



ANTENNA PASSIVE TEST REPORT

Applicant: Grandsun
Product Name: GS-1402 游戏 Dongle
Model No.(EUT): GS-1402 游戏 Dongle
Date of Receipt: 2024-03-27
Date of Test: 2024-03-27

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	2017-05-20	First edition



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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	2023-04-20	One year
Chamber	AMS-8923-195	EST-LINDGERN	2023-04-20	One year

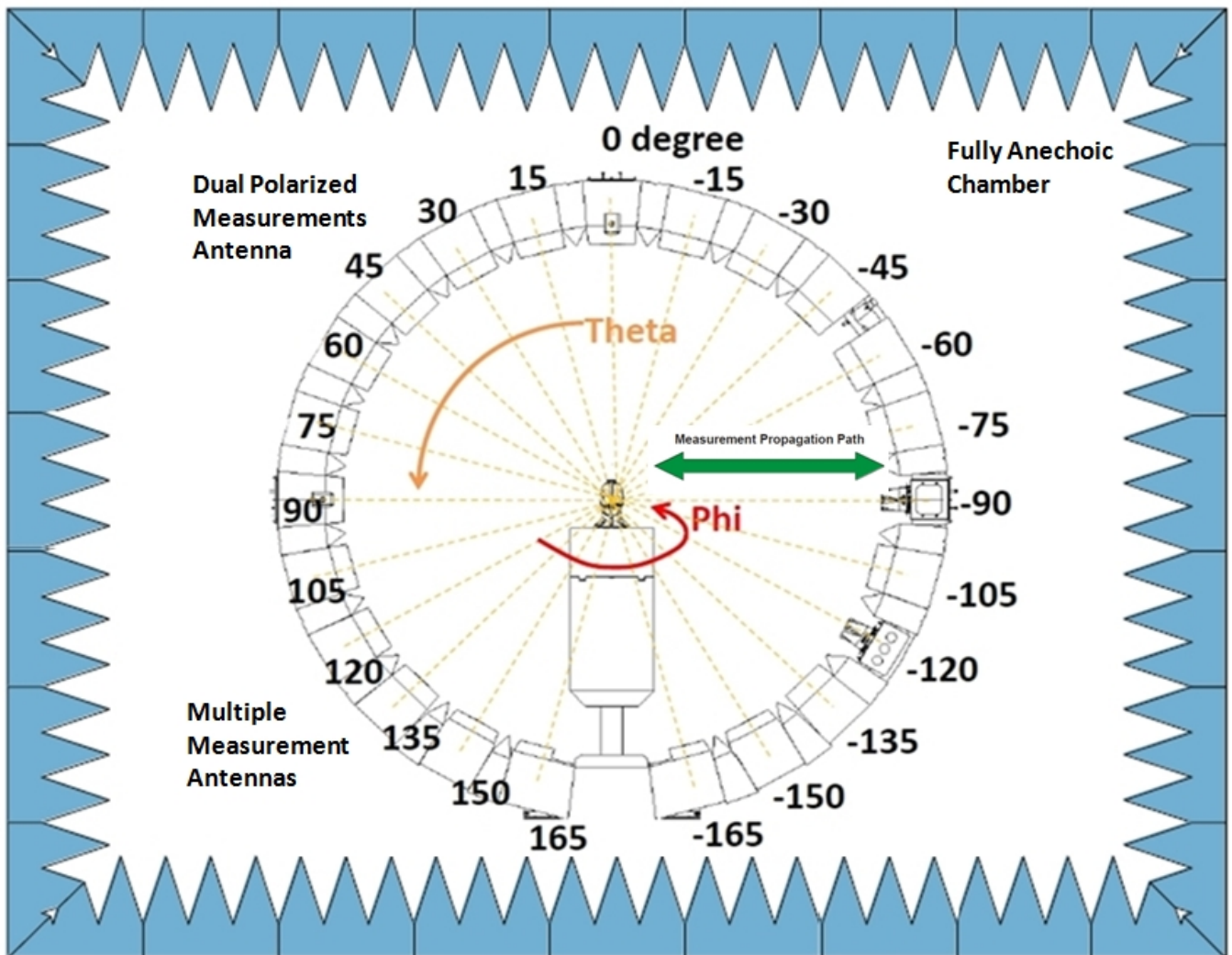
1.5 Measurement Uncertainty

Item	2.4GHZ-2.5GHZ
Gain	0.48dBi
Efficiency	0.3



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

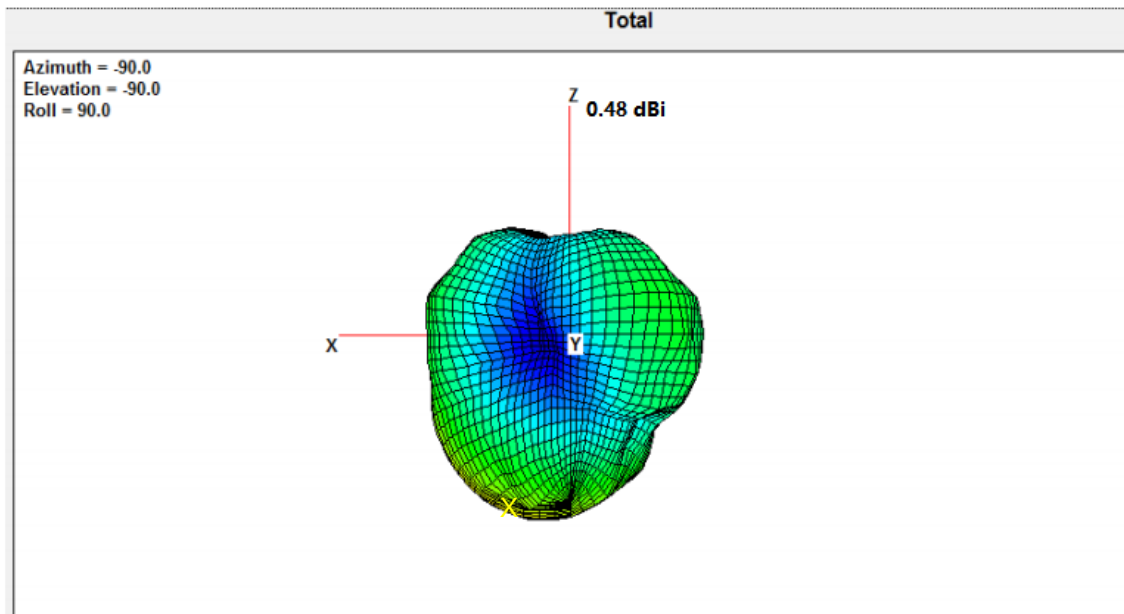
3.1 Efficiency & Gain

Frequency (Mhz)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2400	-7.65	17.1	-1.67
2410	-7.40	18.1	-1.19
2420	-7.00	19.9	-0.63
2430	-6.57	21.9	-0.10
2440	-6.19	23.9	0.24
2450	-5.90	25.6	0.36
2460	-5.81	26.1	0.10
2470	-5.64	27.0	0.00
2480	-5.41	28.7	0.48
2490	-5.60	27.5	0.19
2500	-5.88	25.7	-0.20



3.3 3-D antenna pattern

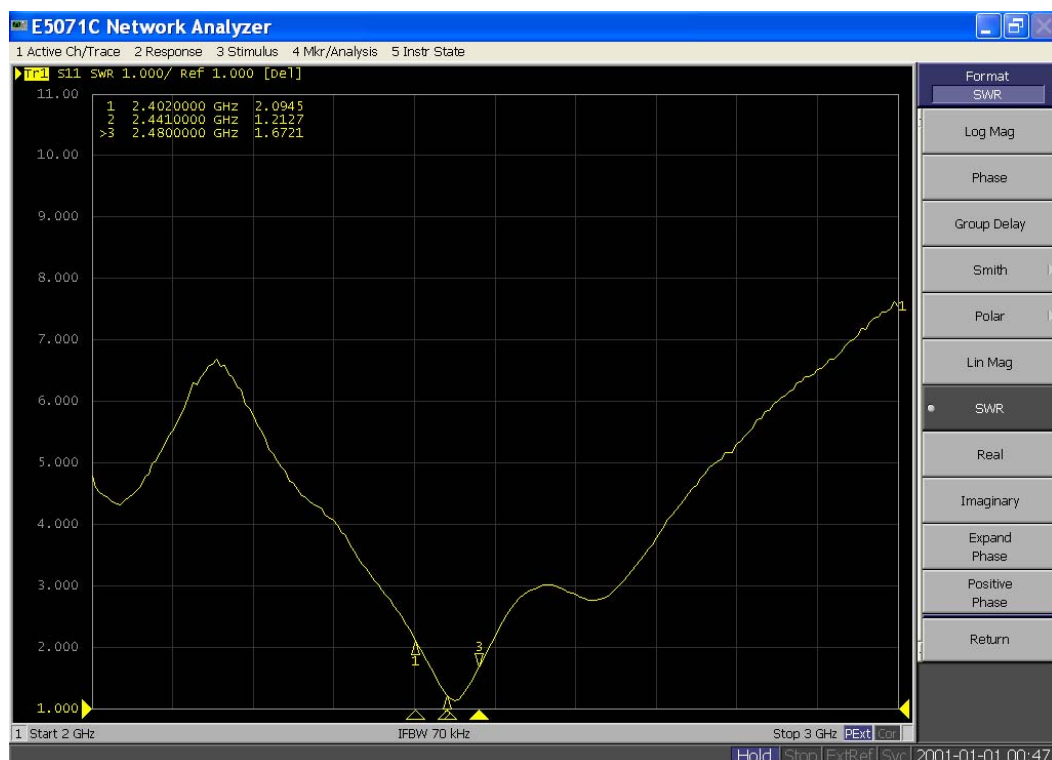
Frequency=2480MHz





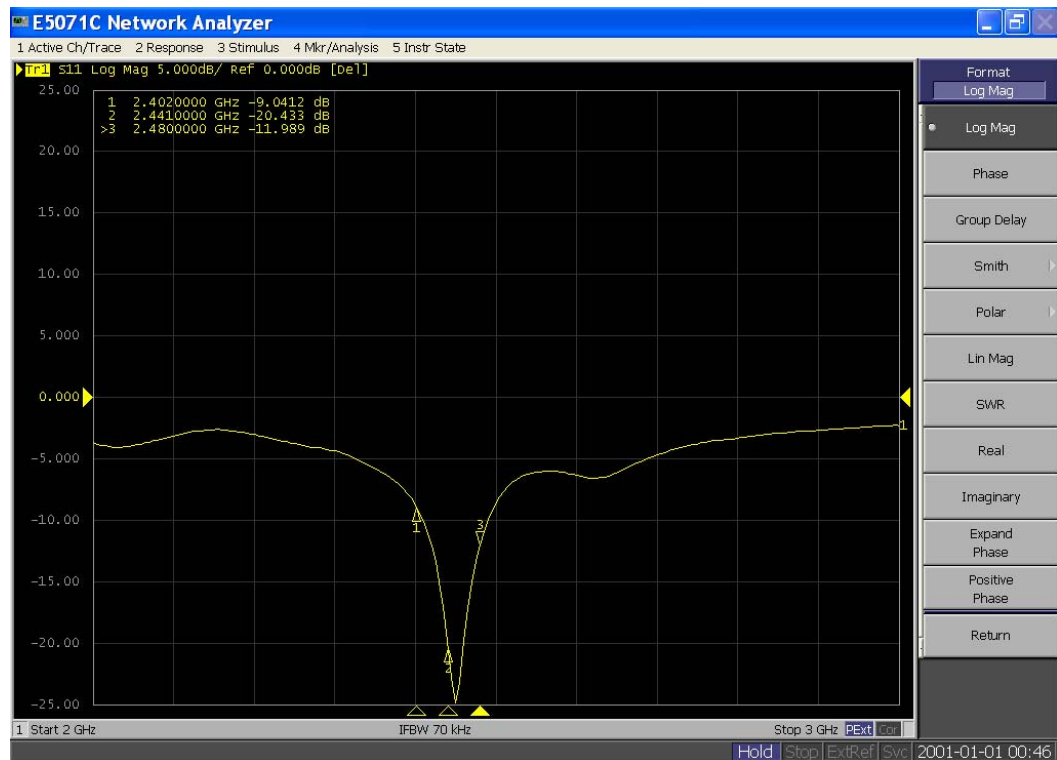
3.4 Passive pattern

3.4.1 VSWR

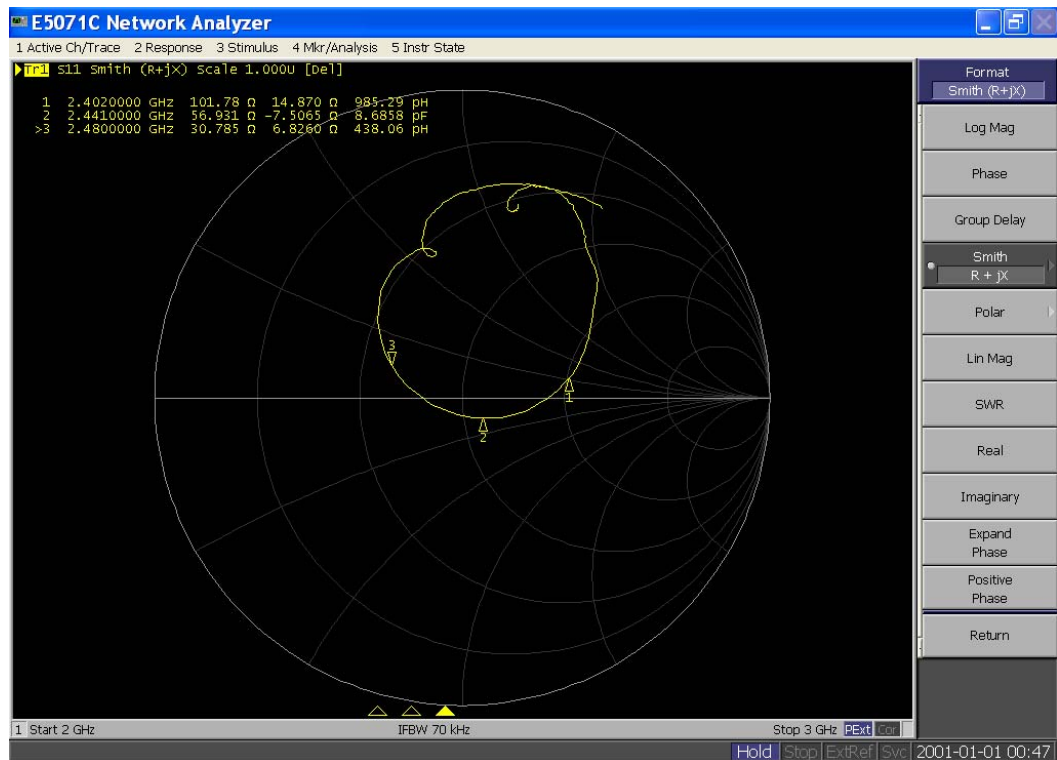




3.4.2 Return loss

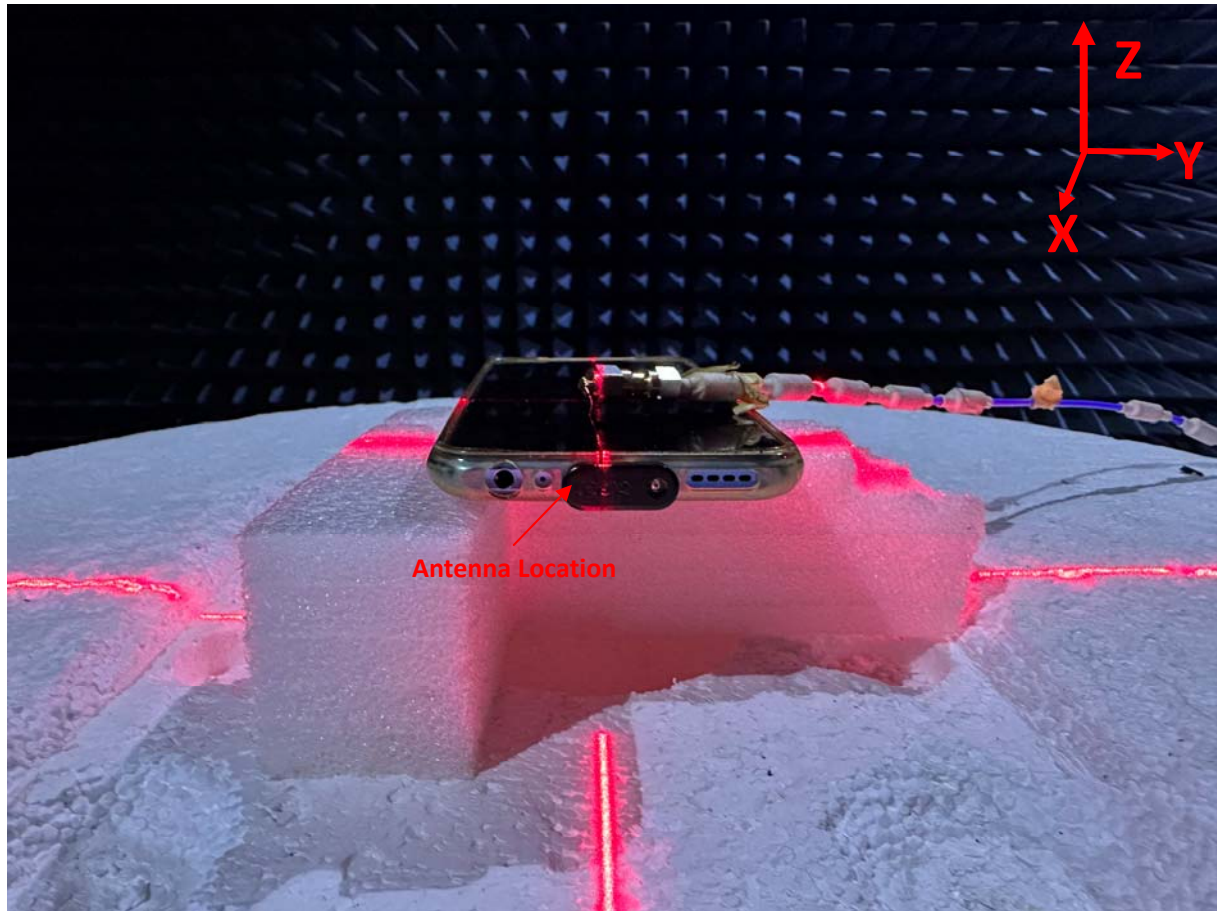


3.4.3 Smith





4.APPENDIX A THE EUT AND TEST CONFIGURATION



5.Matching Network

Chip Antenna

