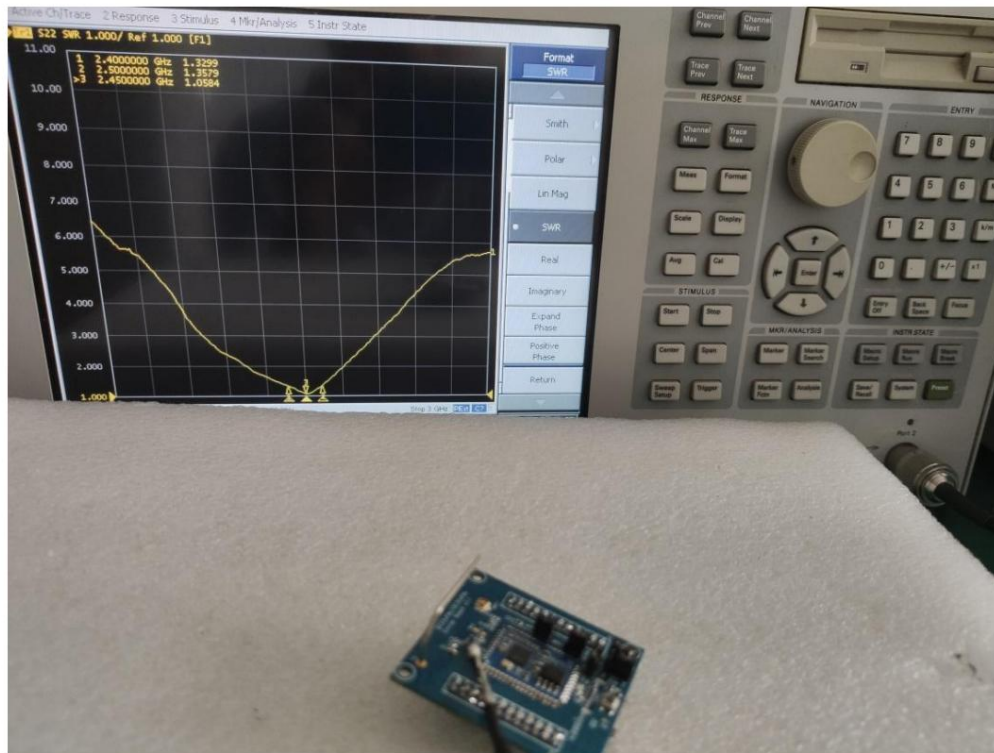
 results.....3 Antenna

 VSWR 3 Return

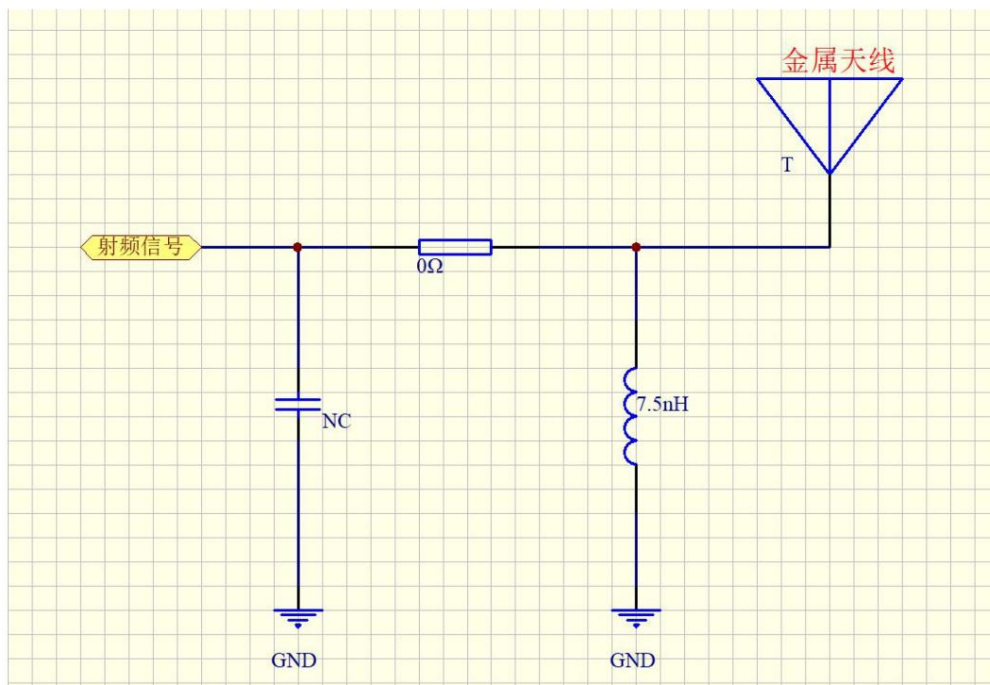
Loss.....3 Three conclusions.....

1 Built-in antenna test environment and matching network 1 The debugging test environment

of this product is as follows, which is the whole machine test



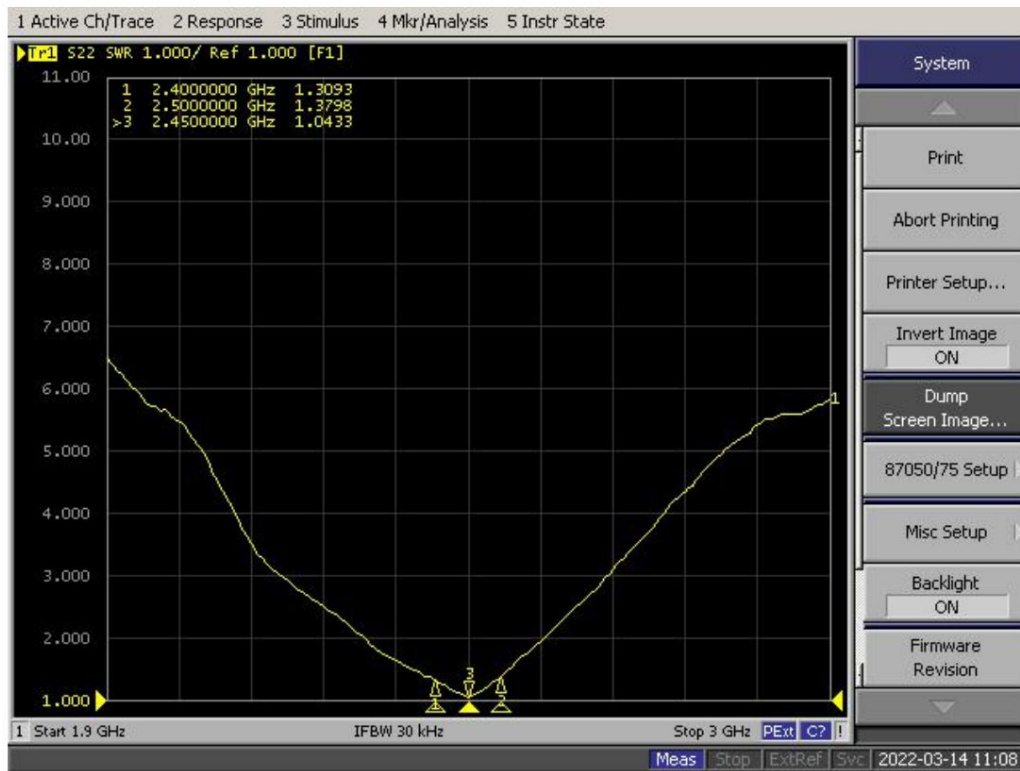
2 The matching network of the antenna is as follows



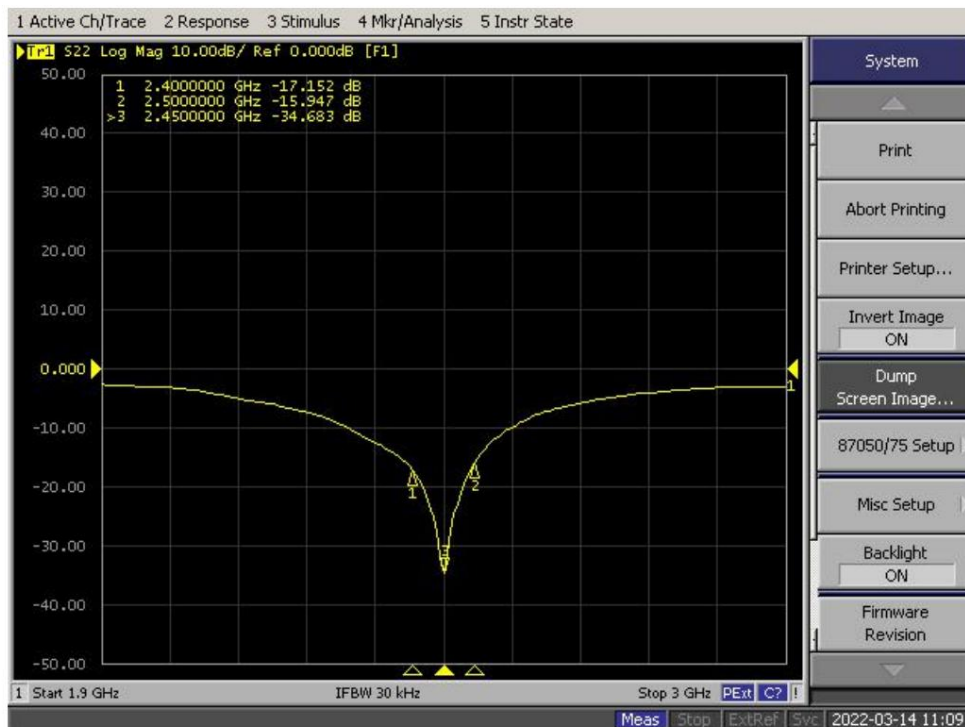
RF circuit matching network->parallel NC->series 0 Ω ->parallel 7.5nH->antenna Note: The peripheral device values required by the RF chip reference design should be used according to the chip manufacturer's reference design. The above antenna matching devices are independent of each other and cannot be replaced with each other

2. Measured Results

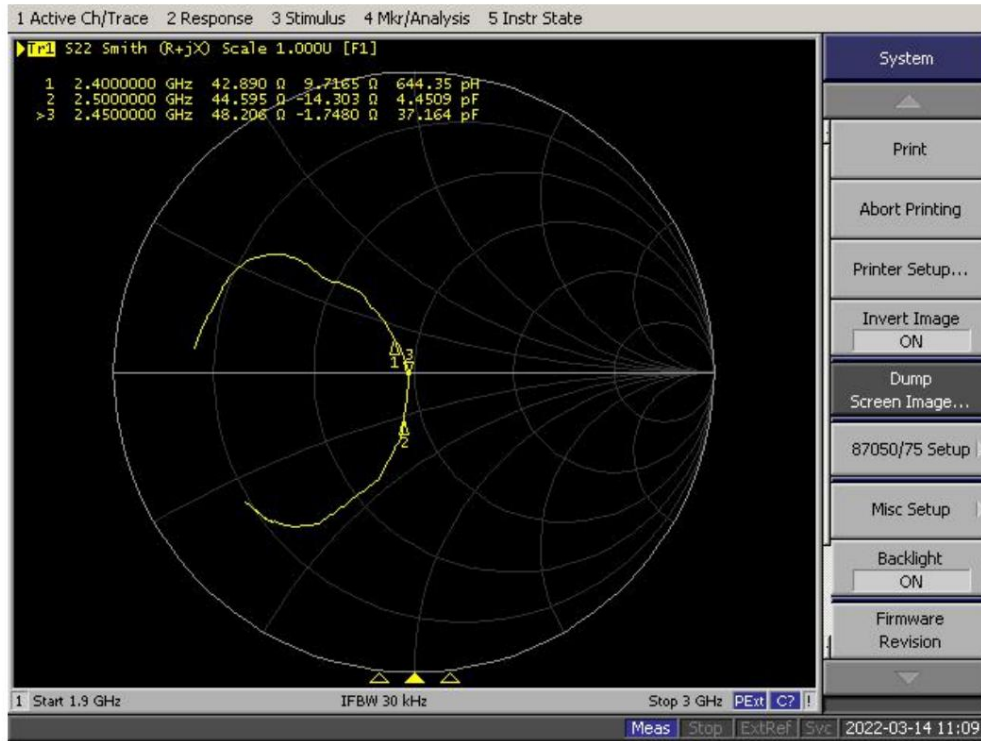
Antenna Standing Wave Ratio



return loss



Smith diagram



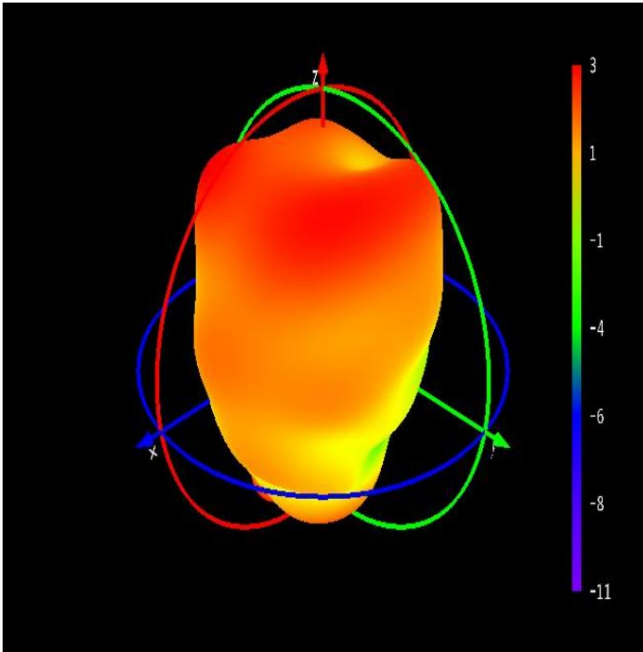
Antenna Gain and Efficiency

frequency	gain	efficiency	efficiency
frequency	gain	efficiency	efficiency
(MHz)	Gain(dBi)	Efficiency(dB)	efficiency(%)
2400	2.71	-1.98	63.43
2405	2.65	-1.85	65.29
2410	2.39	-1.83	65.57
2415	2.09	-1.83	65.59
2420	1.9	-1.85	65.24
2425	1.81	-1.84	65.49
2430	1.74	-1.83	65.58
2435	1.79	-1.78	66.32
2440	1.98	-1.68	68
2445	1.99	-1.64	68.54
2450	2.04	-1.59	69.33
2455	2.15	-1.56	69.89
2460	2.23	-1.64	68.58

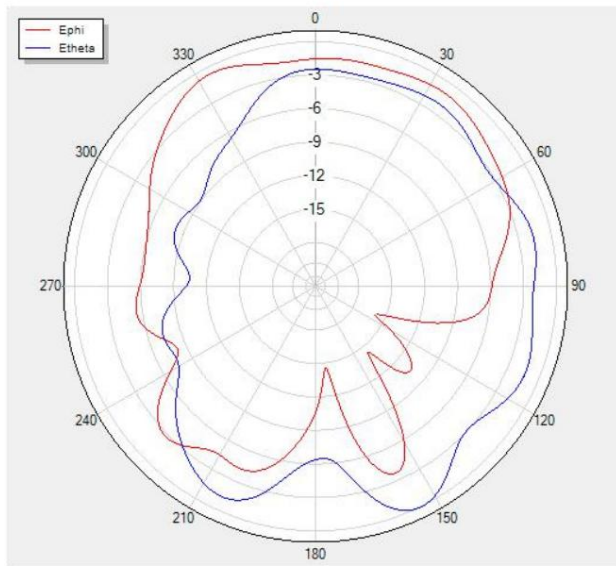
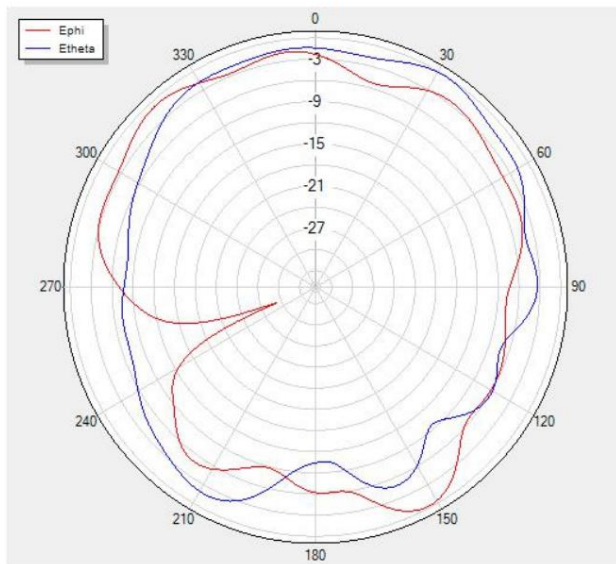
2465	2.36	-1.68	67.87
2470	2.59	-1.61	69.04
2475	2.67	-1.61	69
2480	2.64	-1.6	69.12
2485	2.49	-1.58	69.58
2490	2.16	-1.67	68.14
2495	1.7	-1.83	65.58
2500	1.13	-2.11	61.56

radiation pattern.

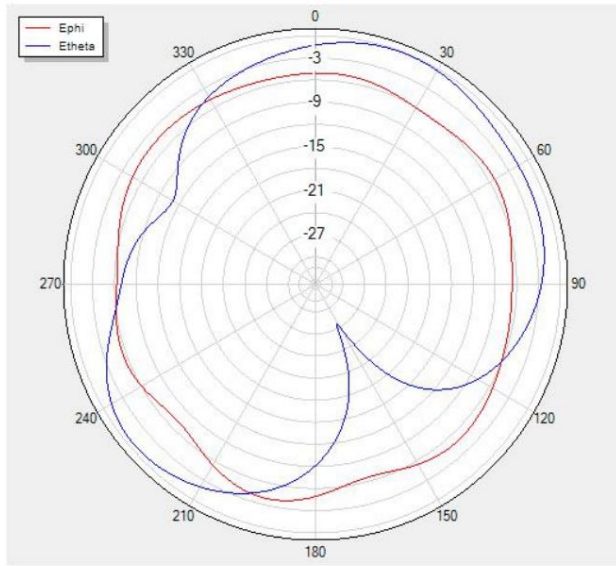
3D radiation pattern: @2450Mhz



2D radiation pattern:

Phi=0 freq=2450MHz**Phi=90 freq=2450MHz**

Theta=90 freq=2450MHz



Three conclusions

After the debugging of the impedance matching device, the indicators of the built-in antenna of this product meet the design requirements of the built-in antenna.

Guangzhou Cambrian Electronic Technology Co., Ltd.

2022/03/24