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: 2023.06.25

版本
REV.: A

客 户
CUSTOMER: SHINING 3D Tech. Co., Ltd

客 户 料 号
CUSTOMER P/N:

品 名
PART NAME: Internal PCB antenna 2.4G&5G 1.37 Black Low-loss cable L240mm with RF CONN foam tape for L6D

供 方 料 号
SUPPLIER P/N: 6081F00004

送样日期Date: 送样数量Q'TY: Pcs

客户确认CUSTOMER APPROVED BY		
核准 Approvaled by	审核 Checked by	拟制 Prepared by

供方确认SUPPLIER SIGNATURE		
核准 Approvaled by	审核 Checked by	拟制 Prepared by
Jack		andy

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

Specification

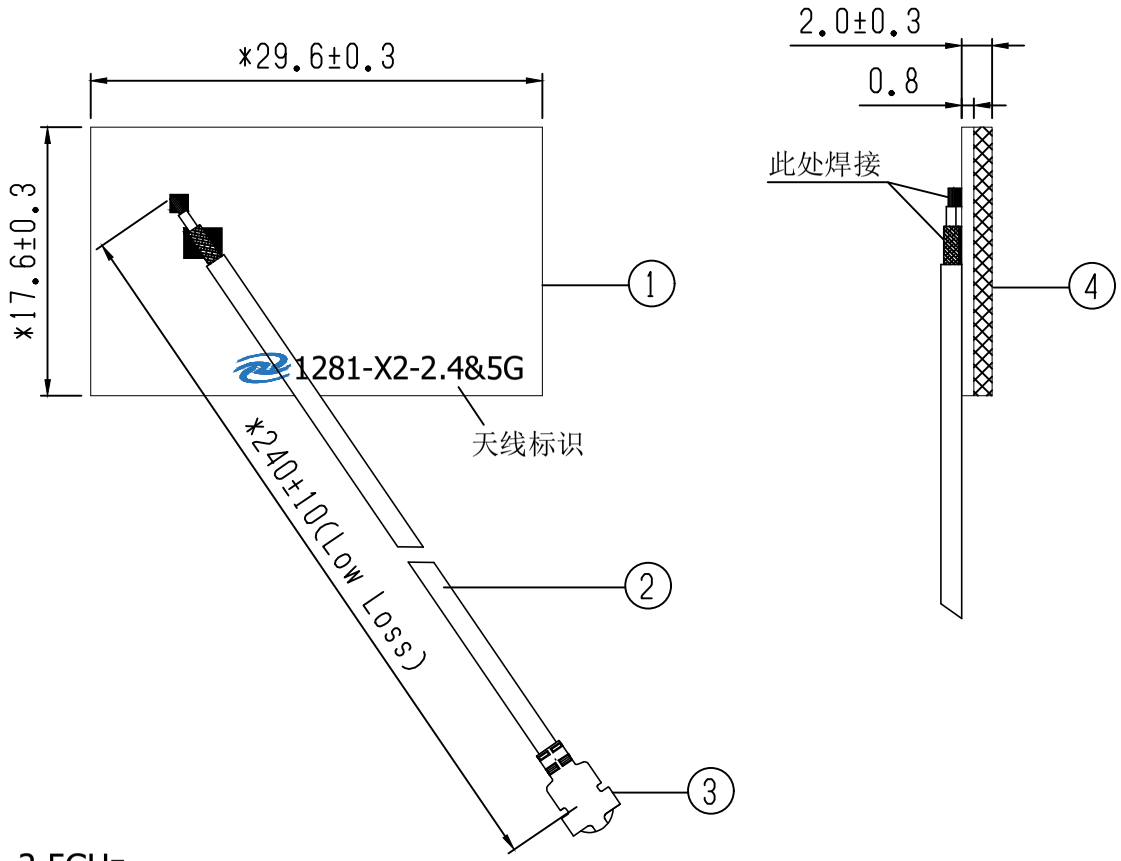
1

1 1 …… 2400~2500MHz&5150~5850MHz
1 2 …… 50Ω
1 3 …… ≤2.0
1 5 …… 5

2

2 1 …… 1 37
2 2 …… 1
2 3 …… 20℃ ~ 5℃
2 4 …… 30℃ ~ 75℃

REV	DATE	DESCRIPTION
X1	06/21-2023	New Issue



1.ELECTRICAL PROPERTIES:
- 1.1 Frequency Range...2.4~2.5GHz
- 1.2 Impendance.....50 Ohm Nominal
- 1.3 VSWR.....2.0(Max)(Tested with housing)

2.These Products are in conformity with ROHS2.0

3.Strict sizes are marked with "*",and () for reference.

4.The product is complied with the 48-hour salt spray test

NO	DESCRIPTION		Q'TY	REMARK
4	泡棉双面胶	EVA,T=1.0mm&3M 9888T	1	
3	Connector	IPEX compatible;Gold Plated	1	
2	Cable	1.37 Coaxial cable;Low Loss;Black	1	
1	内置PCB板	FR4，单面板，表面覆盖黑油	1	501-1-1281-X2

XXX.	±2.0	APPROVED	CUSTOMER:		
XX.	±1.0		PART NO:		
X.	±0.5	CHECKED	PART NAME:	内置2.4G&5G天线 for L6D	
.X	±0.3		Z&X P/NO:	6081F00004	
.XX	±0.2	DRAWING	REV	UNIT	FILE:
			X1	mm	SHEET: 1/1

CUSTOMER'S SINGATURE

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

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

Antenna Test Report

L6D

Signal Plus Technology Co., Ltd

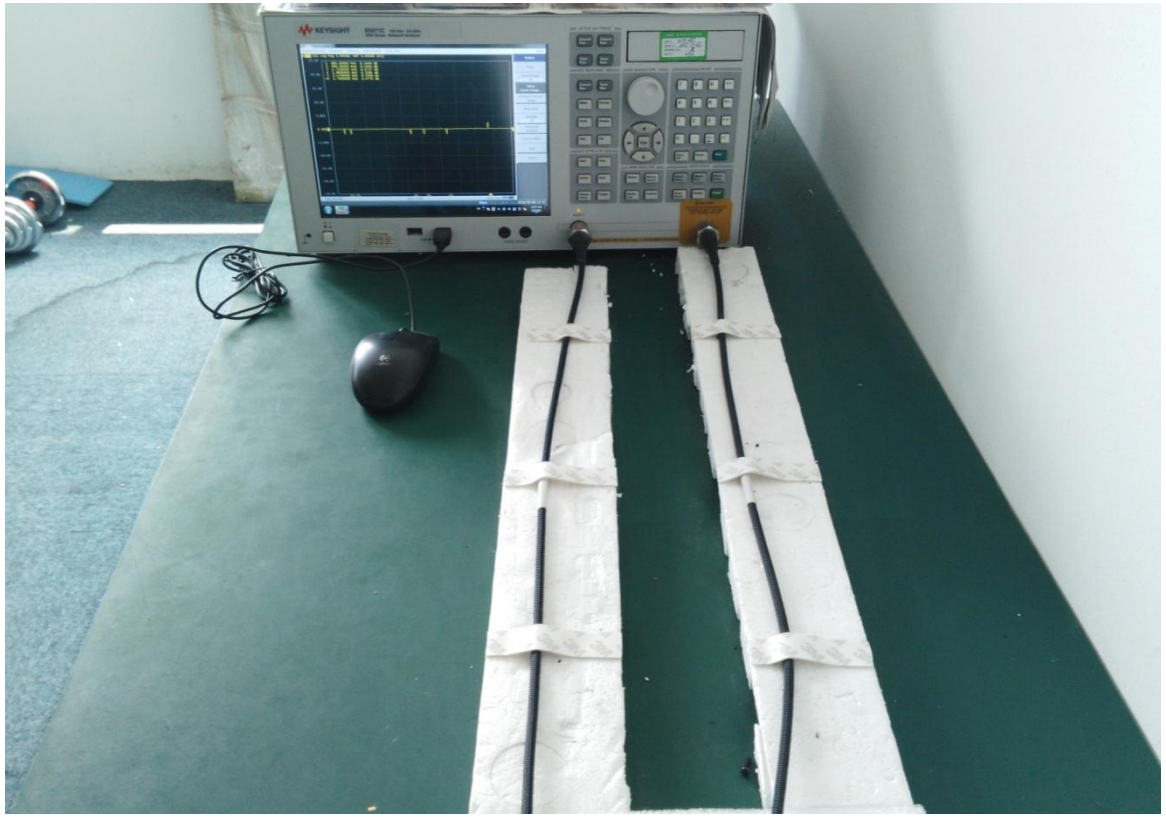
List of contents

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 tests fixtures. The isolation between antennas is also tested. The testing was performed with apparatus in free space.



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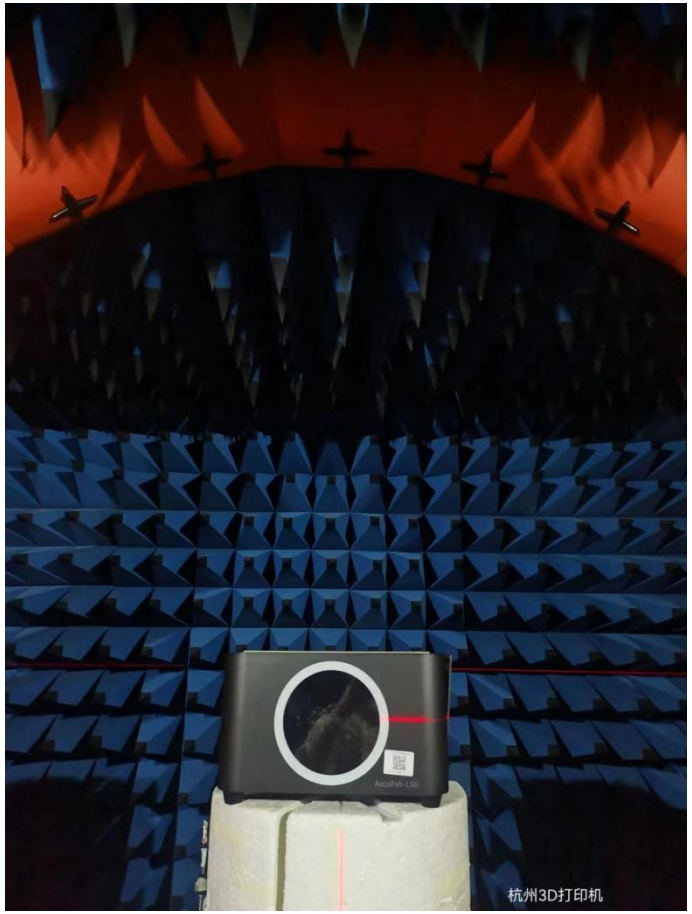
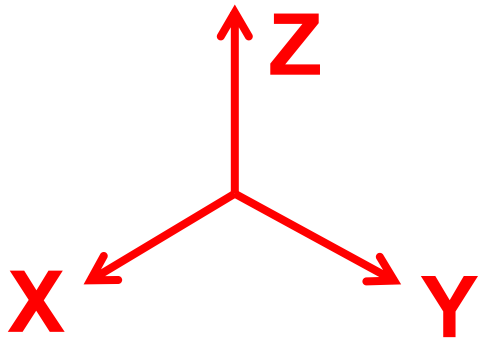
1.Test system description--- Anechoic Chamber Test Setup

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.





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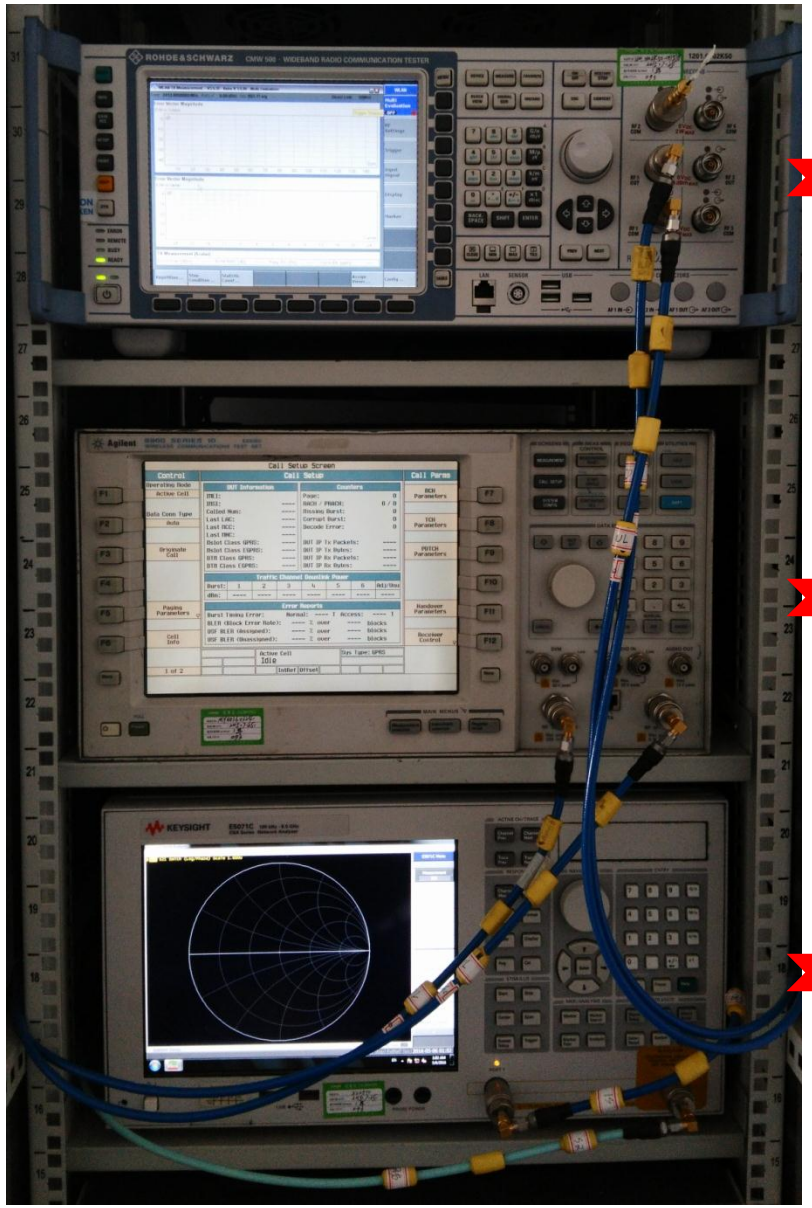
1.Test system description--- Test Instruments

1.1.3 Instruments



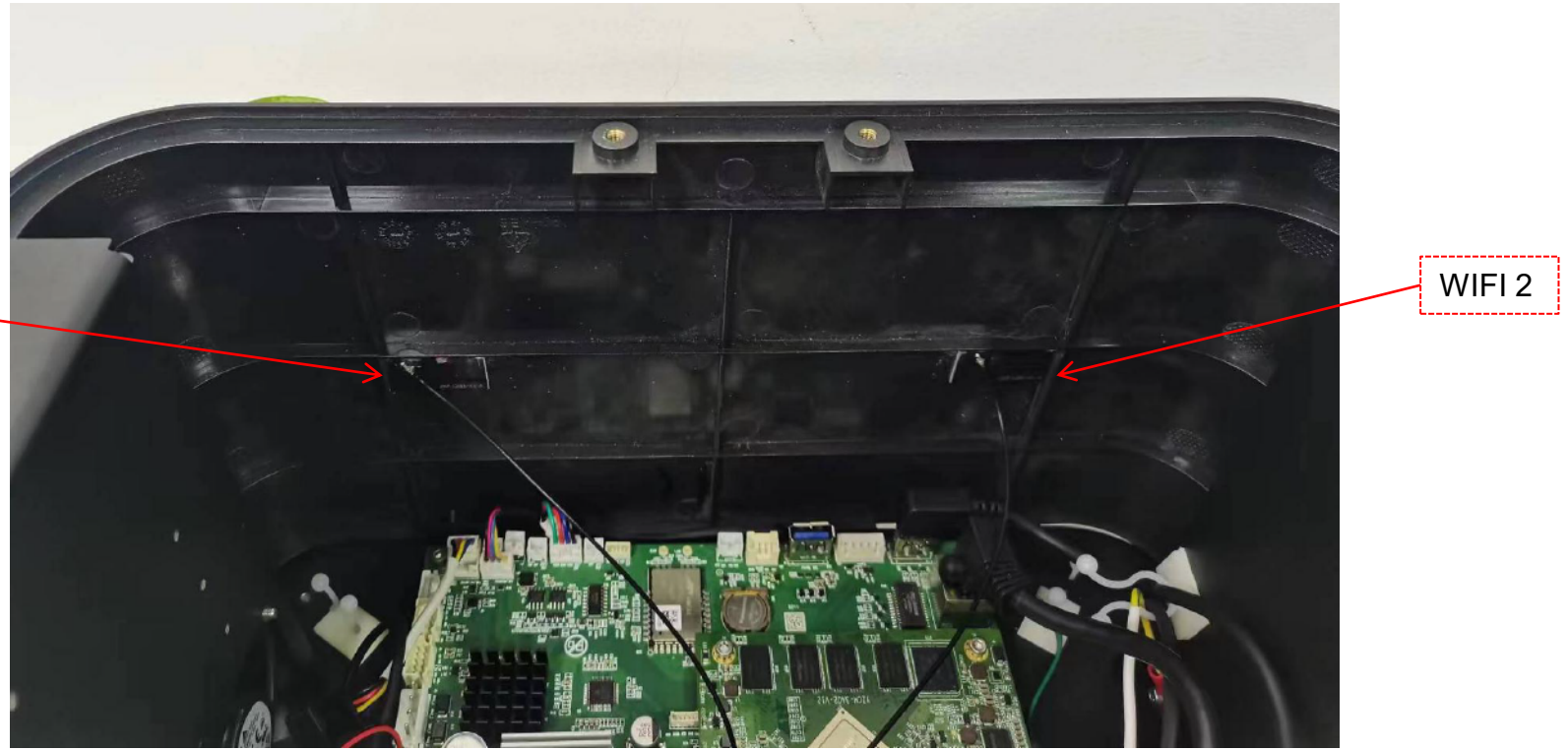
R&S CMW500
4G/WIFI
（LTE/WIFI b/g/a）

Agilent 8960
2G/3G
（GSM/CDMA/WCDMA）

KeySight E5071C
(400MHz~6GHz)

2. Antenna Solution

2.1 Antenna Location Pictures for passive



线长：240mm

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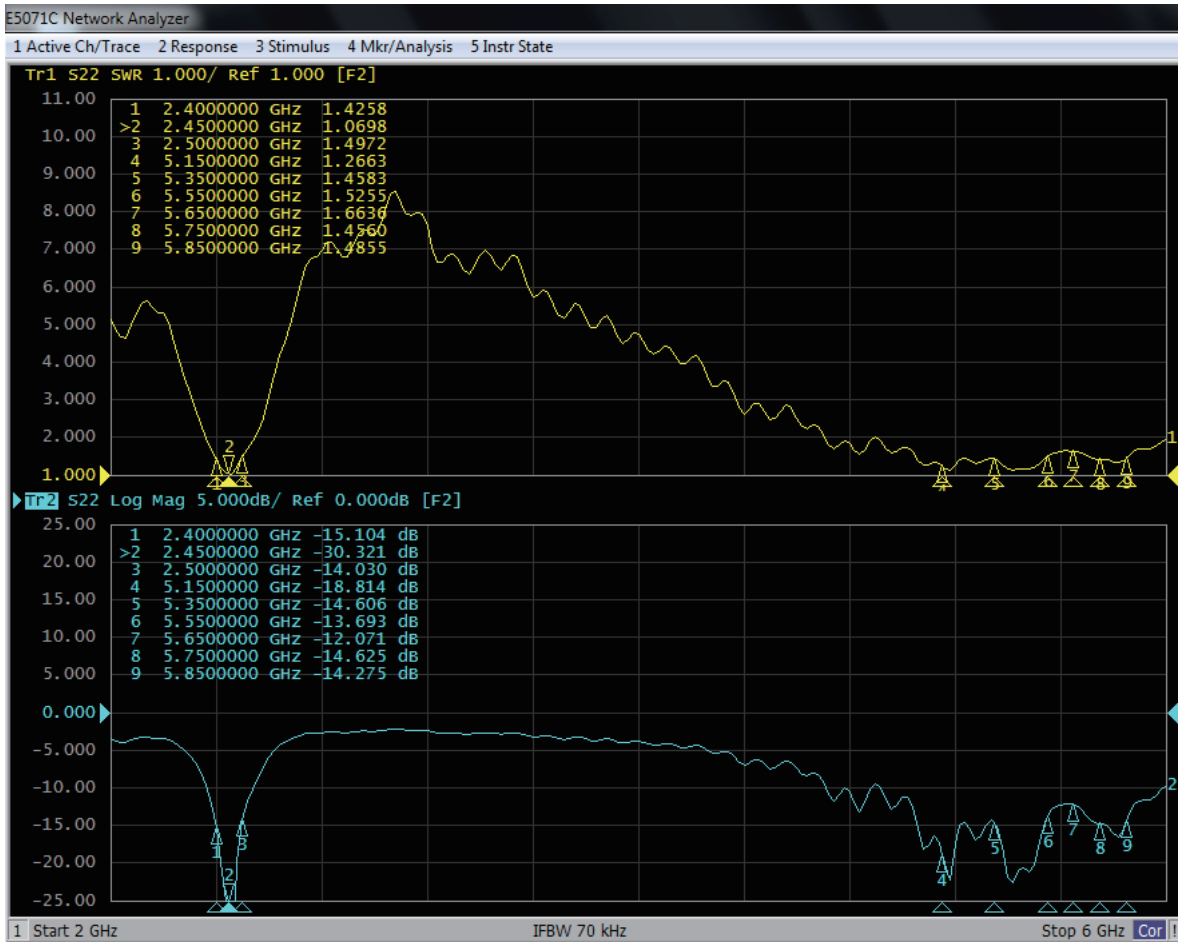
3. Test Result--Return Loss

S11 （WIFI 1- Left ）:



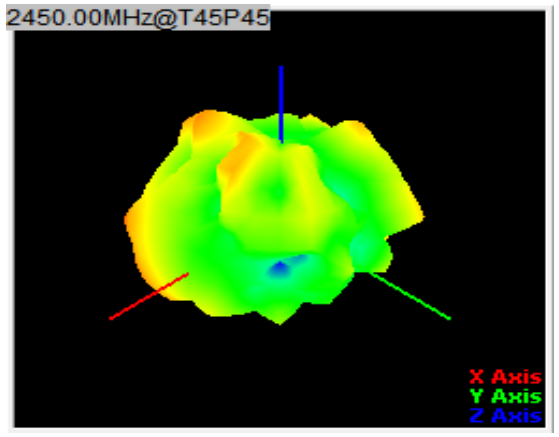
3. Test Result--Efficiency Gain

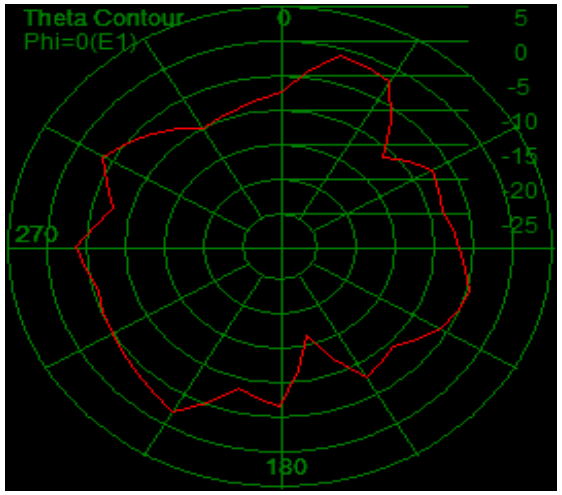
Data (WIFI 1- Left):

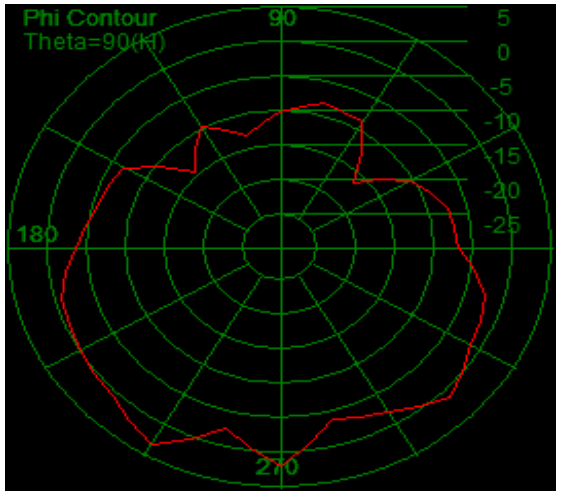
Freq. (MHz)	Gain (dBi)	Efficiency (%)
2400.0	3.17	52.9%
2450.0	4.68	55.0%
2500.0	5.39	55.3%
5150.0	2.94	55.4%
5250.0	2.54	54.1%
5350.0	3.13	56.8%
5450.0	3.72	56.1%
5550.0	3.26	55.9%
5650.0	4.11	55.0%
5750.0	3.74	56.8%
5850.0	4.30	56.1%

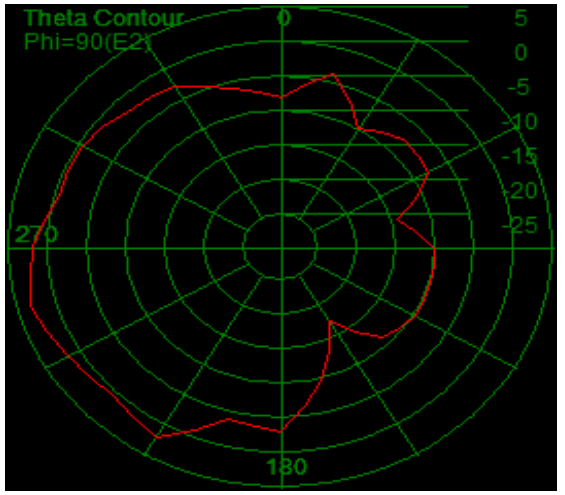
3.Test Result---Efficiency、Gain

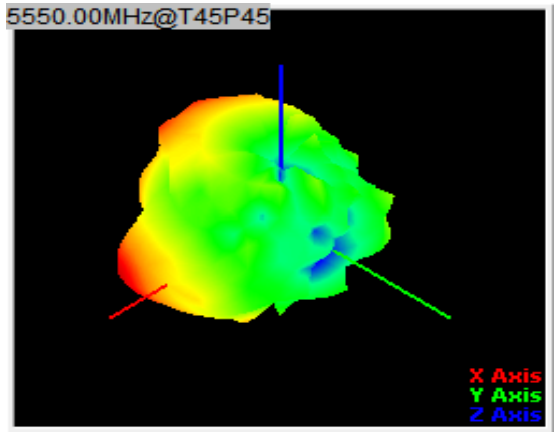
Radiation patterns:

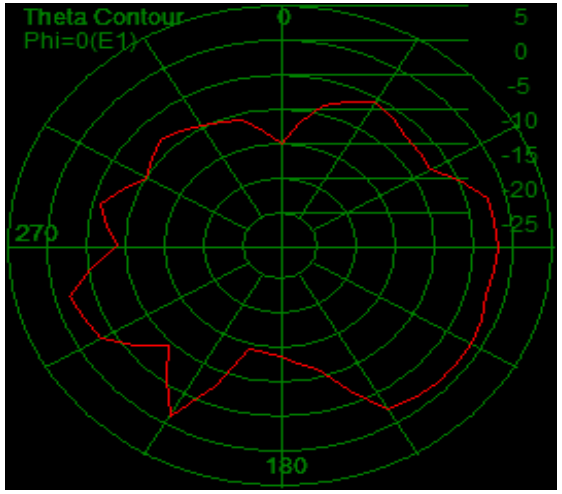


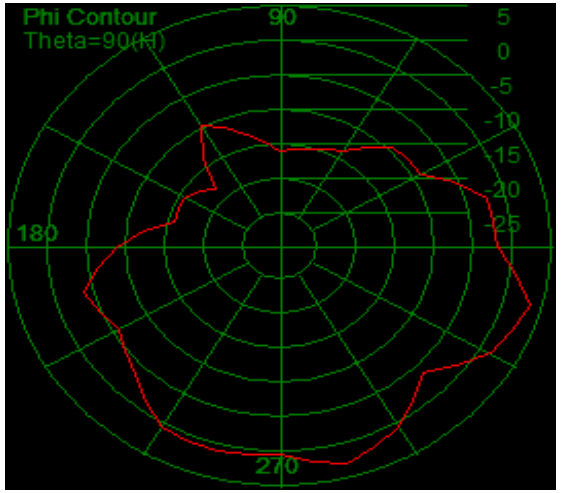


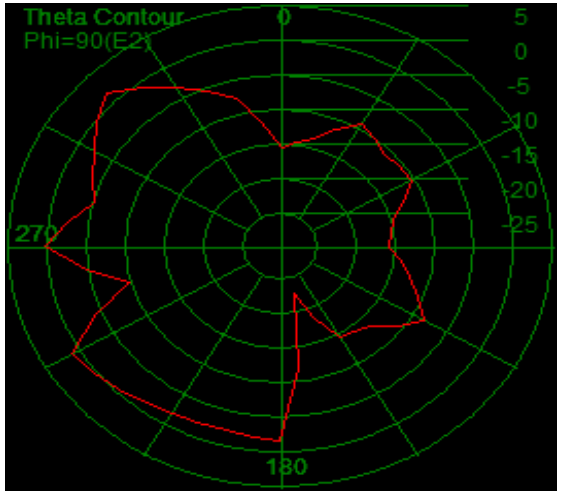












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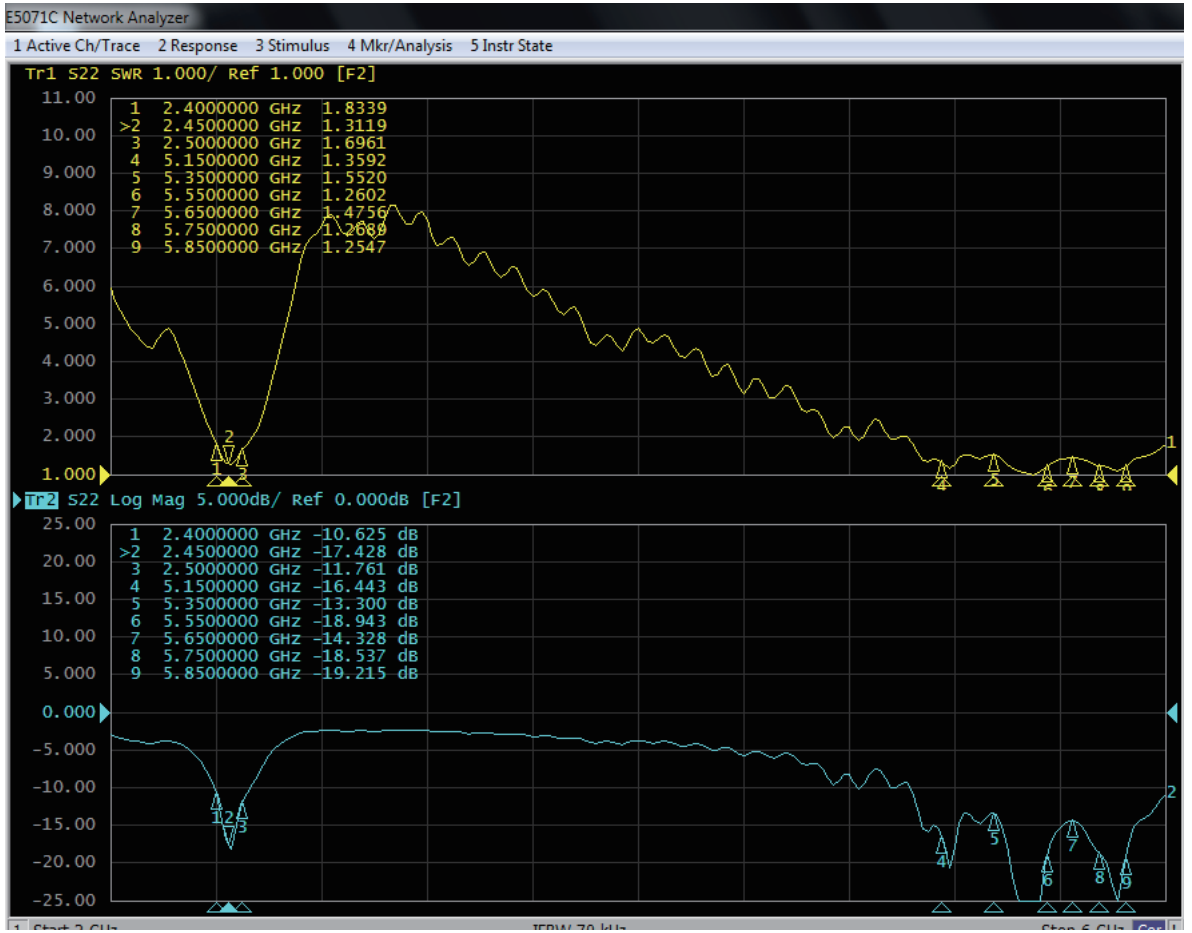
3. Test Result--Return Loss

S11 （WIFI 2-Right):



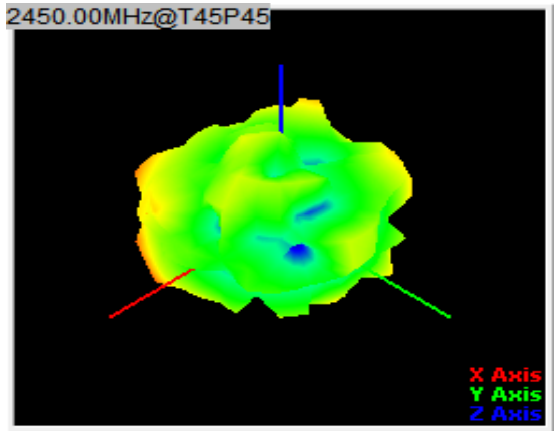
3. Test Result--Efficiency Gain

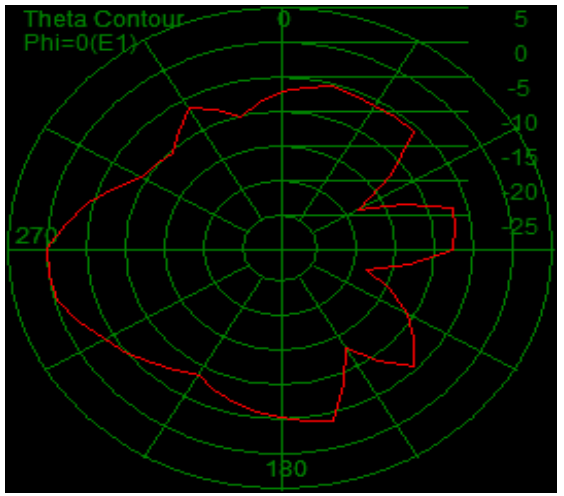
Data (WIFI 2-Right):

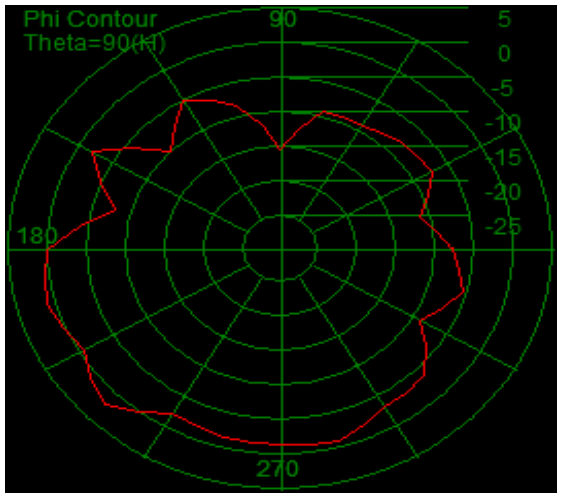
Freq. (MHz)	Gain (dBi)	Efficiency (%)
2400.0	3.23	51.2%
2450.0	2.91	51.8%
2500.0	2.33	53.5%
5150.0	4.65	55.6%
5250.0	3.15	55.2%
5350.0	3.24	56.0%
5450.0	3.90	55.8%
5550.0	3.17	53.3%
5650.0	5.72	52.9%
5750.0	4.62	52.0%
5850.0	5.63	54.5%

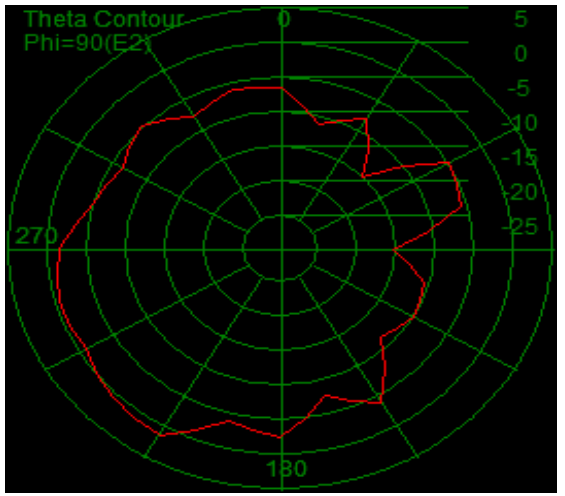
3.Test Result---Efficiency、Gain

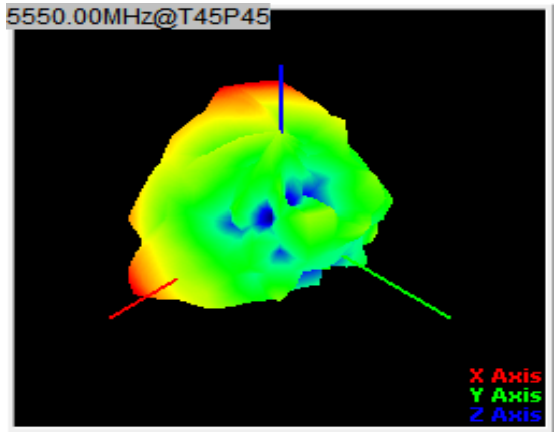
Radiation patterns:

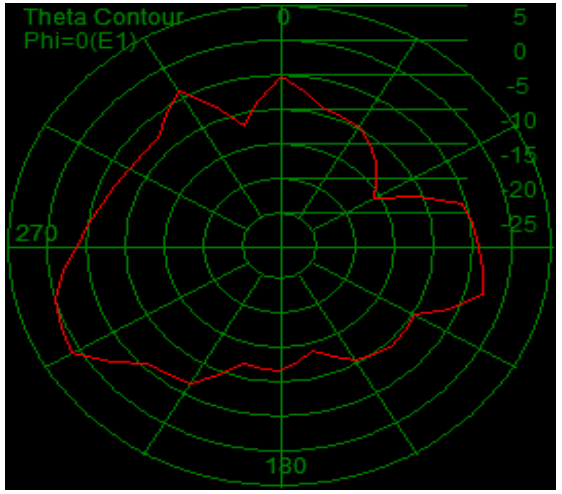


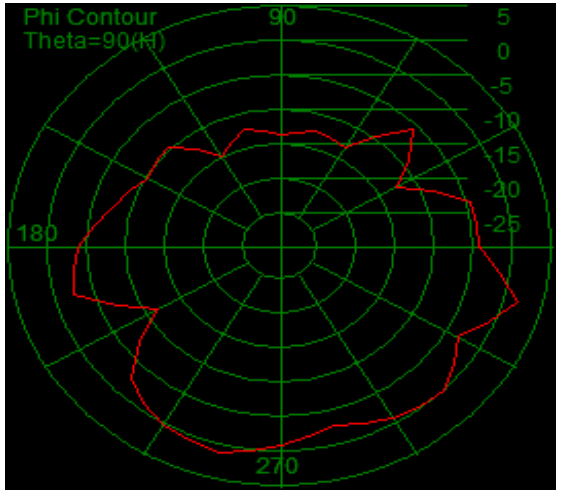


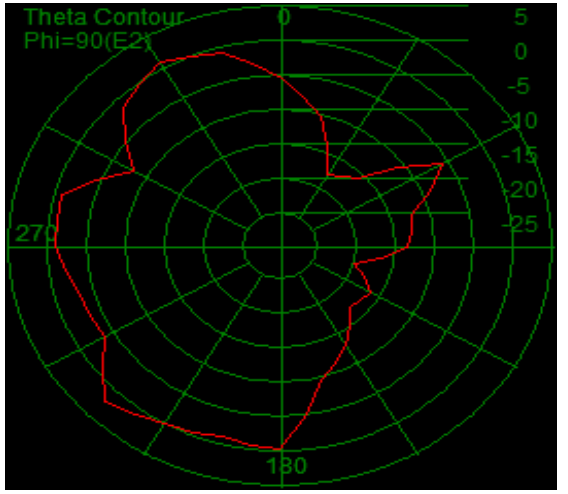












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5.Isolation

S21: