



ANTENNA PASSIVE TEST REPORT
(FreeSpace & OnHead)

Applicant: Grandsun
Product Name: YOGA
Model No.(EUT): YOGA (EV)
Date of Receipt: 2025-12-06
Date of Test: 2025-12-06

Tested by: Max.Chen
Made by: Max.Chen
Checked by: Noki.Ho



Shenzhen Grandsun Electronic Co.,Ltd

REVISION HISTORY

Revision Record		
Version	Date	Reason for change
V0.1	2025-12-06	First edition



CONTENTS

1. GENERAL INFORMATION.....	4
1.1 Test Location.....	4
1.2 Test item and results.....	4
1.3 Laboratory Environment.....	4
1.4 Test Equipments List.....	4
1.5 Measurement Uncertainty.....	4
1.6 Test Standard.....	4
1.7 Antenna Information.....	4
2. OTA MEASUREMENTS SYSTEM CONFIGURATION.....	5
3. TEST RESULTS.....	6
3.1 Efficiency & Gain.....	6
3.2 2-D antenna pattern.....	8
3.3 3-D antenna pattern.....	8
3.4 Passive pattern.....	11
4. APPENDIX A THE EUT AND TEST CONFIGURATION.....	14



1. GENERAL INFORMATION

1.1 Test Location

Company: Shenzhen Grandsun Electronics Co.,Ltd.
Address: Gaoqiao Industry Zone,Pingdi Town,Longgang District,Shenzhen,China
Post code: 518117
Telephone: +86-755-89234568

1.2 Test item and results

Test detailed items/section as below:

NO	Items
1	Gain
2	Efficiency
3	2-D/3-D pattern

1.3 Laboratory Environment

Temperature	Min.=18℃	Max.=24℃
Relative humidity	Min.=30%	Max.=70℃
Shield effect	0.5-10GHZ	> 100dB
Ground resistance	<0.4 Ω	

1.4 Test Equipments List

Equipment Name	Model NO.	Manufacture	Calibration	Valid Period
Network Analyzer	E5071C	Keysight	2026-04-20	One year
Chamber	AMS-8923-195	ETS-LINDGERN	2026-04-20	One year
Software	EMQuest Version 1.10 Bulid24839 SN:1560	ETS-LINDGERN	/	/

1.5 Measurement Uncertainty

Item	2.4GHZ-2.5GHZ(dB)
Gain	0.3
Efficiency	0.3

1.6 Test Standard

Test item	Parameter	Method	Standard
Passive	Antenna	IEEE Std Test produces For Antenna	IEEE Std 149
Active	TRP/TIS	CTIA Test Plan produces For TRP/TIS	CTIA Test Plan

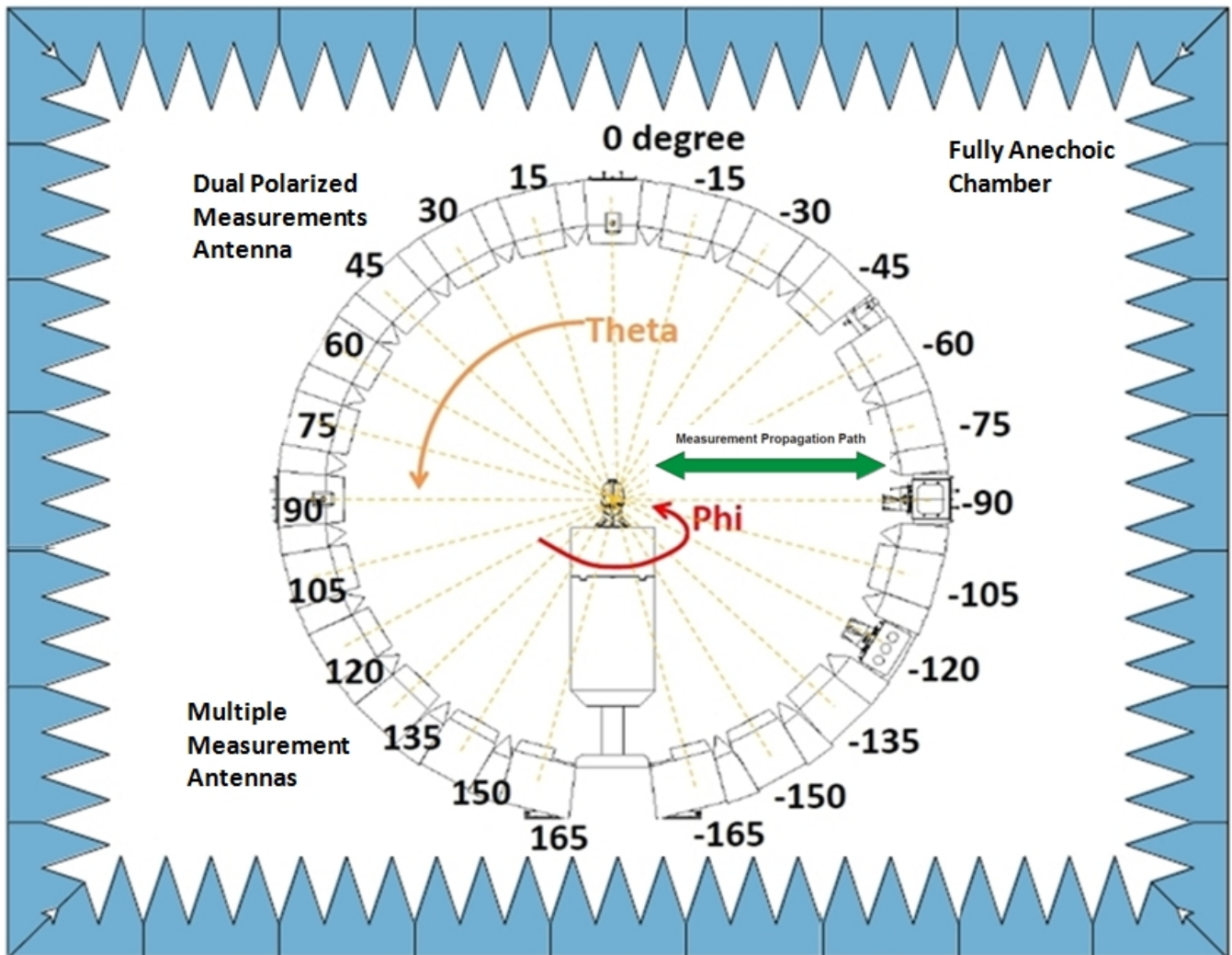
1.7 Antenna Information

Antenna type	Antenna Size
PCB Antenna	25.4MMx6.0mm



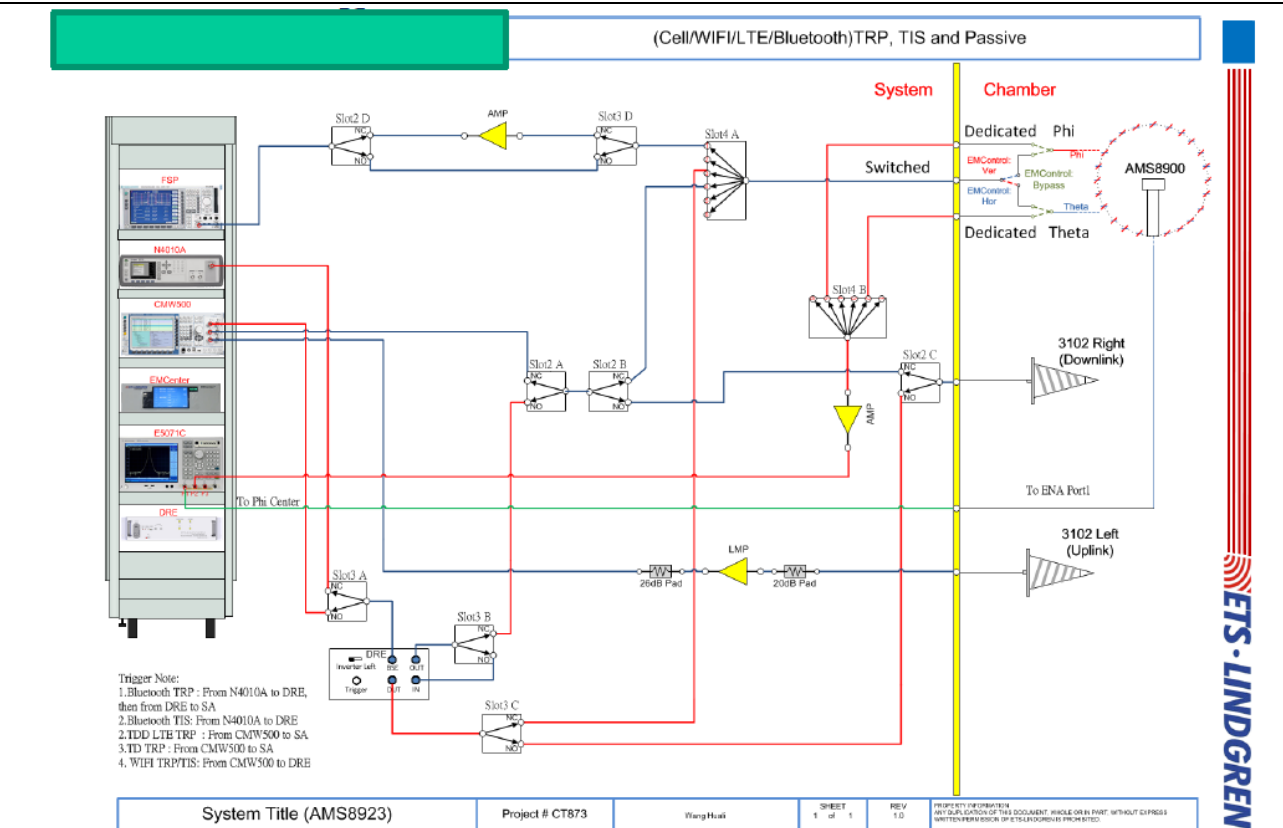
2. OTA MEASUREMENTS SYSTEM CONFIGURATION

The system is designed for fully-compliant radiated wireless antenna measurements over the frequency range from 700 MHz to 6 GHz with a 1.95-meter path length. The system includes a multi-antenna array with twenty-three (23) dual-polarized measurement antennas spaced every 15° , The chamber size is 5m*5m*5m



OTA measurement System Configuration

Note: Phi(The turntable) is from $0^\circ \sim 180^\circ$,Theta(the ring, multiple antennas) is from $-165^\circ \sim 165^\circ$, Rotate the AUT and multi-antenna array record the data ,the step of rotation is 15 degree.



3. TEST RESULTS

3.1 Efficiency & Gain

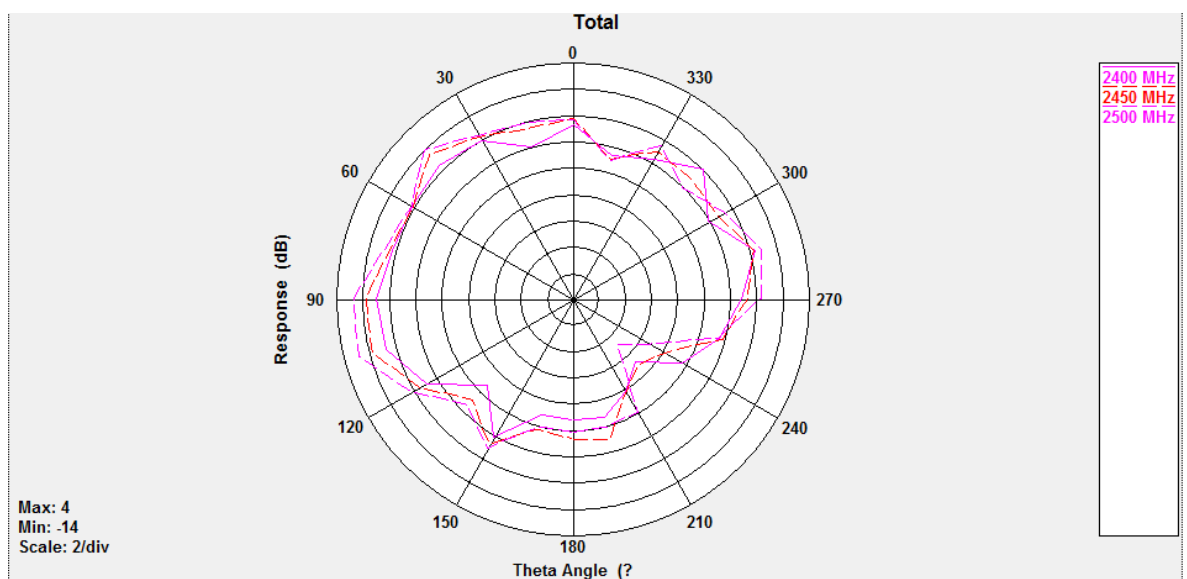
FREESPACE			
Frequency (Mhz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2400	-2.67	54.01	0.92
2410	-2.56	55.35	1.26
2420	-2.52	55.85	1.52
2430	-2.56	55.38	1.67
2440	-2.46	56.69	1.83
2450	-2.35	58.16	1.99
2460	-2.33	58.34	2.17
2470	-2.25	59.46	2.40
2480	-2.25	59.48	2.65
2490	-2.20	60.19	2.87
2500	-2.21	60.04	2.90



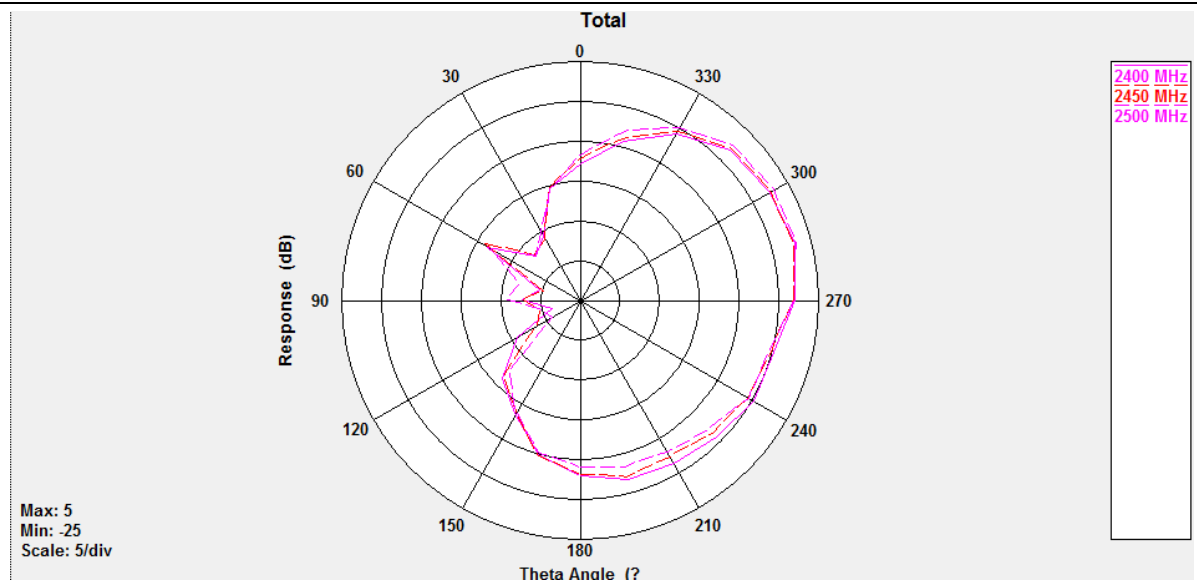
Frequency (Mhz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2400	-3.95	40.21	2.88
2410	-3.96	40.14	2.64
2420	-4.03	39.52	2.57
2430	-4.18	38.15	2.58
2440	-4.08	39.02	2.69
2450	-3.95	40.23	2.80
2460	-3.94	40.35	2.94
2470	-3.82	41.46	3.16
2480	-3.83	41.34	3.04
2490	-3.81	41.54	3.00
2500	-3.78	41.79	3.13

3.2 2-D antenna pattern (Phi=90°)

3.2.1 FREESPACE

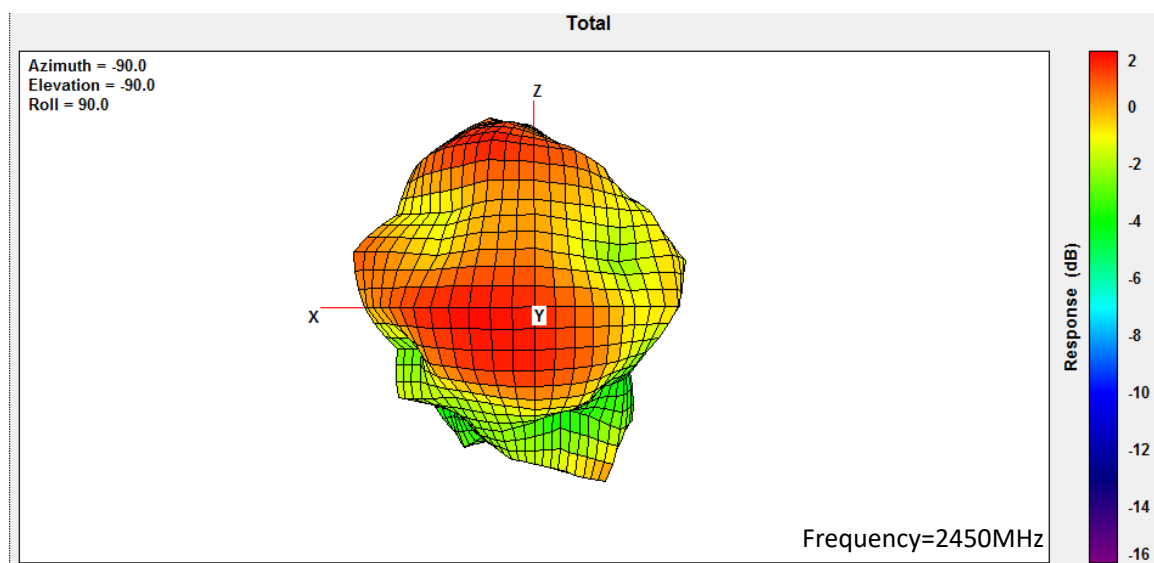


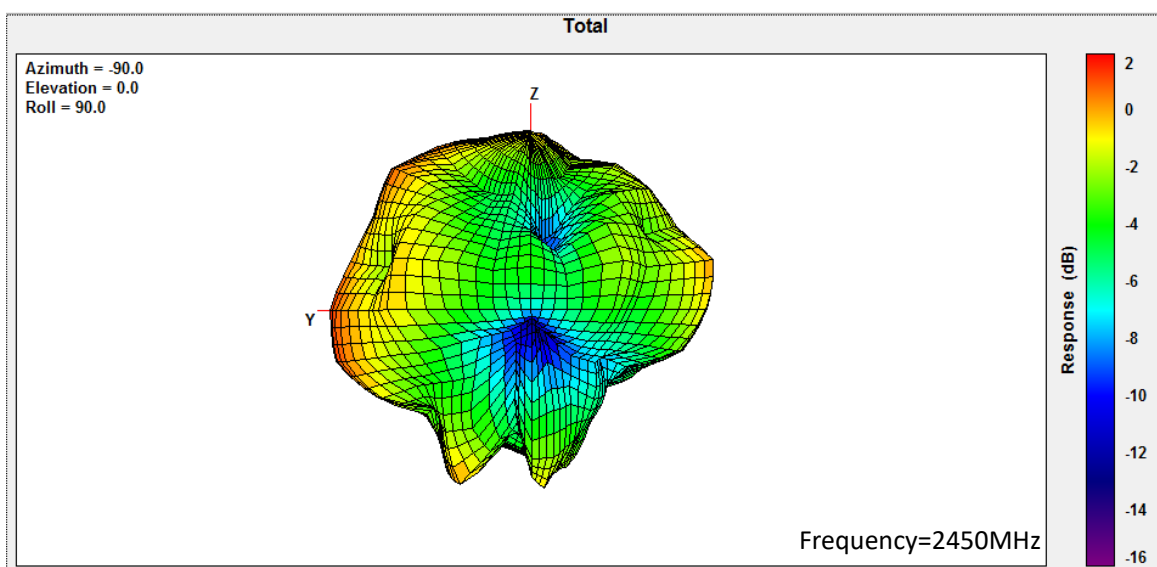
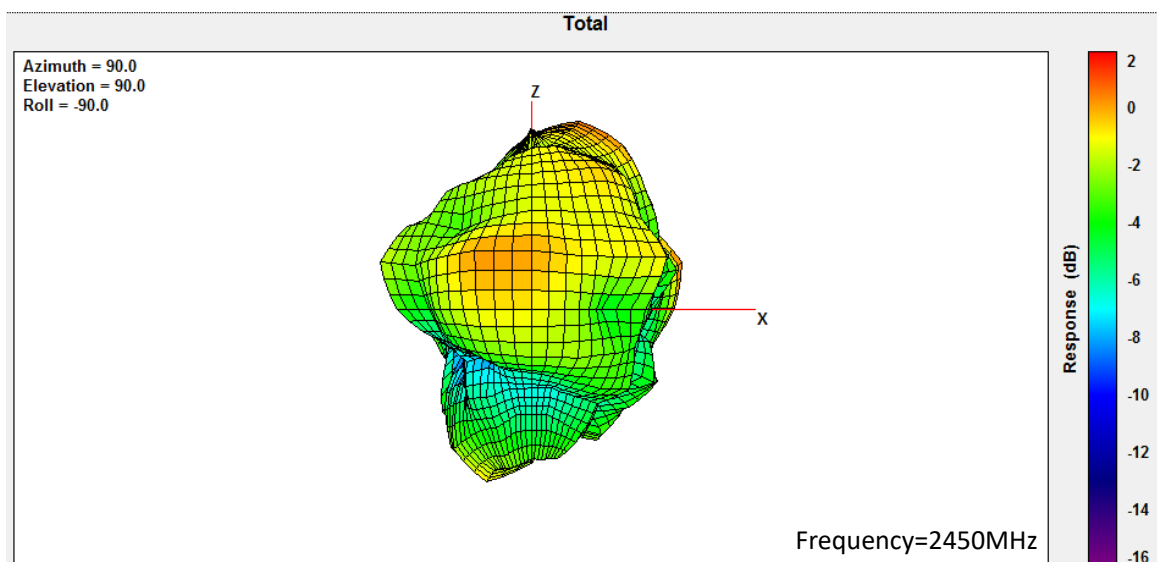
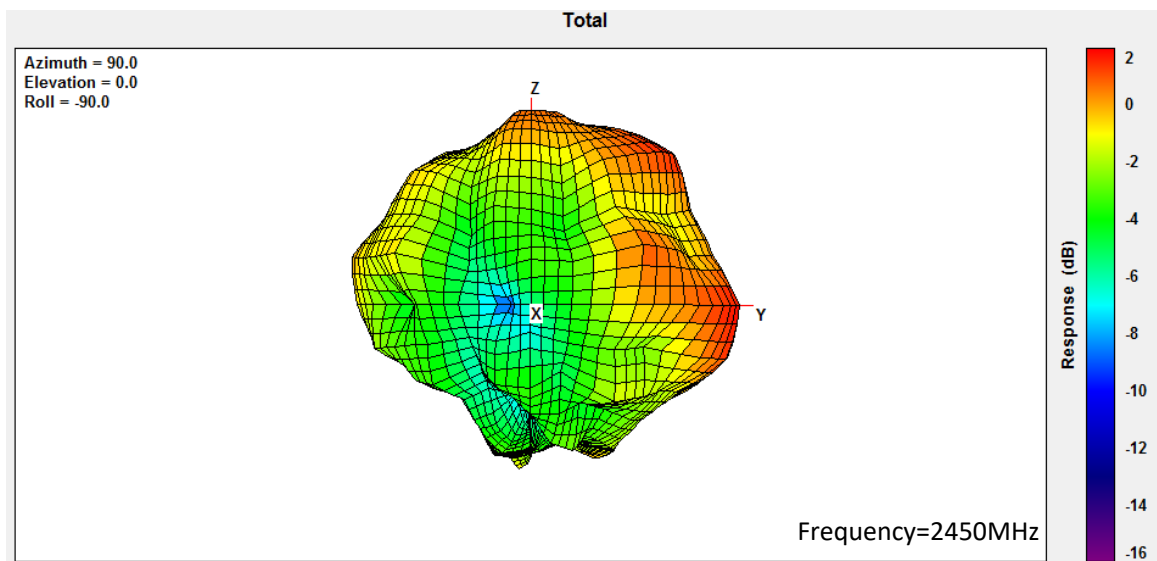
3.2.1 OnHead



3.3 3-D antenna pattern

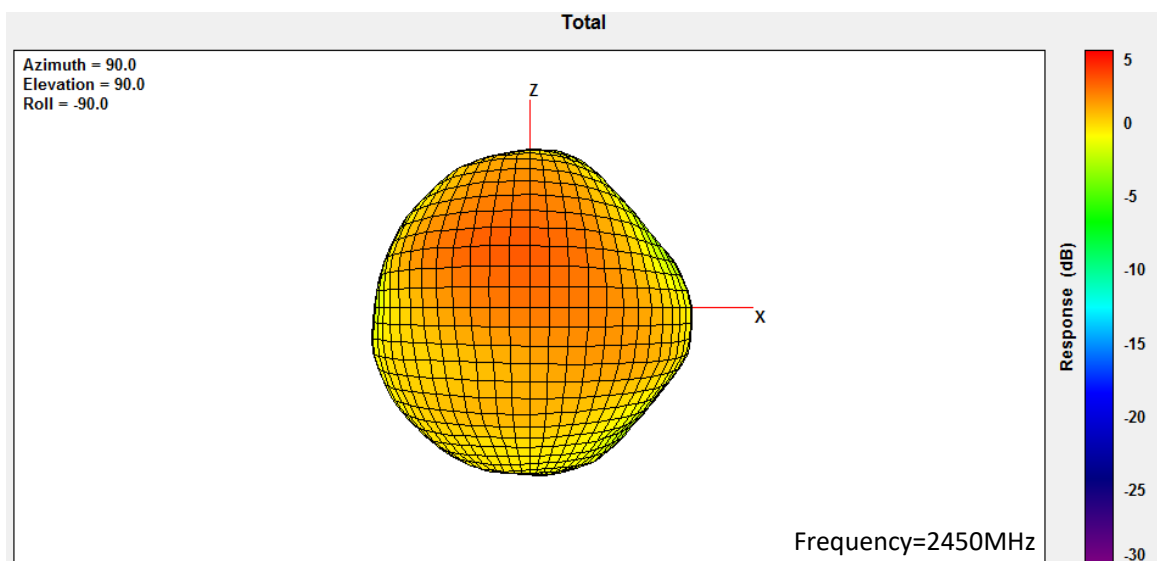
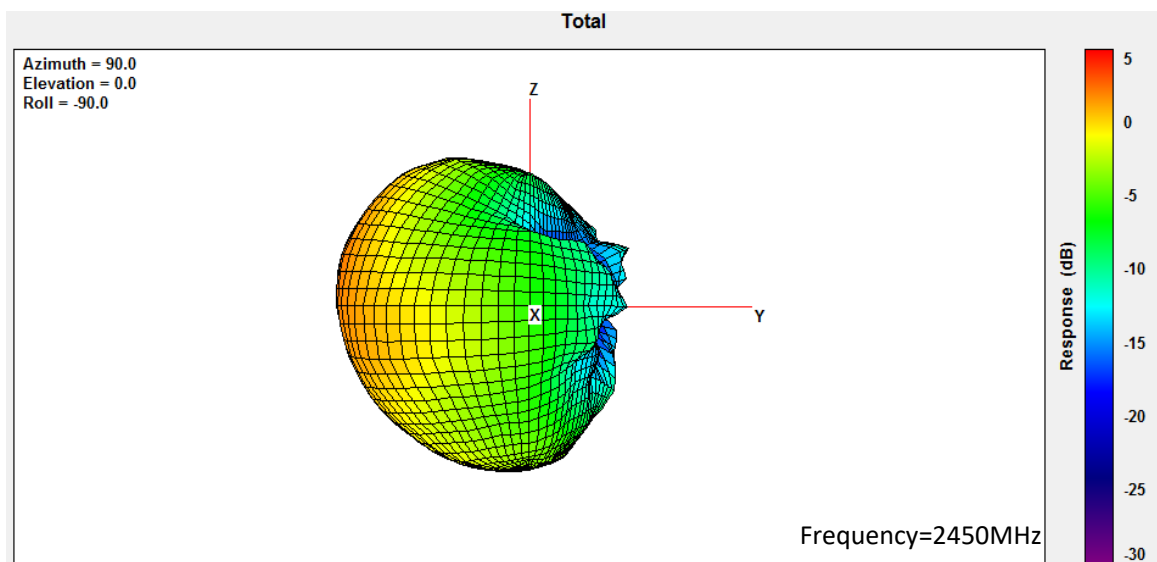
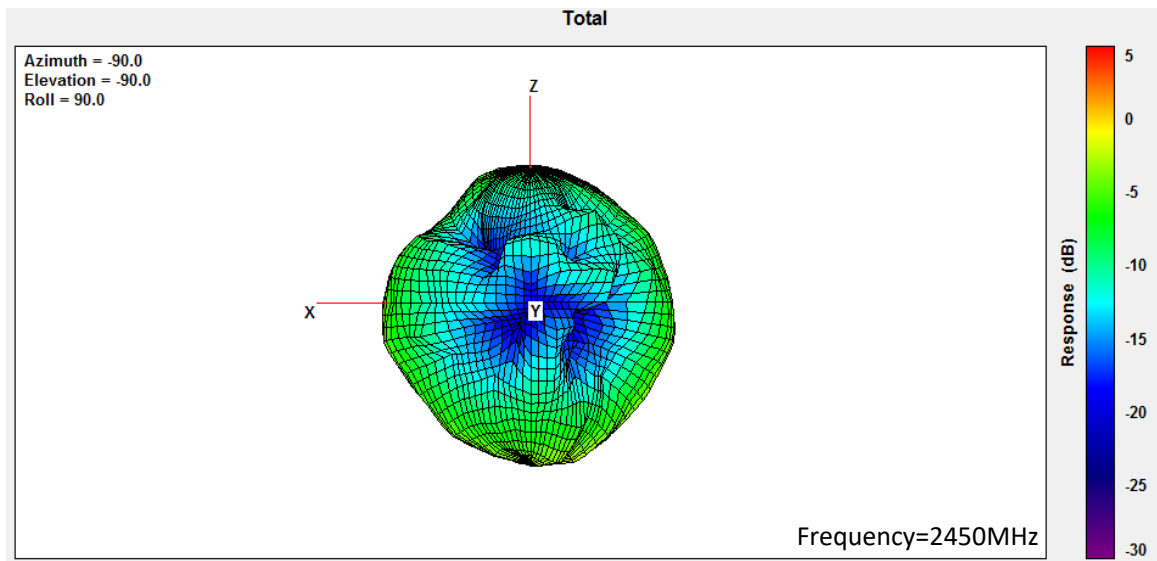
3.3.1 FREESPACE

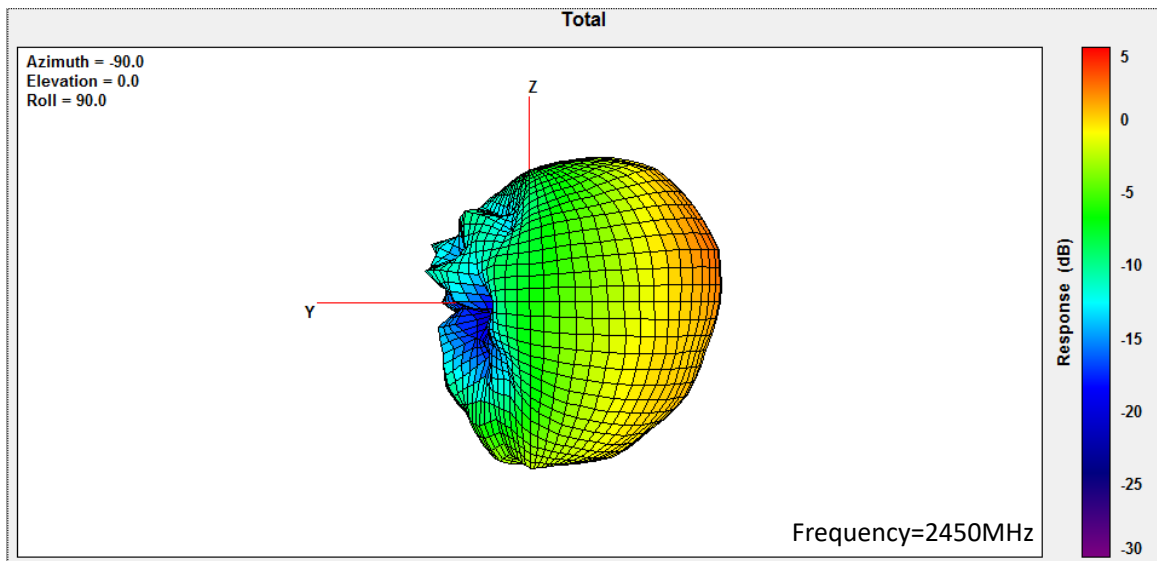






3.3.2 OnHead

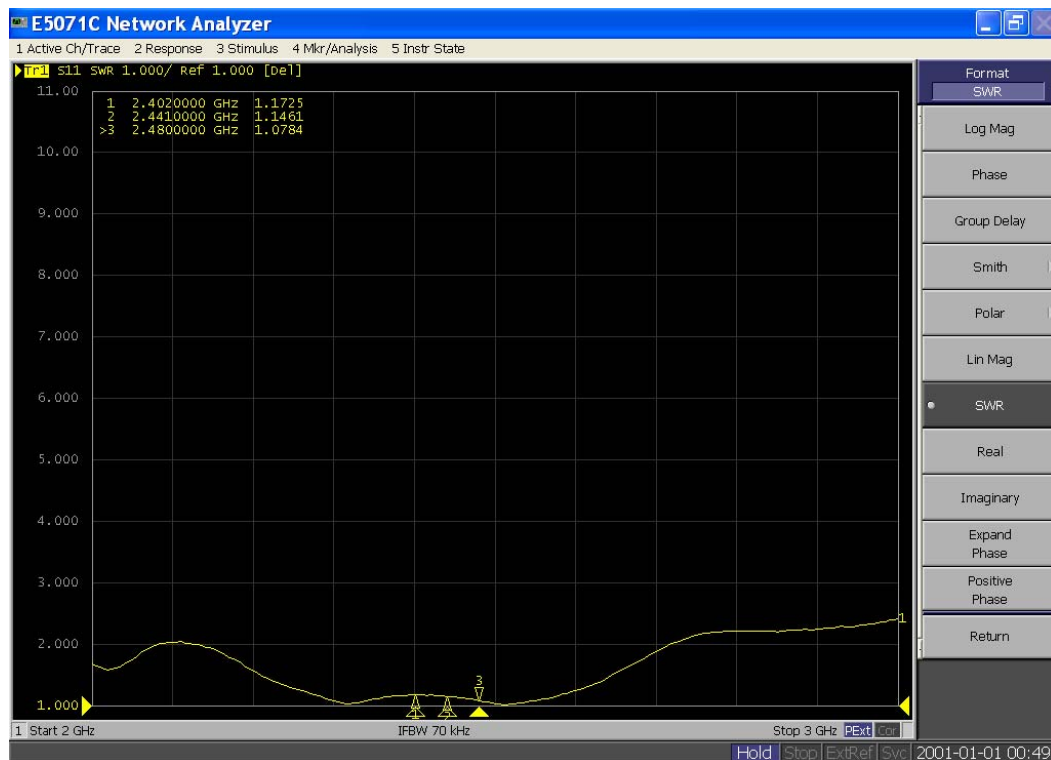




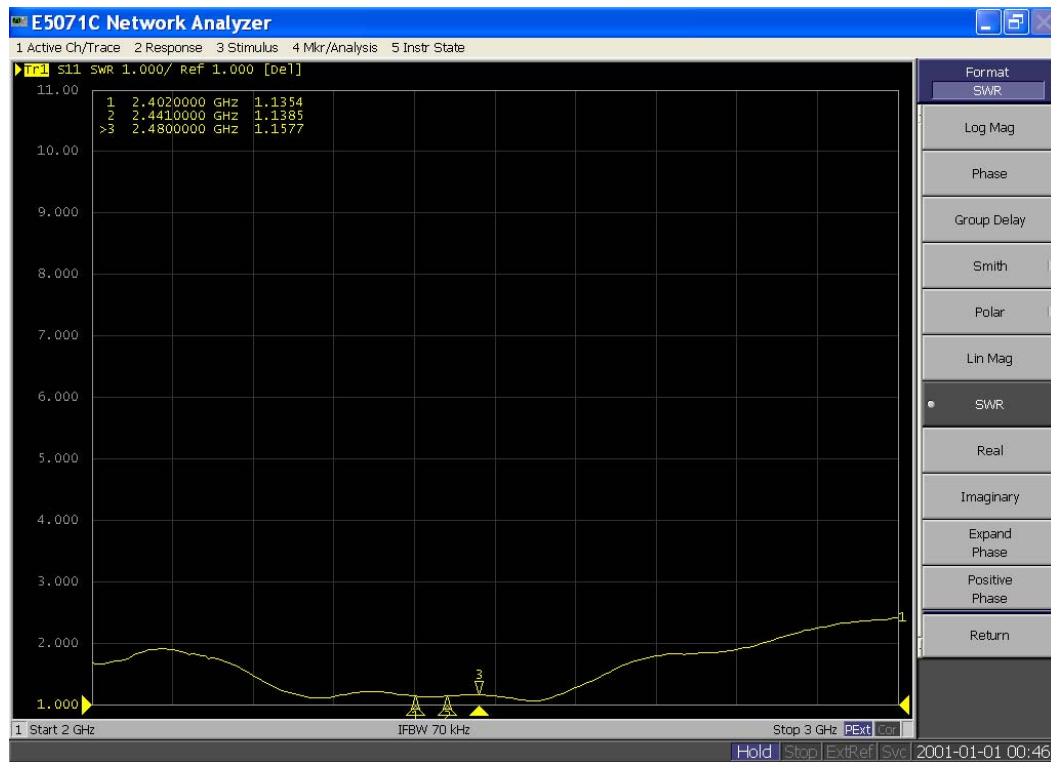
3.4 Passive pattern

3.4.1 VSWR

3.4.1.1 FREESPACE

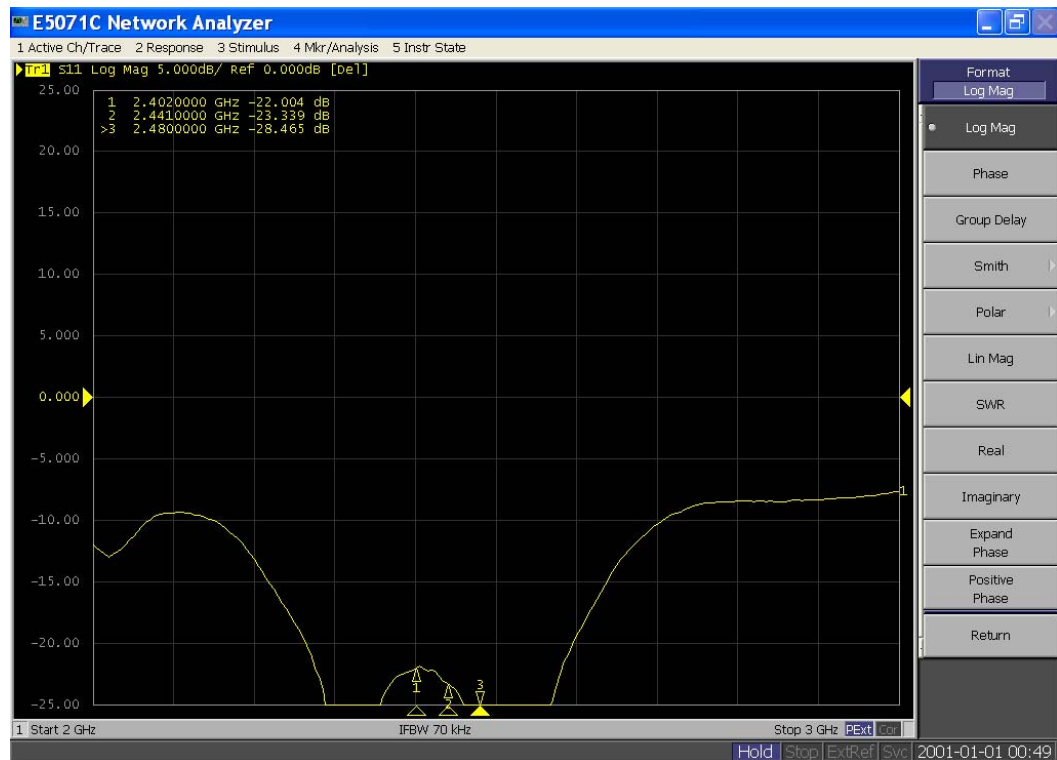


3.4.1.2 OnHead

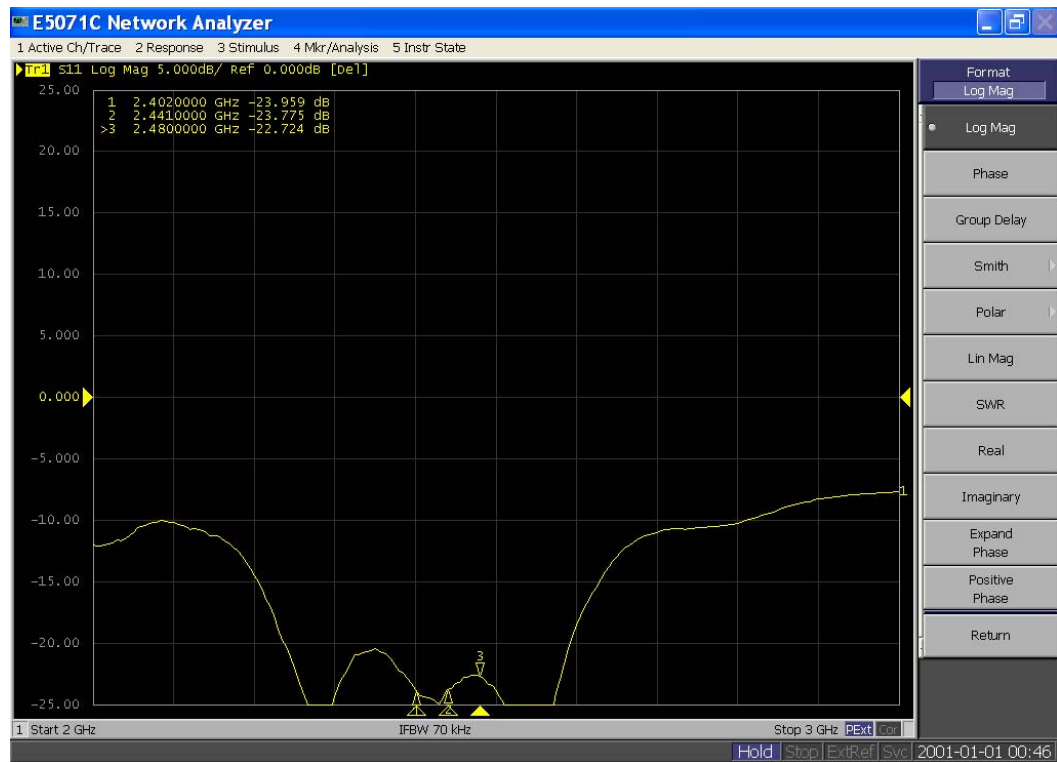


3.4.2 Return loss

3.4.2.1 FREESPACE

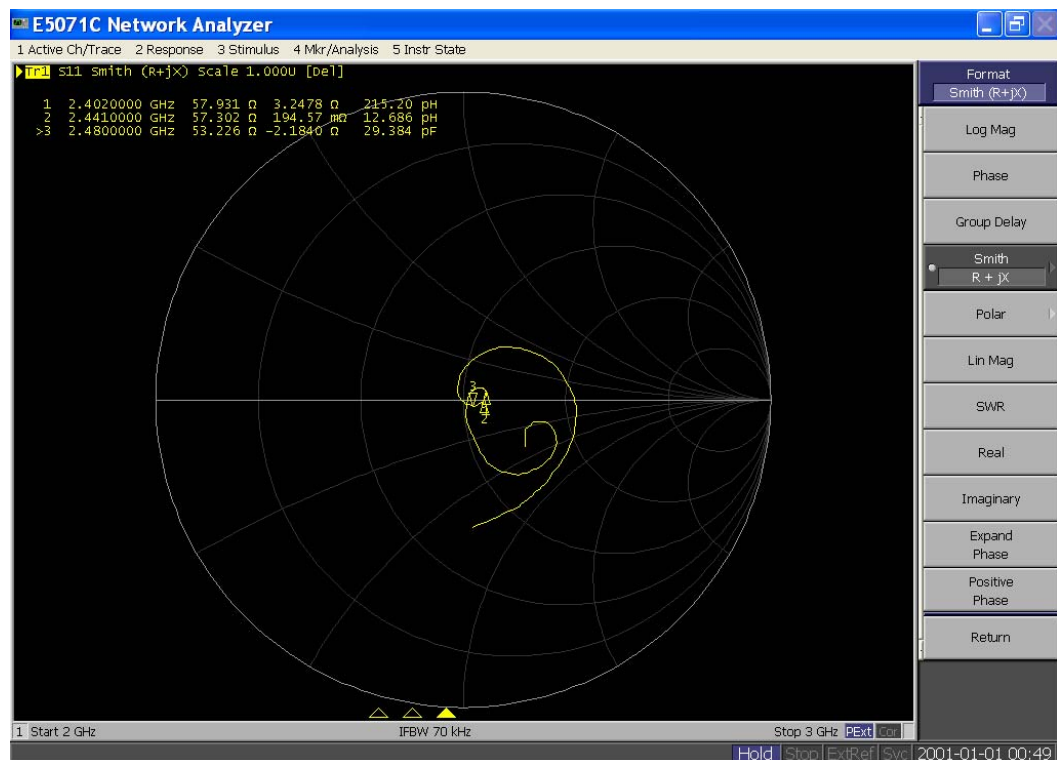


3.4.2.1 OnHead

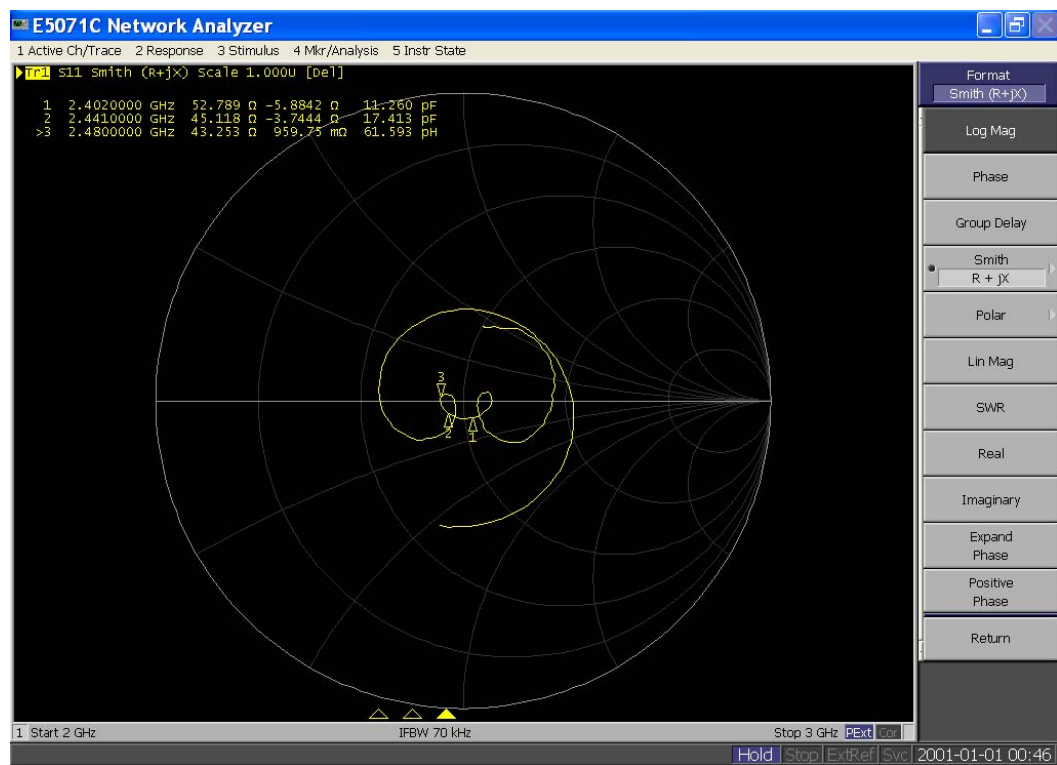


3.4.3 Impedance

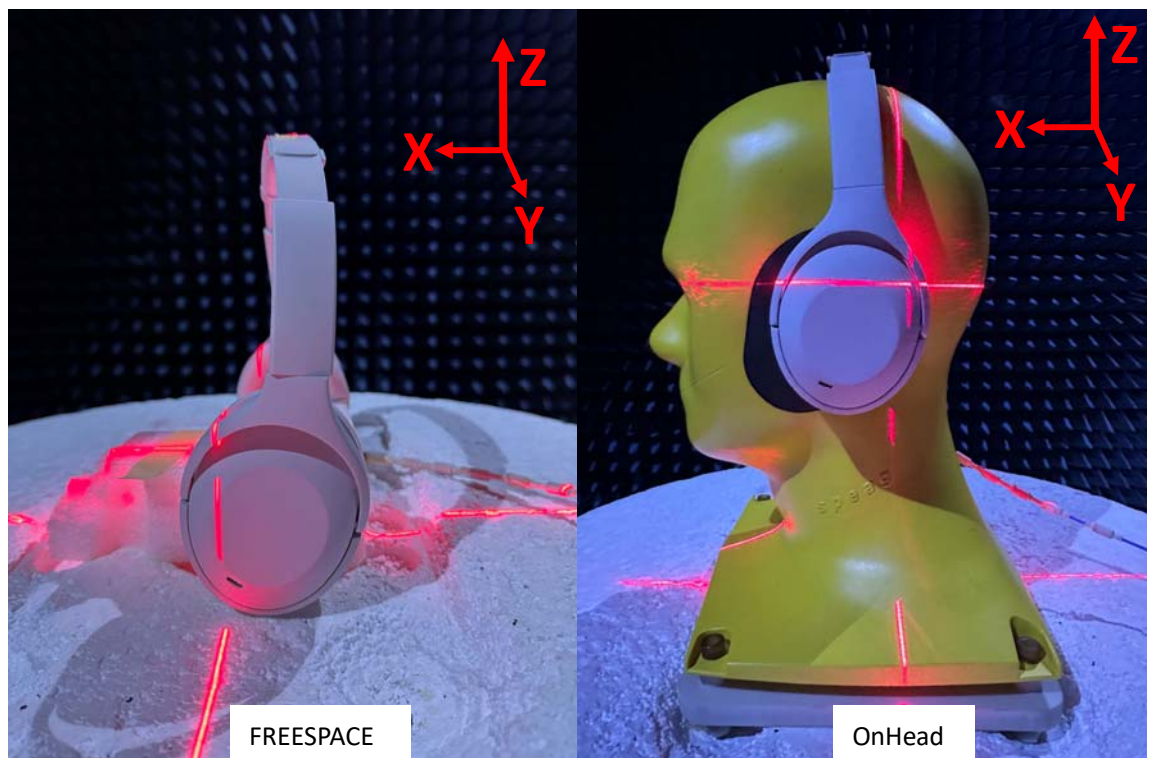
3.4.3.1 FREESPACE



3.4.3.2 OnHead



4.APPENDIX A THE EUT AND TEST CONFIGURATION





Shenzhen Grandsun Electronic Co.,Ltd



