



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: 2024.09.03

版本
REV.: A

客 户
CUSTOMER: 上海华测导航技术股份有限公司
Shanghai Huace Navigation Technology Ltd.

客 户 料 号
CUSTOMER P/N:

品 名
PART NAME: 外置2.4G+4G二合一天线 RG58黑色L=5000mm with TNC内螺纹针 *2
External 2.4G+4G Two-in-one antenna RG58 black L=5000mm with TNC Internal thread needle *2

供 方 料 号
SUPPLIER P/N: 6068F00114

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

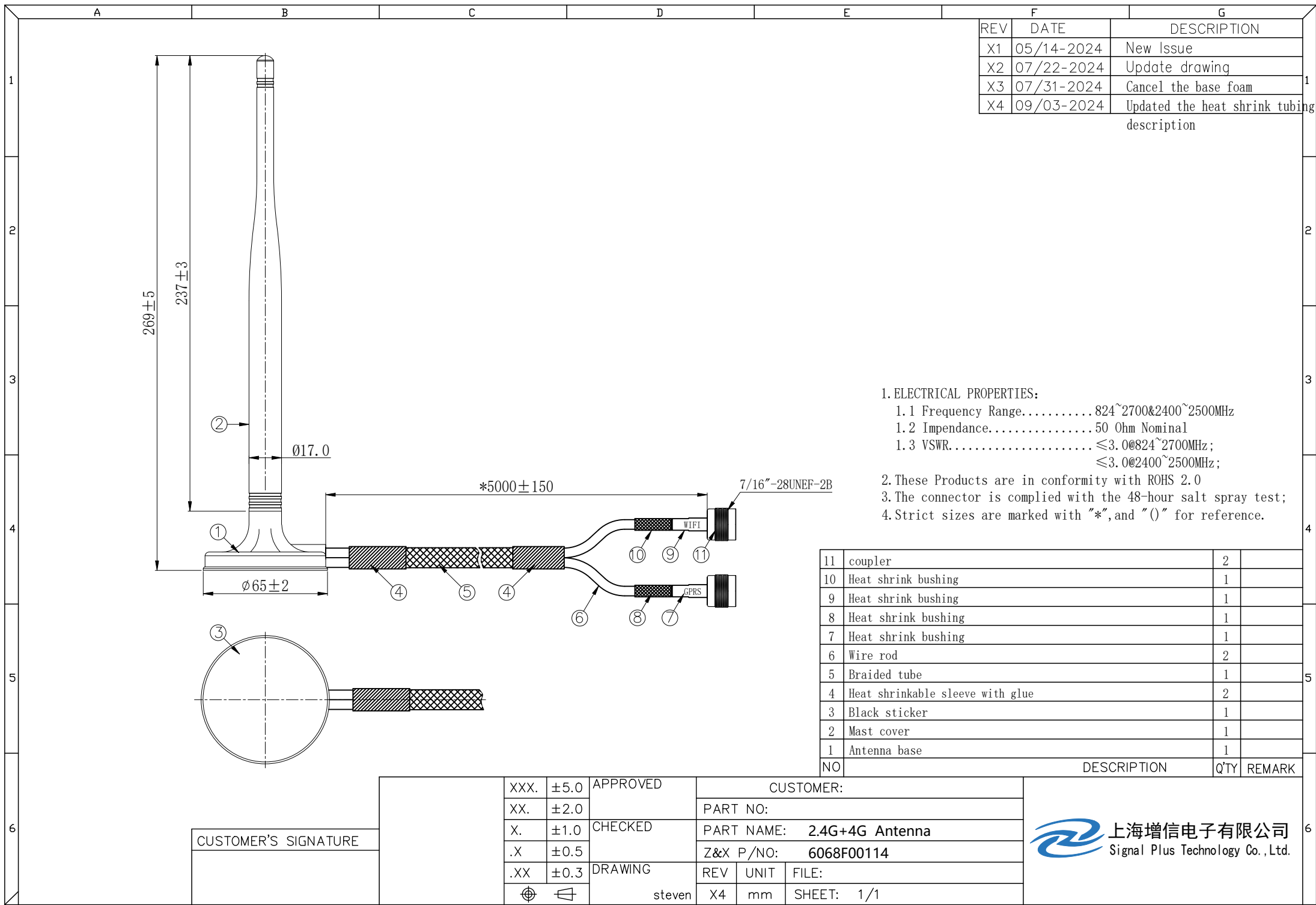
供方确认SUPPLIER SIGNATURE		
核准 Approved by	审核 Checked by	拟制 Prepared by
Andy		Cindy

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	 4~10



REV	DATE	DESCRIPTION
X1	05/14-2024	New Issue
X2	07/22-2024	Update drawing
X3	07/31-2024	Cancel the base foam
X4	09/03-2024	Updated the heat shrink tubing description

1. ELECTRICAL PROPERTIES:
- 1.1 Frequency Range.....824~2700&2400~2500MHz
- 1.2 Impedance.....50 Ohm Nominal
- 1.3 VSWR.....≤3.0@824~2700MHz;
≤3.0@2400~2500MHz;
2. These Products are in conformity with ROHS 2.0
3. The connector is complied with the 48-hour salt spray test;
4. Strict sizes are marked with "*", and "()" for reference.

11	coupler	2	
10	Heat shrink bushing	1	
9	Heat shrink bushing	1	
8	Heat shrink bushing	1	
7	Heat shrink bushing	1	
6	Wire rod	2	
5	Braided tube	1	
4	Heat shrinkable sleeve with glue	2	
3	Black sticker	1	
2	Mast cover	1	
1	Antenna base	1	
NO	DESCRIPTION	Q'TY	REMARK

CUSTOMER'S SIGNATURE	XXX.	±5.0	APPROVED	CUSTOMER:		
	XX.	±2.0		PART NO:		
	X.	±1.0	CHECKED	PART NAME: 2.4G+4G Antenna		
	.X	±0.5		Z&X P/NO: 6068F00114		
	.XX	±0.3	DRAWING	REV	UNIT	FILE:
	⊕	⊖		X4	mm	SHEET: 1/1



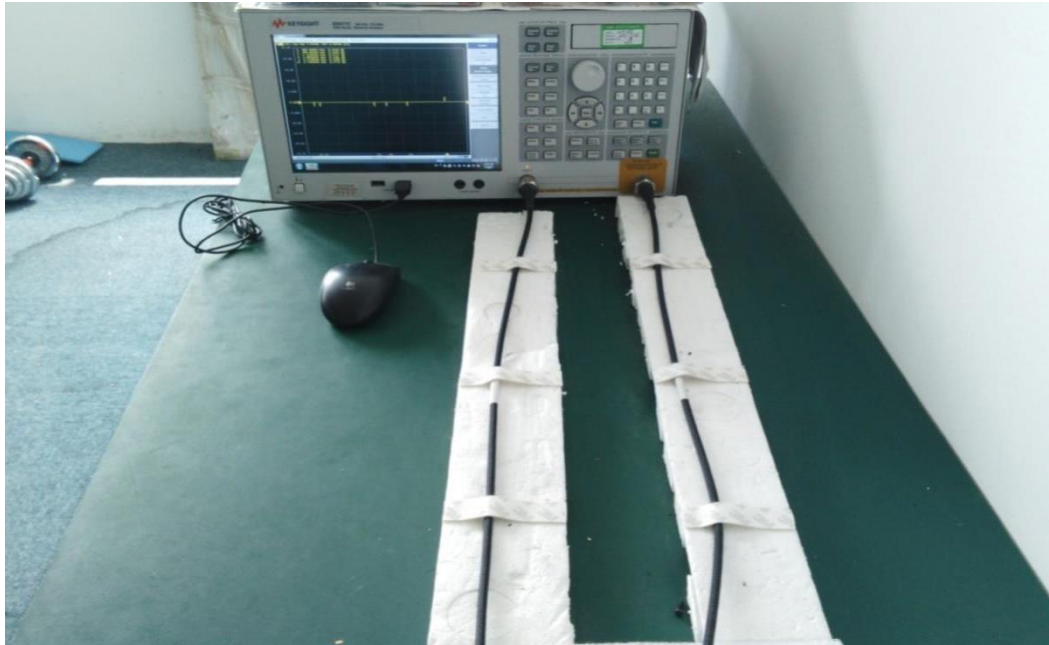
Antenna Test Report

1. RF Fixture Experiment

1.1 Test Setup

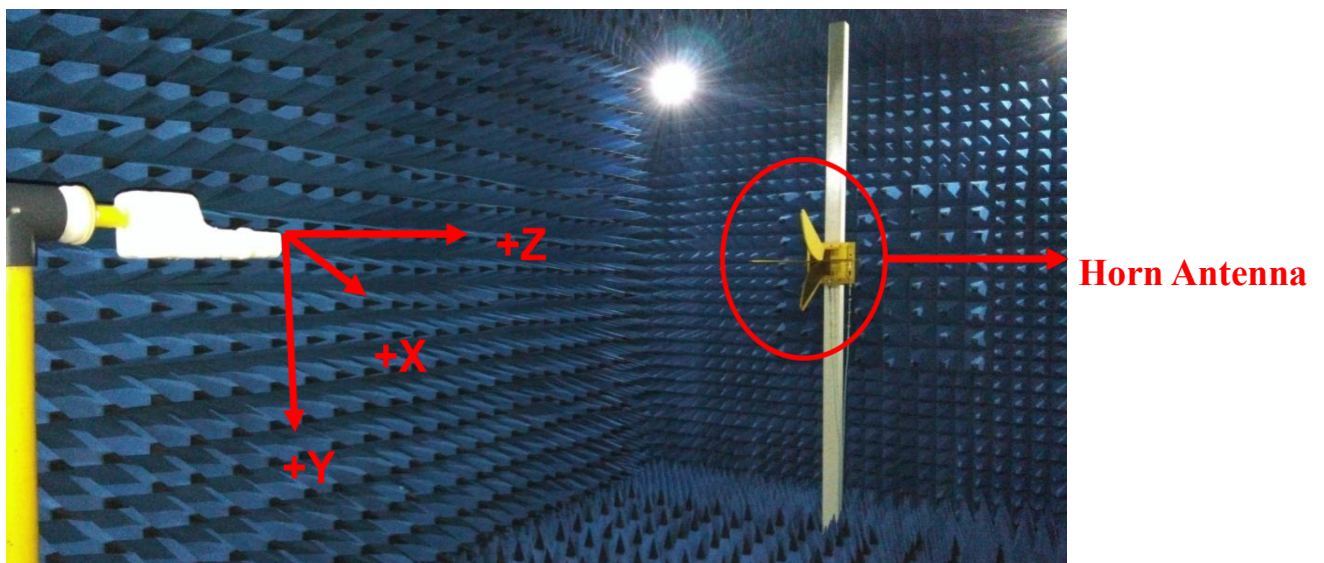
1.1.1 VNA Test Setup

VSWR and Return Loss measurements (S_{11}) were performed using an Keysight E5071C Network Analyzer. The isolation between antennas is also tested. The testing was performed with apparatus in free space.

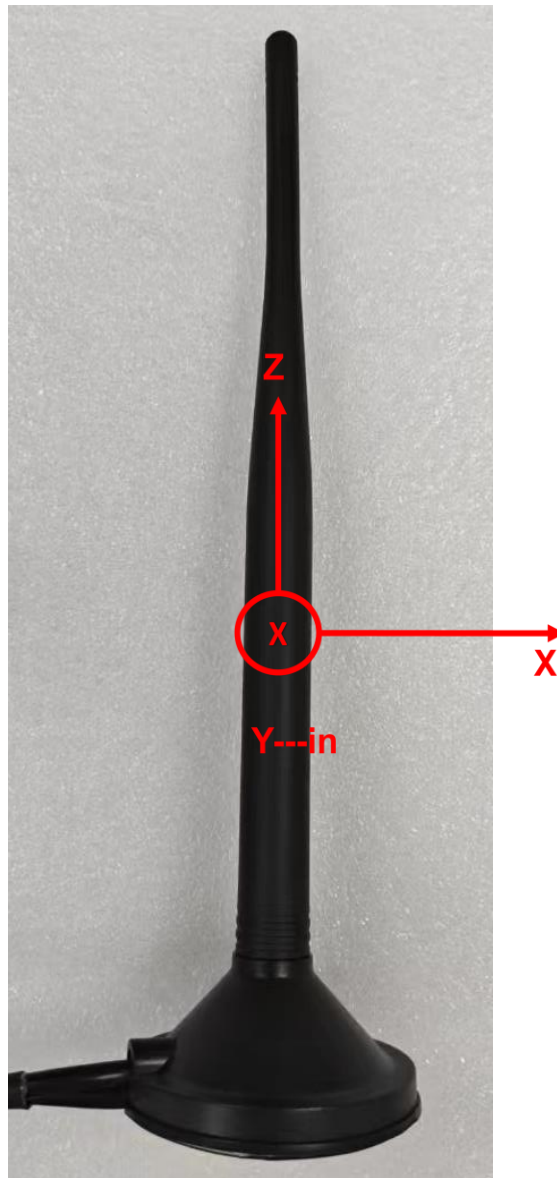


1.1.2 Anechoic Chamber Test Setup

The gain of the antenna was measured in the anechoic chamber. 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.



2. Antenna Solution



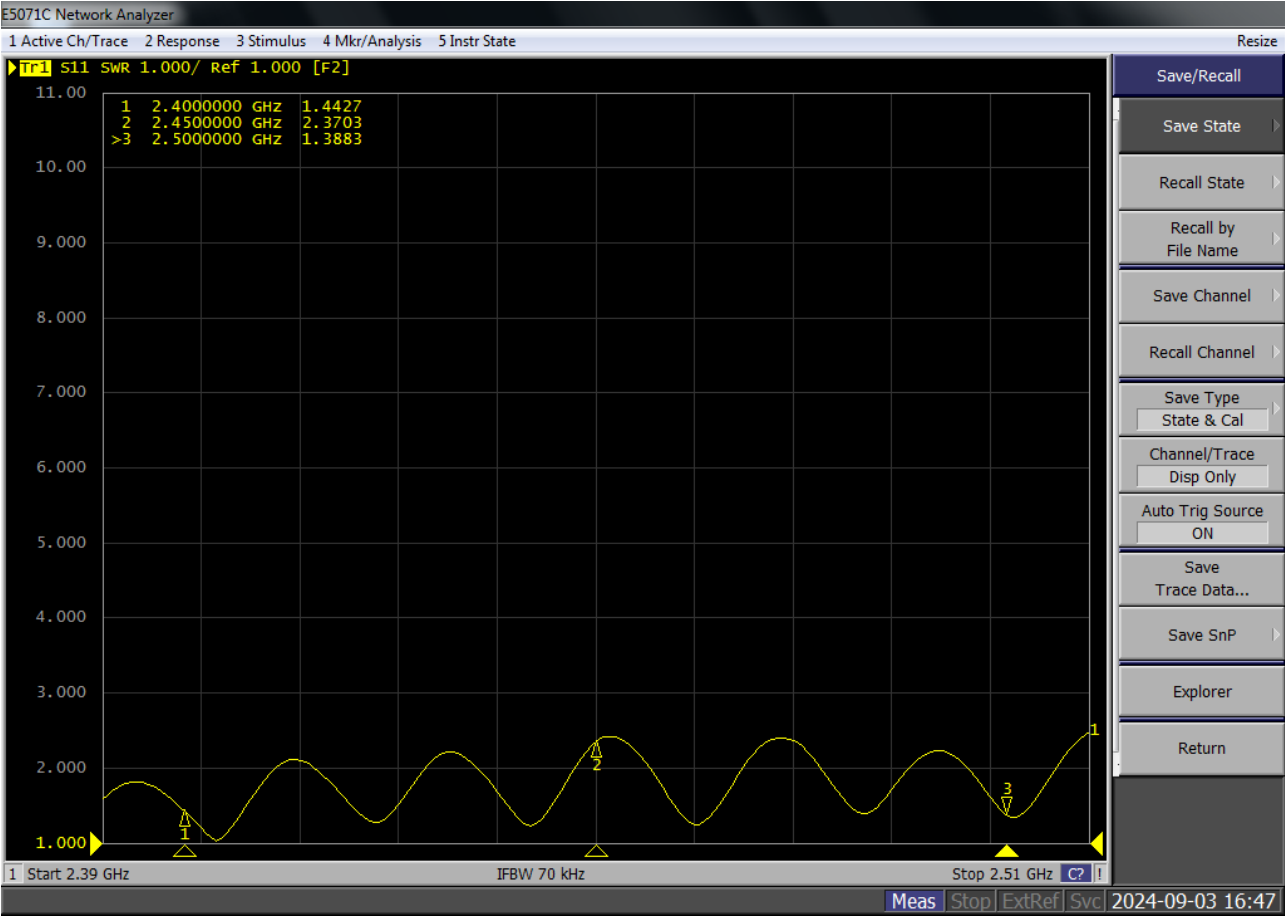
Data Preview
wifi

Freq.(MHz)	2400	2450	2500
VSWR	1.44	2.37	1.38
Gain(dBi)	1.59	-0.92	-0.86
Eff.%	16.80	11.20	13.40

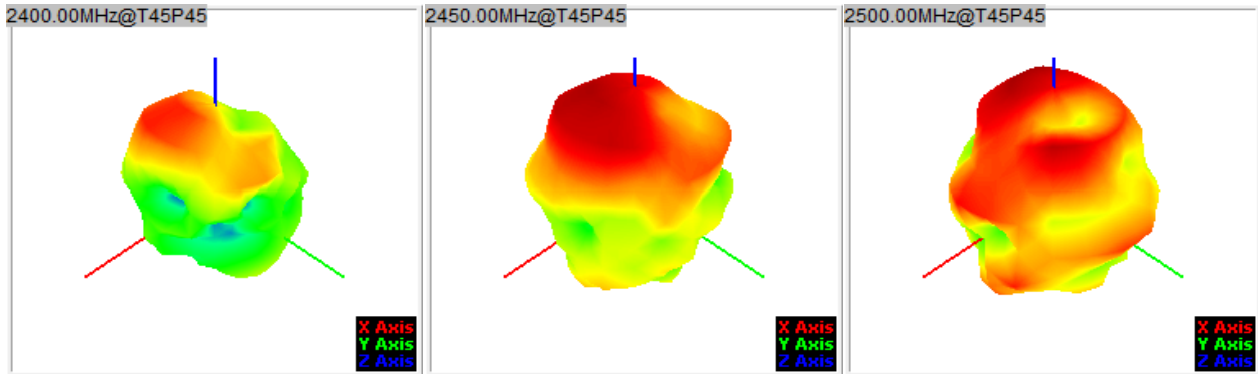
4G

Freq.(MHz)	824	880	960	1710	2170	2300	2500	2700
VSWR	1.29	1.43	1.33	1.26	1.28	2.11	1.77	1.65
Gain(dBi)	0.48	0.44	0.63	1.42	2.06	2.31	1.29	-0.19
Eff.%	35.10	31.60	41.20	34.90	27.50	21.80	21.70	19.20

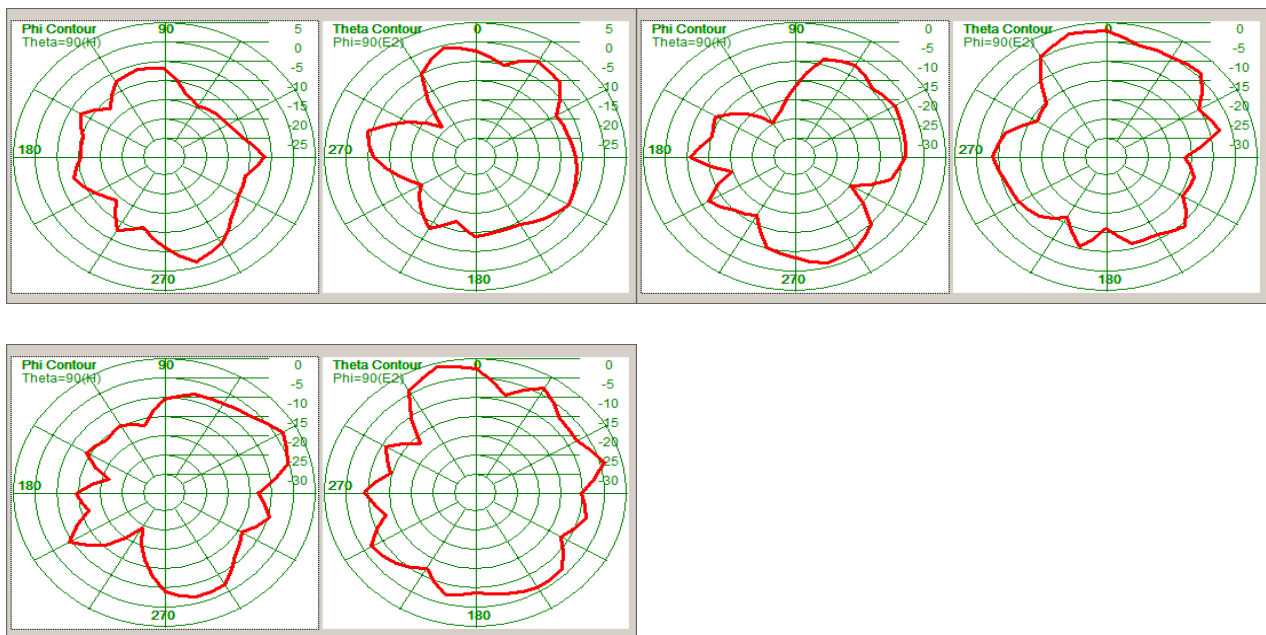
wifi
S11



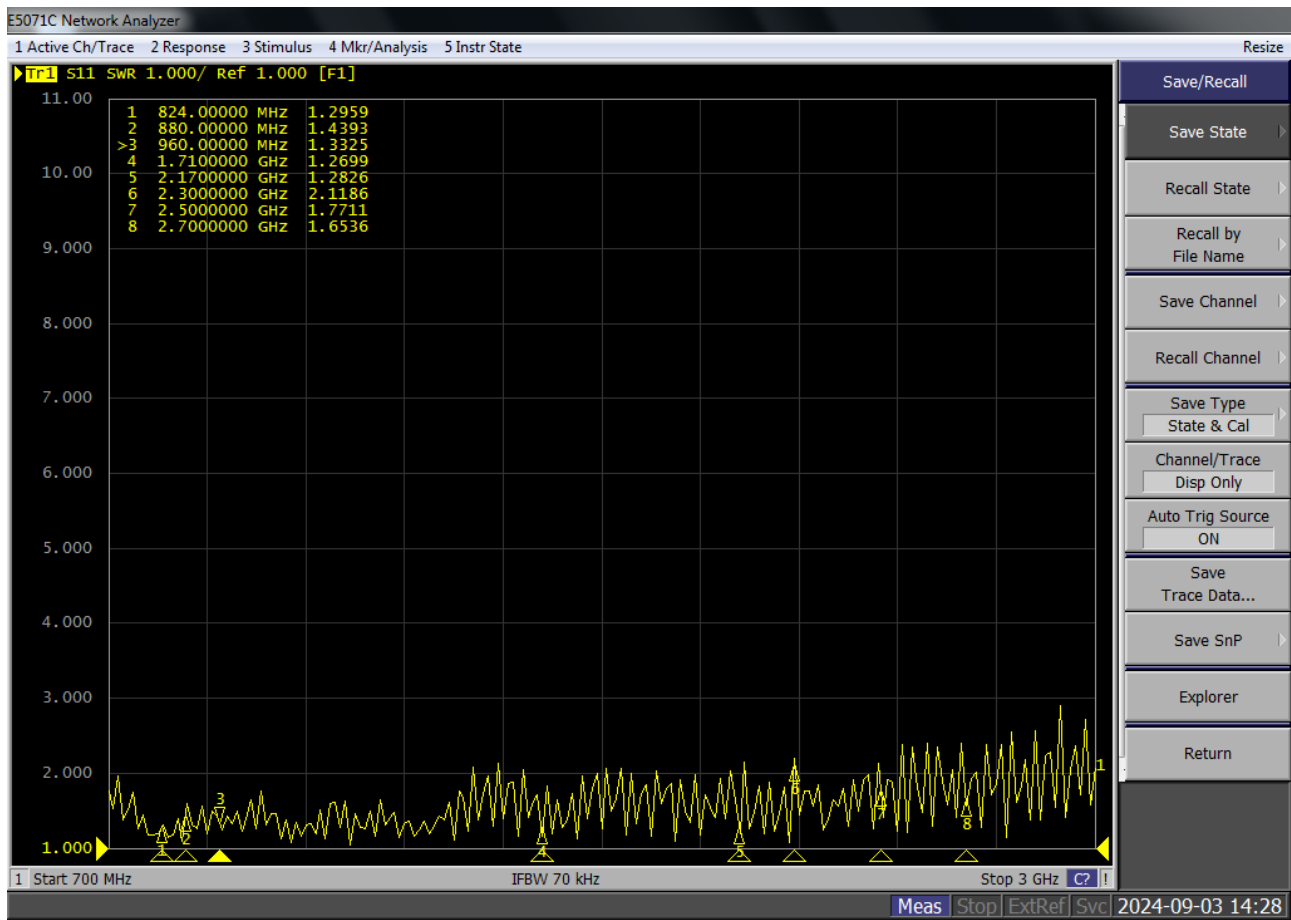
Radiation patterns:3D(2400/2450/2500MHz)



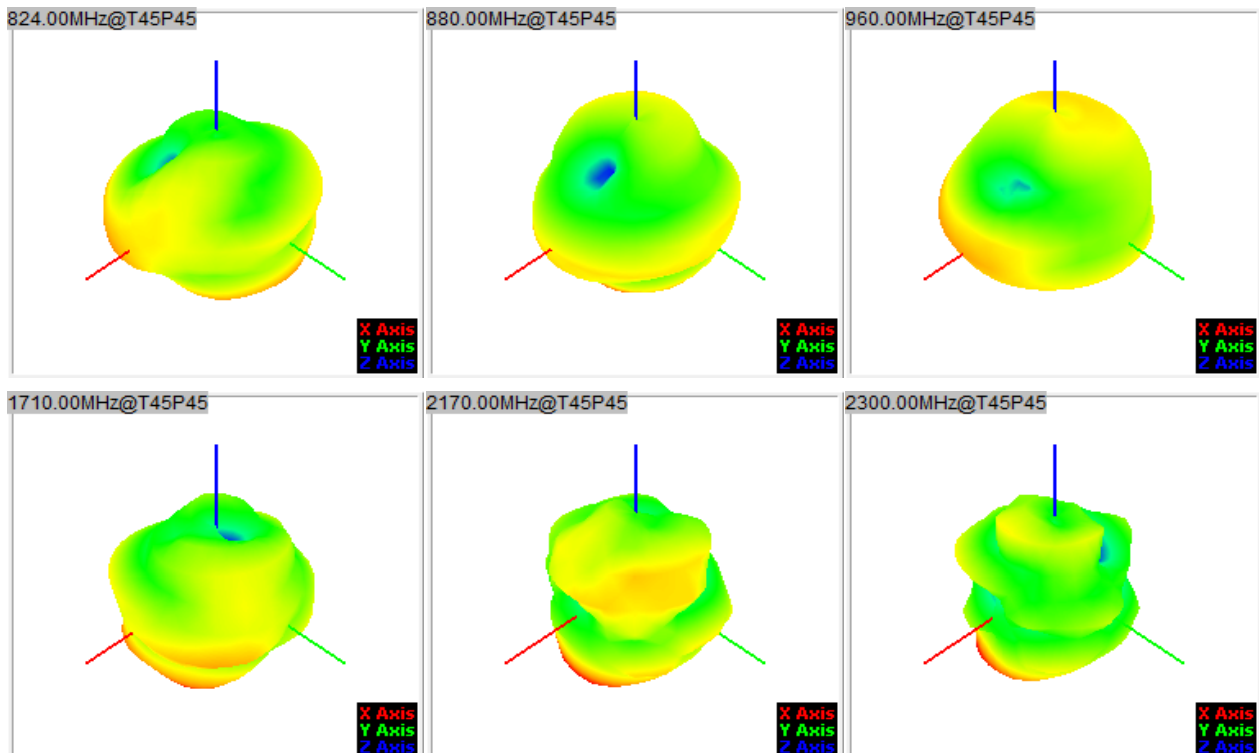
Radiation patterns:2D(2400/2450/2500MHz)

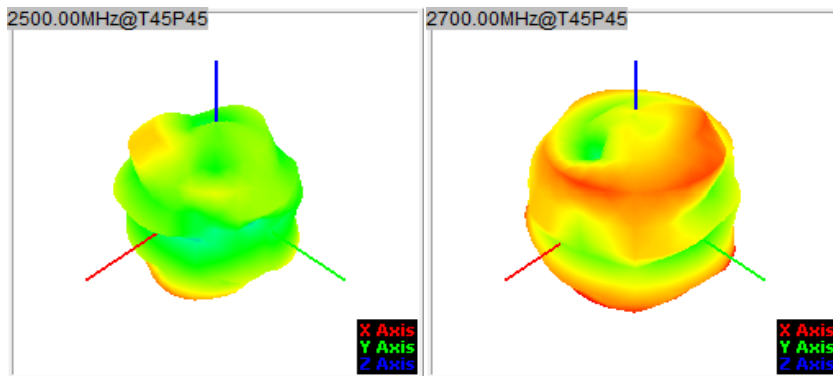


4G
S11



Radiation patterns:3D(824/880/960/1710/2170/2300/2500/2700MHz)





Radiation patterns:2D(824/880/960/1710/2170/2300/2500/2700MHz)

