



上海增信电子有限公司
Signal Plus Technology Co., Ltd.

规格承认书
SPECIFICATION FOR APPROVAL

日期
DATE: 2024.05.29

版本
REV.: A

客 户
CUSTOMER: 上海六联智能科技有限公司

客 户 料 号
CUSTOMER P/N: M.T.A.0000697

品 名
PART NAME: 内置 2.4G&5G WiFi FPC天线, 1.13白色普通线L=145mm with RF CONN(4代)
for DNB1 主天线

供 方 料 号
SUPPLIER P/N: 6241F00035

送样日期Date: 送样数量Q'TY: Pcs

客户确认CUSTOMER APPROVED BY		
核准 Approved by	审核 Checked by	确认 Confirmed by

供方确认SUPPLIER SIGNATURE		
核准 Approved by	审核 Checked by	拟制 Prepared by
Andy		Cindy

ZX-QT-RD-0011-A1

Add:上海市徐汇区桂箐路69号30栋603室 Tel:021-54266190 Fax:021-54266191

Contents

<i>Item</i>	<i>Description</i>	<i>Page</i>
1.	Cover	 1
2.	Content	 2
3.	Drawing	 3
4.	Antenna Test Report	 4~16



Antenna Test Report

©V1

WIFI 2G & 5G

2024.5.9

List of contents

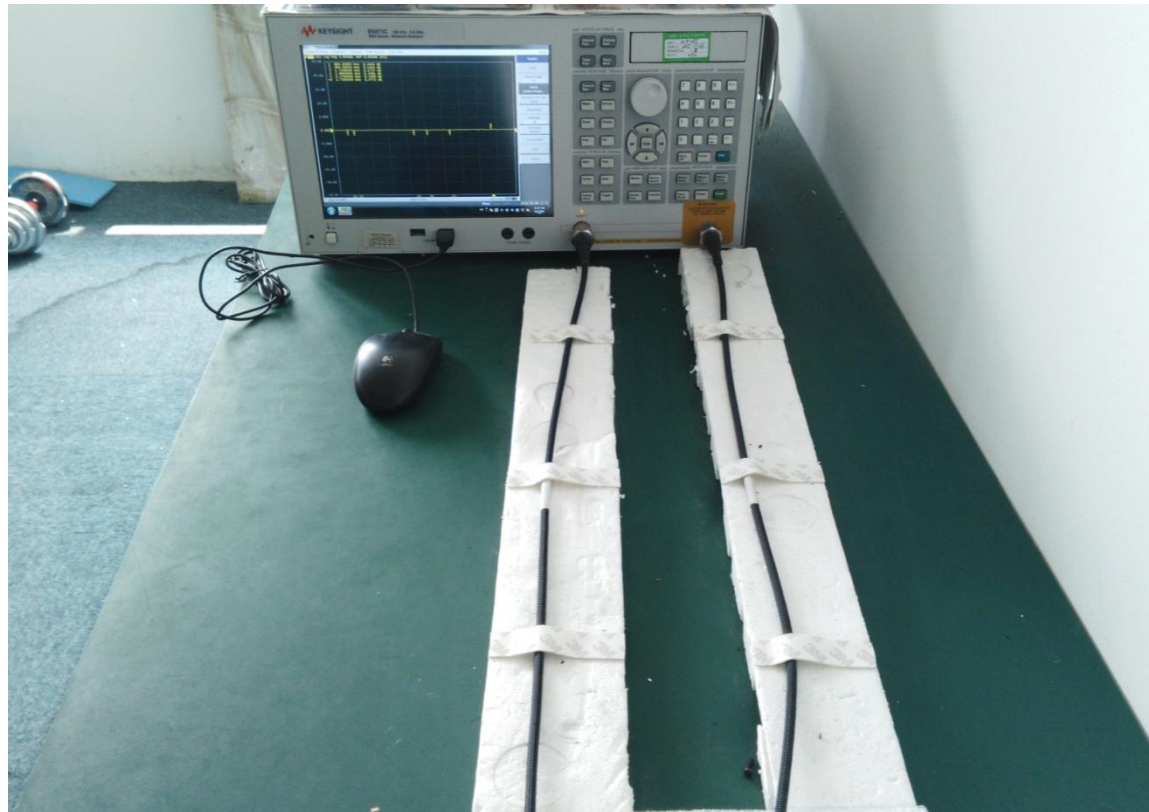
- Test setup
- Antenna Solution
- S Parameter --- Return Loss, Isolation
- Efficiency and Peak Gain
- Radiation Patterns
- Summary

1. Test system description---S Parameter

1.1. Test Setup

1.1.1 VNA Test Setup

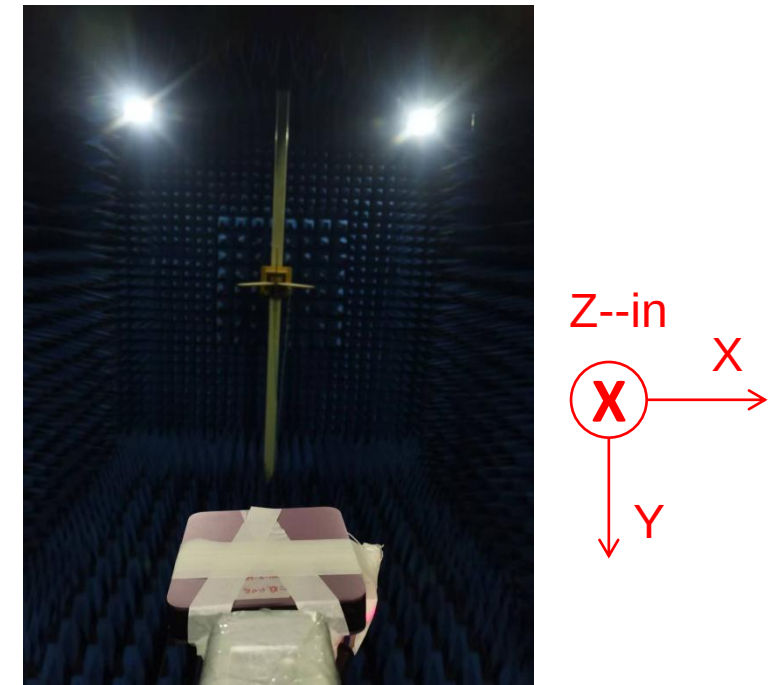
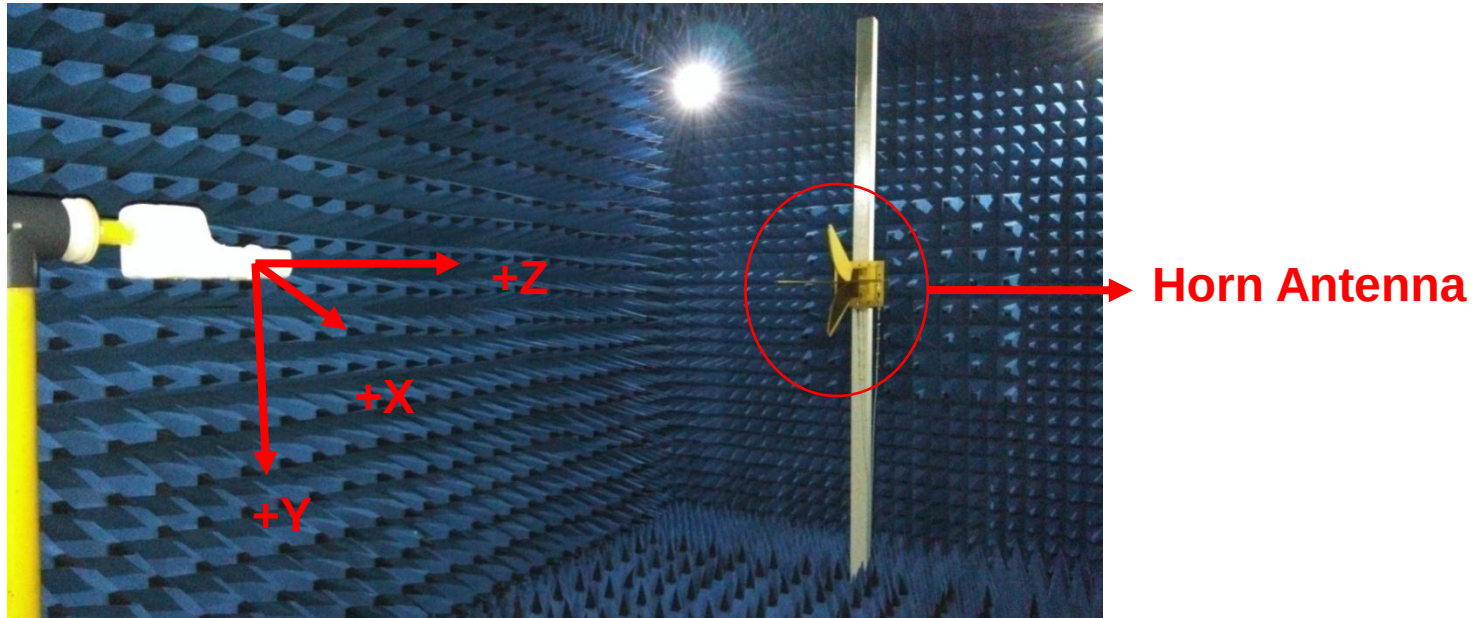
S parameter measurements (S_{11}) were performed using an Keysight E5071C Network Analyzer and previously described test fixtures. The isolation between antennas is also tested. The testing was performed with apparatus in free space.



1. Test system description--- Anechoic Chamber Test Setup

1.1.2 Anechoic Chamber Test Setup

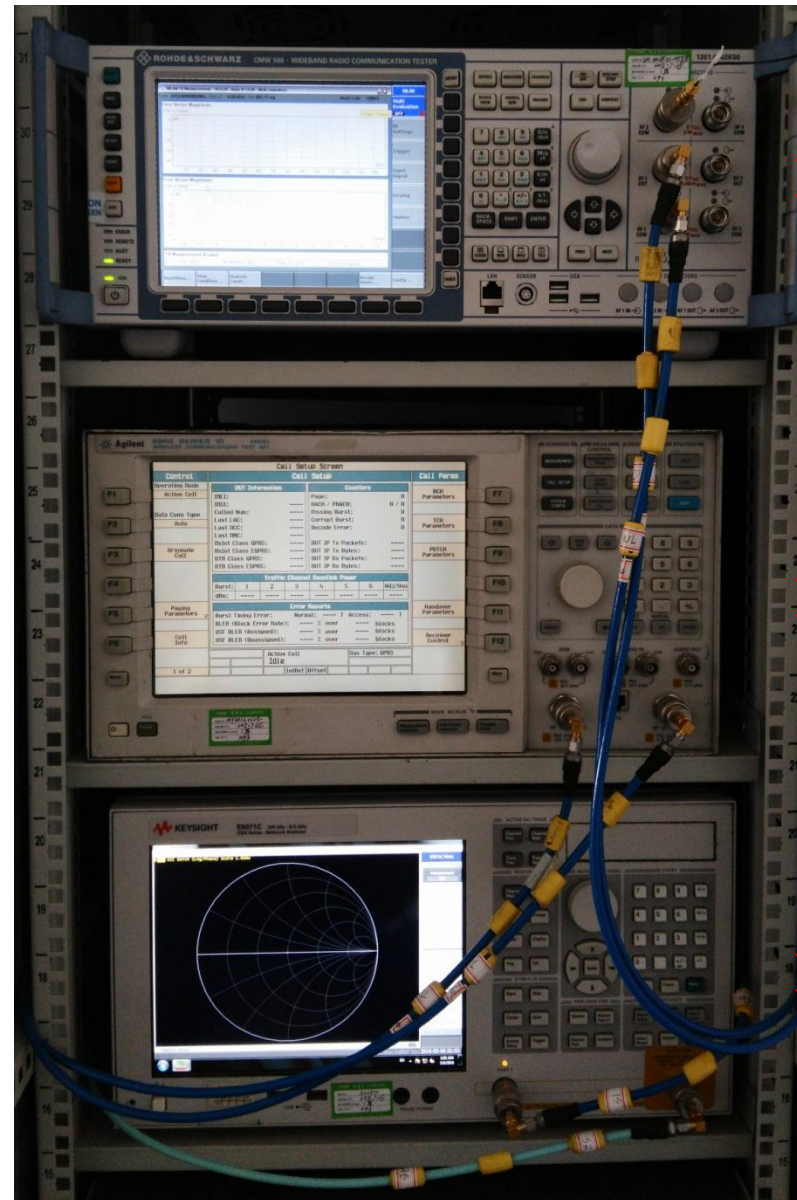
The gain of the antenna was measured in the anechoic chamber(ETS-3D). The chamber provides less than -30 dB reflectivity from 400 MHz through 6 GHz. The chamber size is:7m*4m*3m.The measurement results are calibrated using a leaky wave horn standard. We can measure the antenna gain and efficiency accurately.



Signal Plus
Antennas

1. Test system description--- Test Instruments

1.1.3 Instruments



R&S CMW500
4G/WIFI
(LTE/WIFI b/g/a)

Agilent 8960
2G/3G
(GSM/CDMA/WCDMA)

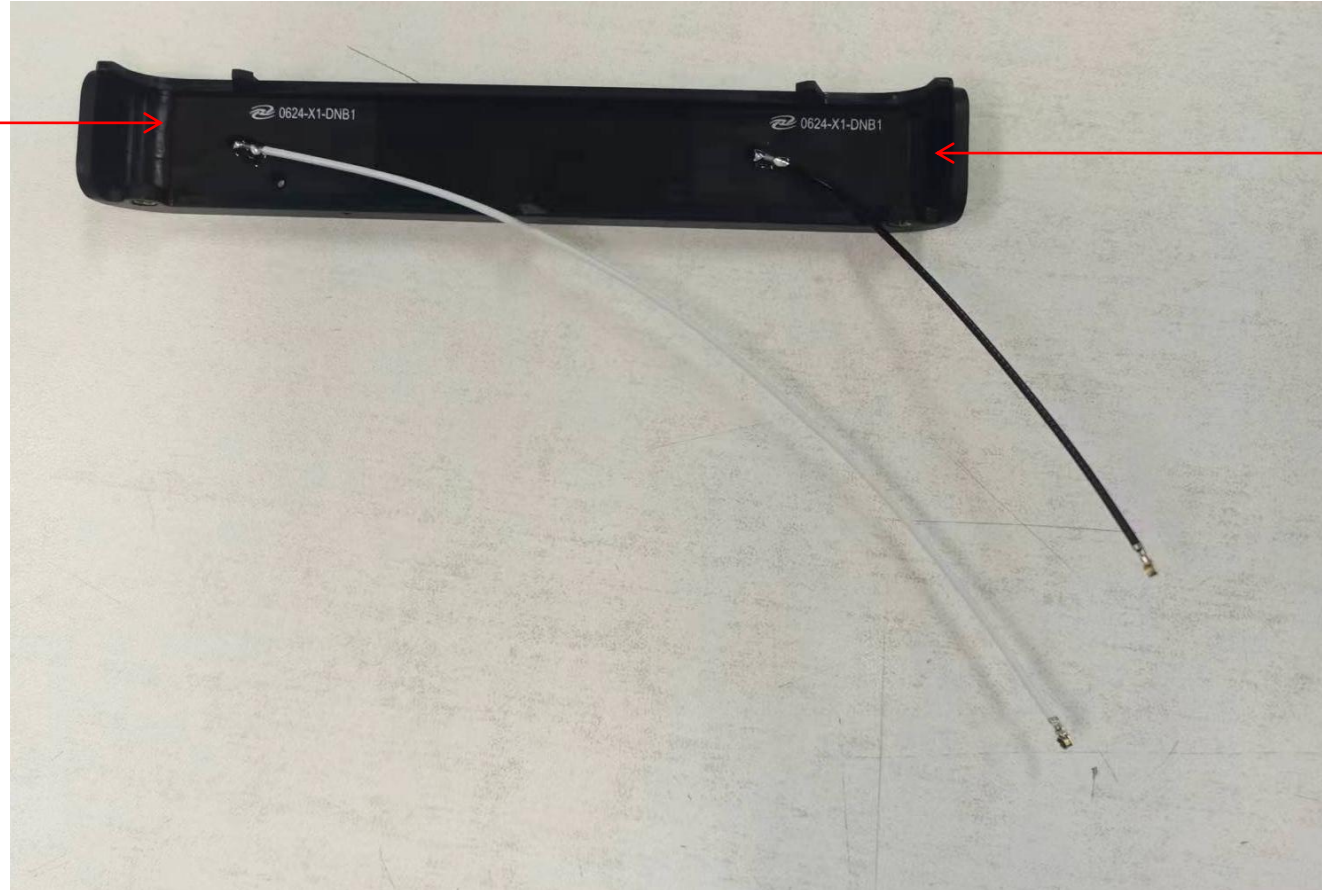
KeySight E5071C
(400MHz~6GHz)

Signal **Plus**
Antennas

2. Antenna Solution

2.1 Antenna Location Pictures for passive

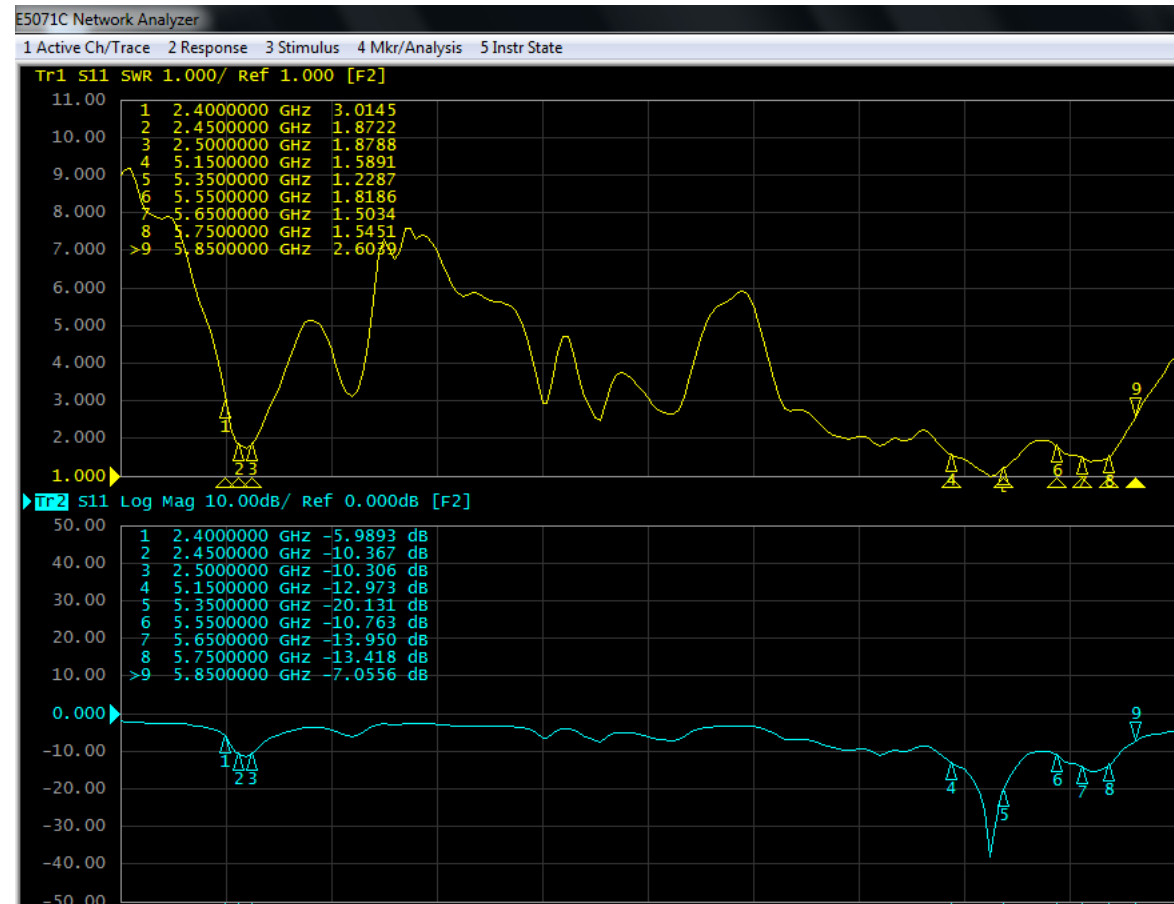
长线- Main Antenna



短线- AUX Antenna

3.Test Result-- Return Loss、 Efficiency、 Gain

S11(长线) :



3.Test Result--- Return Loss、 Efficiency、 Gain

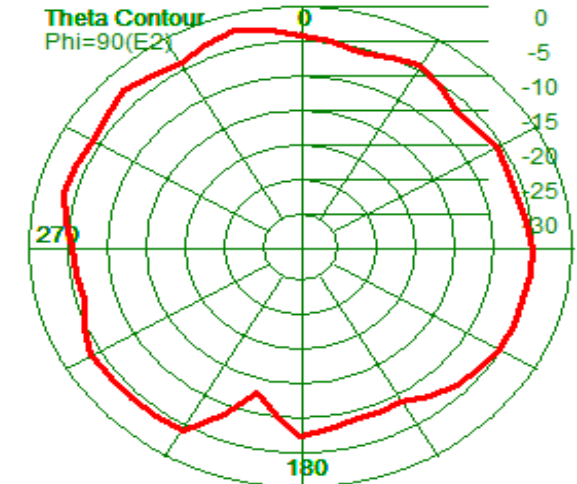
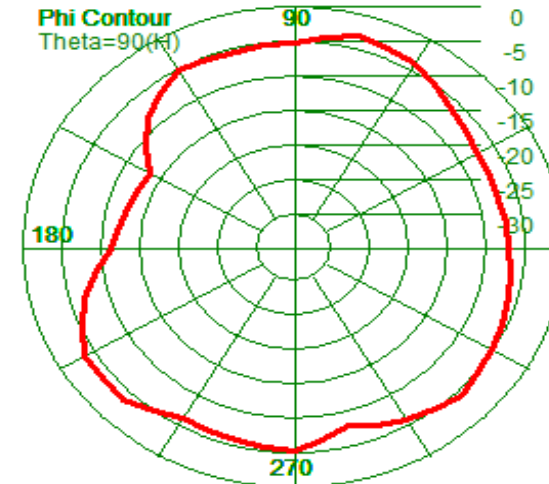
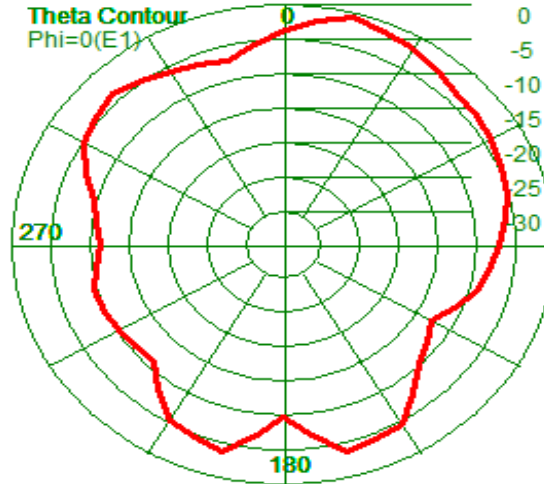
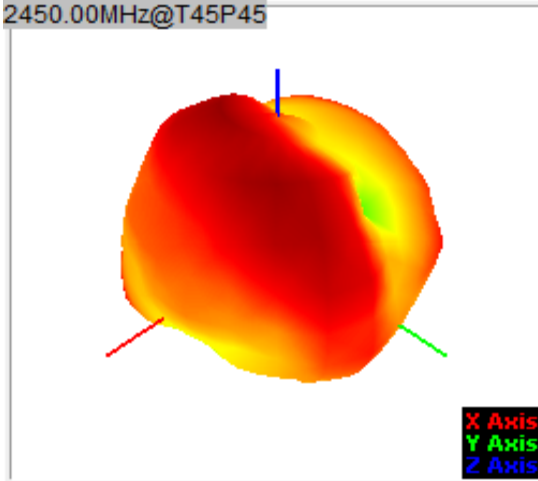
Data :

Freq. (MHz)	Gain (dBi)	Efficiency (%)
2400.0	-0.86	30.0%
2450.0	-0.38	32.0%
2500.0	0.34	36.9%
5150.0	3.73	46.1%
5250.0	3.51	44.2%
5350.0	2.09	44.1%
5450.0	0.31	38.9%
5550.0	1.22	36.8%
5650.0	0.95	39.3%
5750.0	0.76	37.7%
5850.0	-0.11	31.4%

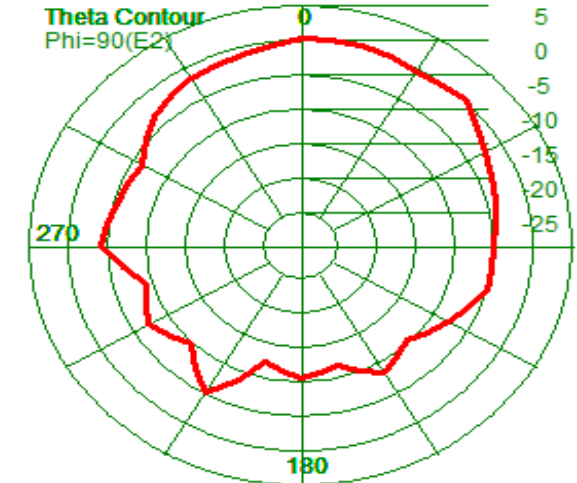
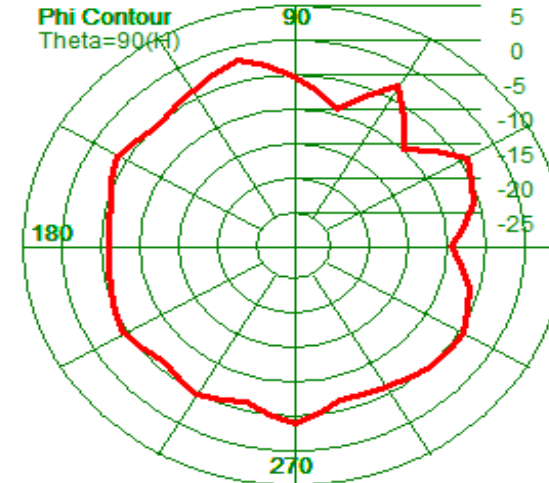
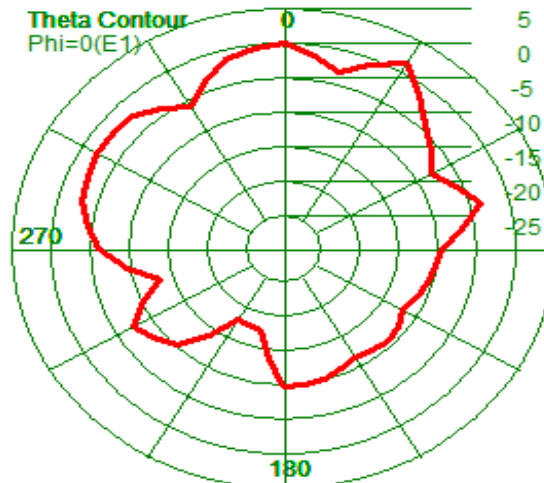
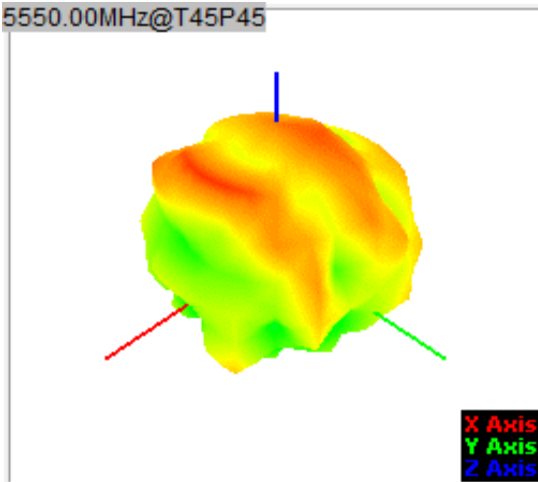
3.Test Result-- Return Loss、 Efficiency、 Gain

Radiation patterns :

2450.00MHz@T45P45



5550.00MHz@T45P45

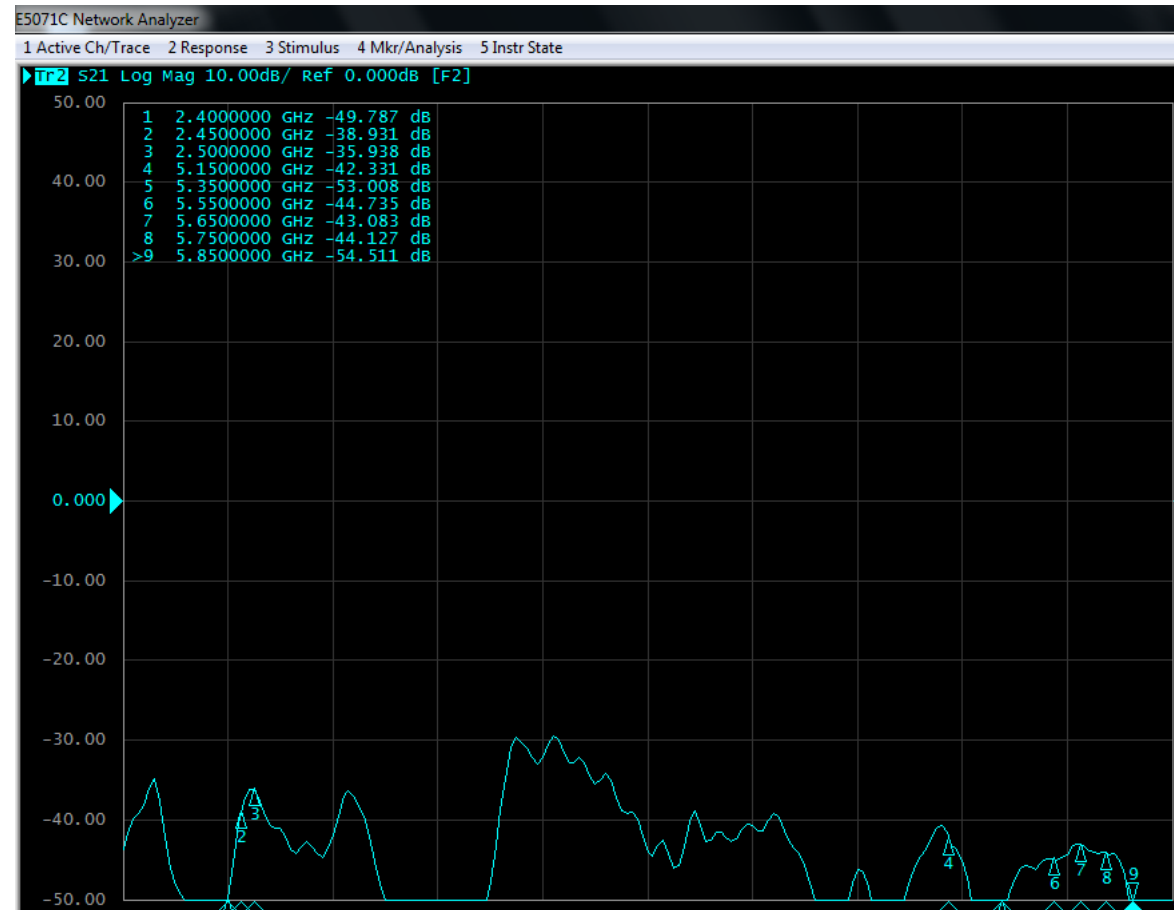


Signal Plus
Antennas

3.Test Result--- Active data

Mode	Channel	TRP	TIS
2.4g 11g 54M	1	12.28	-69.26
	6	12.46	-71.73
	11	11.79	-71.11
5g 11a 54M	36	10.45	-71.36
	100	13.75	-70.42
	165	11.94	-69.39

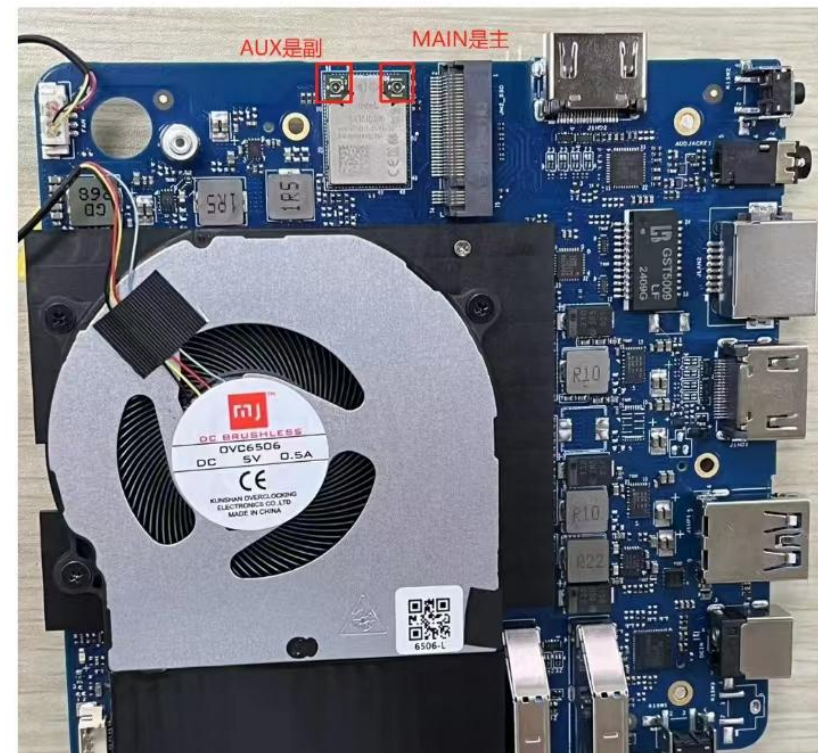
4.Isolation



5.Summary

1. 装天线时注意cable从主板的孔的下方穿过，如下图。
2. 风扇cable需要固定下来用来避开天线辐射区域。

- 
- 2.风扇cable需要固定下来用来避开天线辐射区域
- 1.装天线时注意cable从主板的孔的下方穿过



5.Summary

3.天线位置图。

