



REPORT No.: SZ24040341E01

TEST REPORT

APPLICANT : Huizhou Debao Hardware spring Co., LTD

PRODUCT NAME : antenna spring

MODEL NAME : CNC502

TRADE NAME : N/A

BRAND NAME : N/A

STANDARD(S) : IEEE Std 149-2021

RECEIPT DATE : 2024-04-26

TEST DATE : 2024-04-26

ISSUE DATE : 2024-04-26



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MORLAB

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Change History		
Version	Date	Reason for change
1.0	2024-04-26	First edition

1. Technical Information

Note: Provide by applicant.

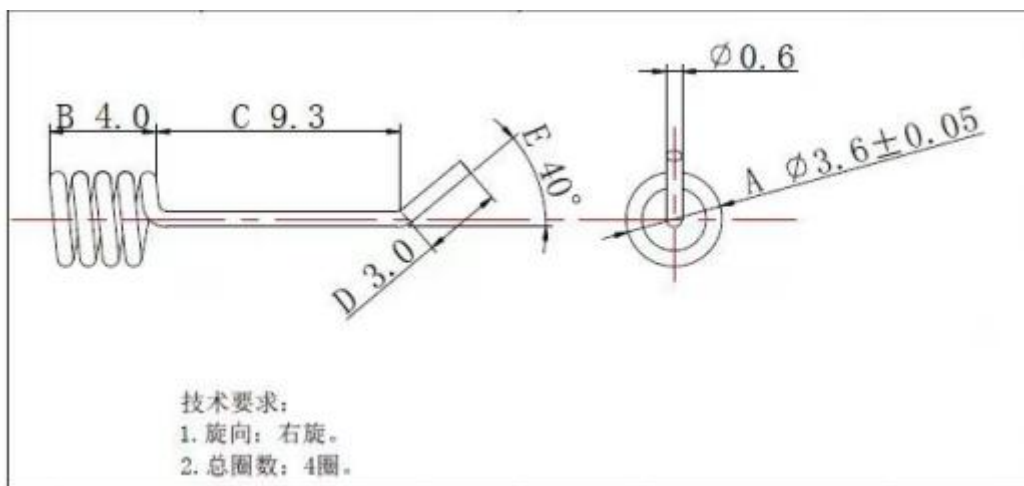
1.1. Applicant and Manufacturer Information

Applicant:	Huizhou Debao Hardware spring Co., LTD
Applicant Address:	No. 96, Huangxi Avenue, Shiwan Town, Boluo County, Huizhou City
Manufacturer:	N/A
Manufacturer Address:	N/A

1.2. Equipment Under Test (EUT) Description

Wireless Type	N/A
Frequency	2400MHz-2500MHz
Impedance	50Ω
Polarization	Linear
IMEI	N/A
Sample No.	1#

Dimensions:





2. Test Results

2.1. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	IEEE Std 149-2021	IEEE Recommended Practice for Antenna Measurements

2.2. Test Conditions

Test Environment Conditions:

Relative Humidity(%):	25 - 75
Temperature(°C):	10 - 30

2.3. Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in Measurement” (GUM) published by ISO. When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.

2.4. Test Results lists

2.4.1. Gain and Efficiency

Frequency (MHz)	Gain(dBi)	Efficiency(%)
2400	0.36	40.34
2410	0.11	39.14
2420	-0.20	37.11
2430	-0.44	35.55
2440	-0.48	35.05
2450	-0.47	34.86
2460	-0.42	34.71
2470	-0.57	33.44
2480	-0.57	32.36
2490	-0.80	30.97
2500	-0.79	30.63

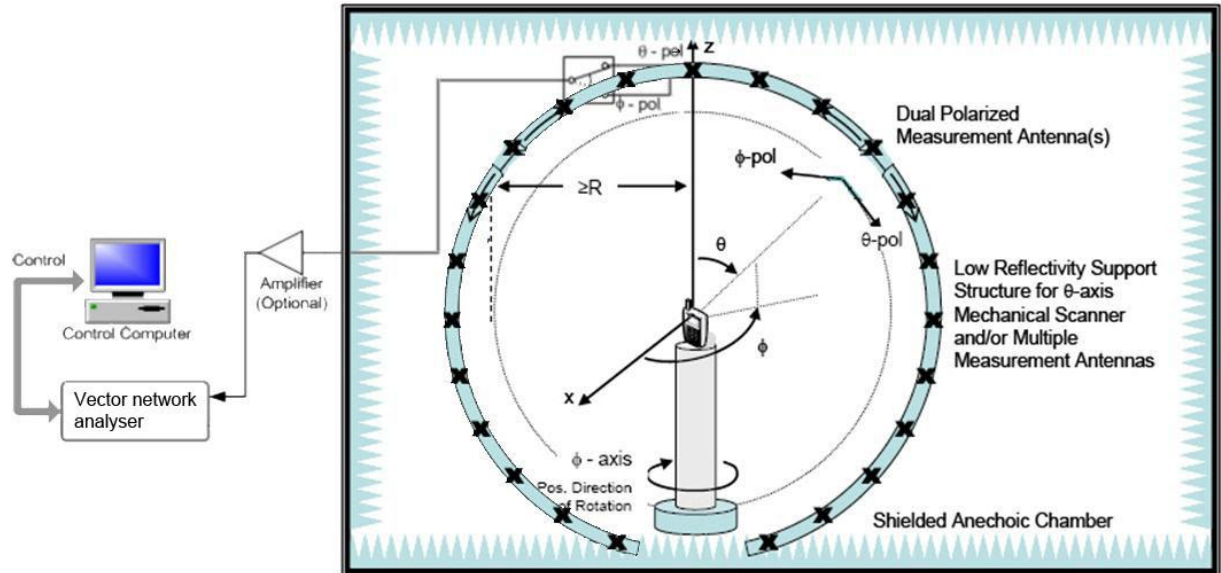
2.4.2. VSWR

Frequency (MHz)	VSWR
2400-2500	4.67

2.4.3. Return Loss

Frequency (MHz)	Return Loss(dB)
2400	-7.71
2450	-7.54
2500	-3.77

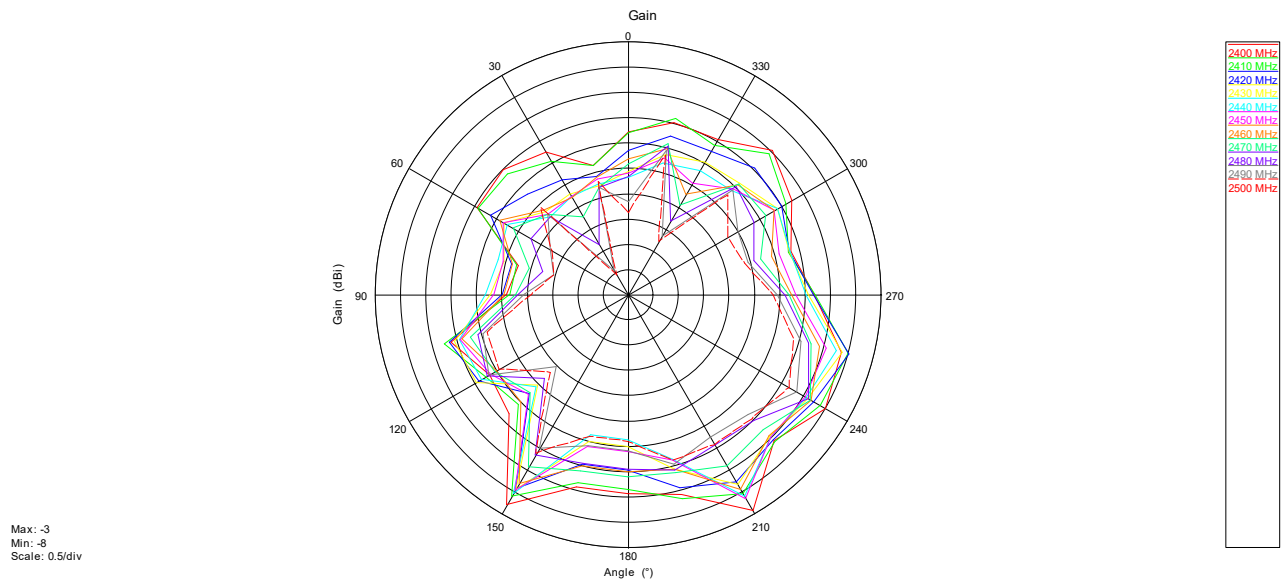
Annex A Test Setup Photos



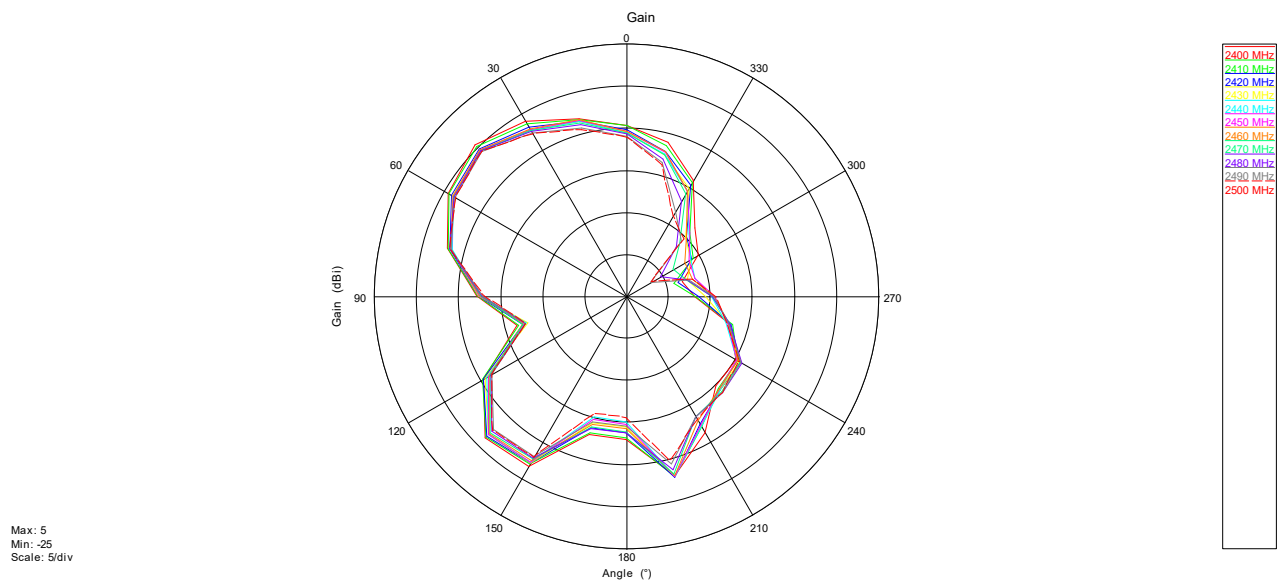


Annex B Figures

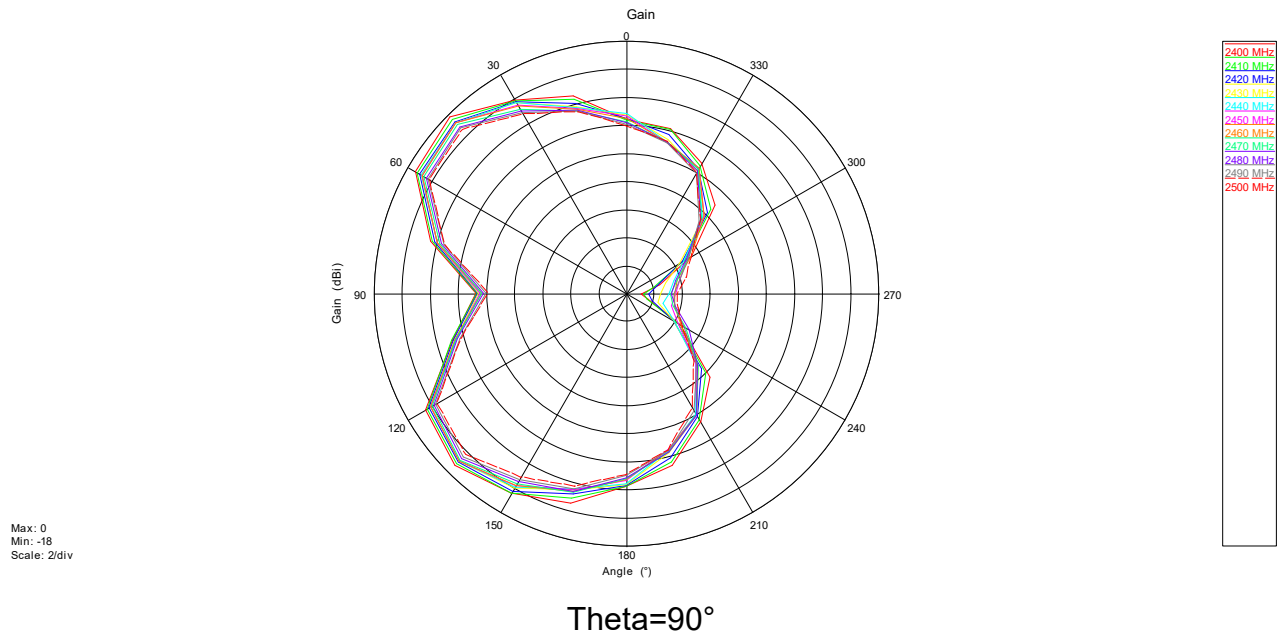
1. 2D Radiation Pattern



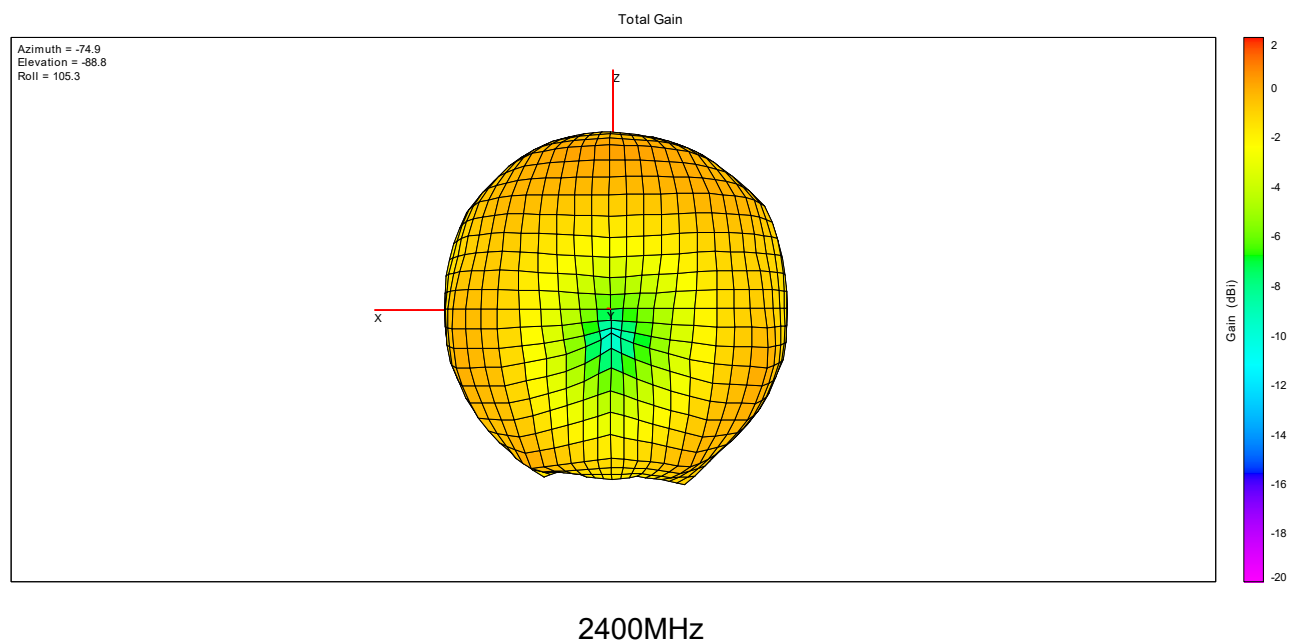
Phi=0°

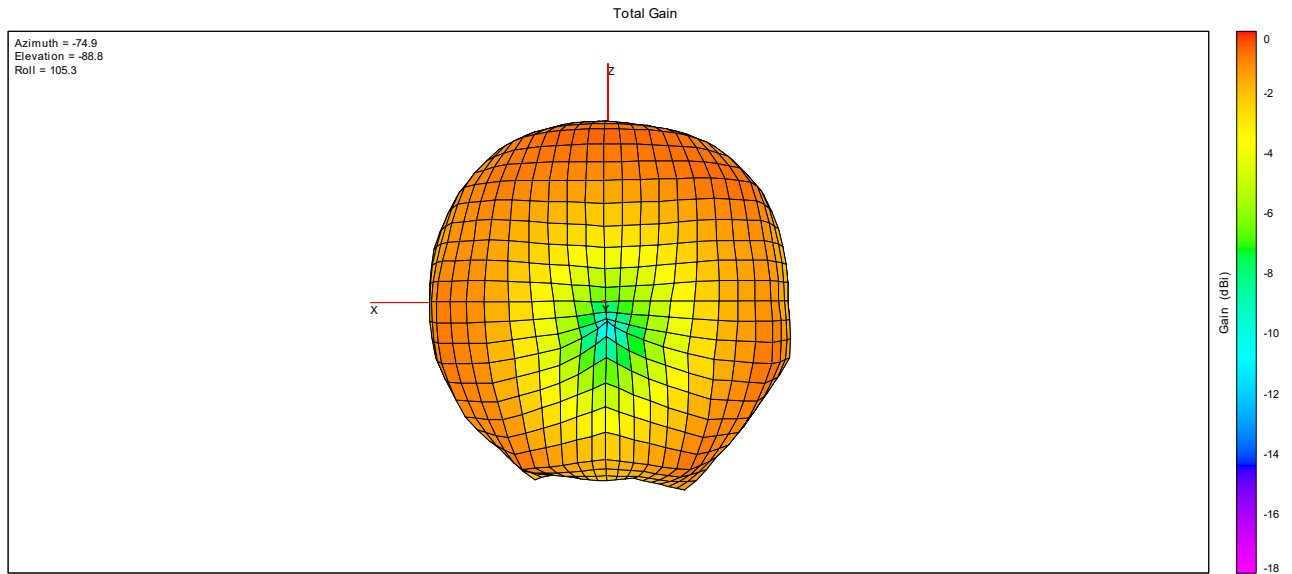


Phi=90°

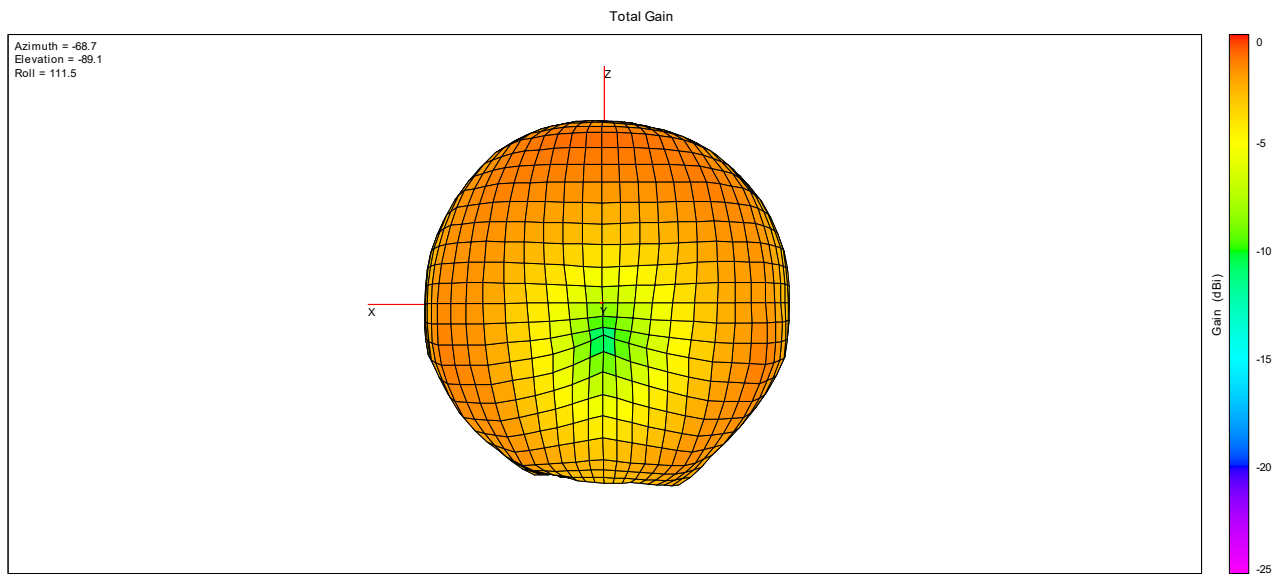


2. 3D Radiation Pattern





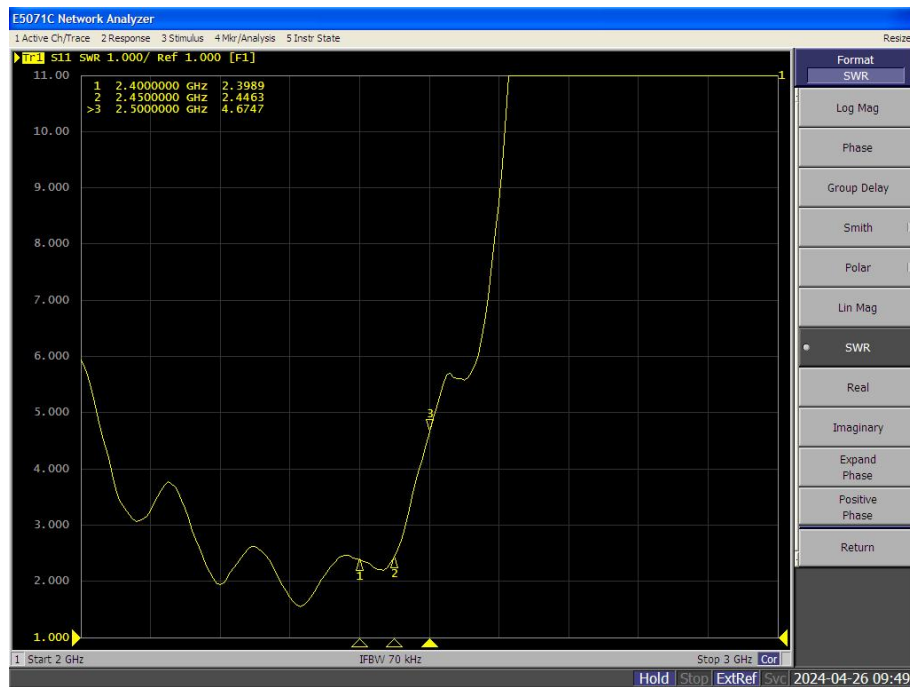
2450MHz



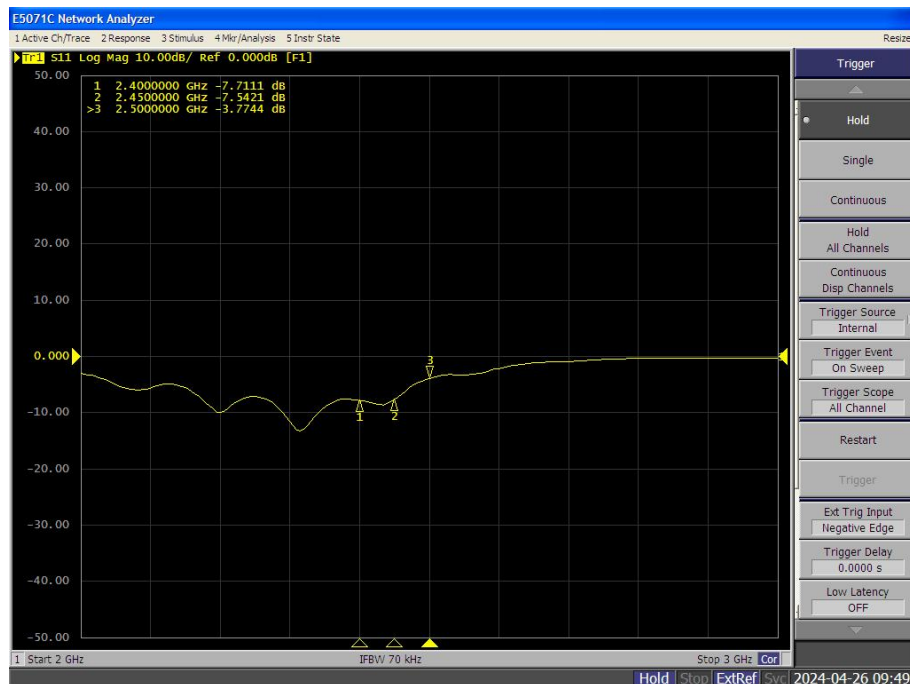
2500MHz



3. VSWR

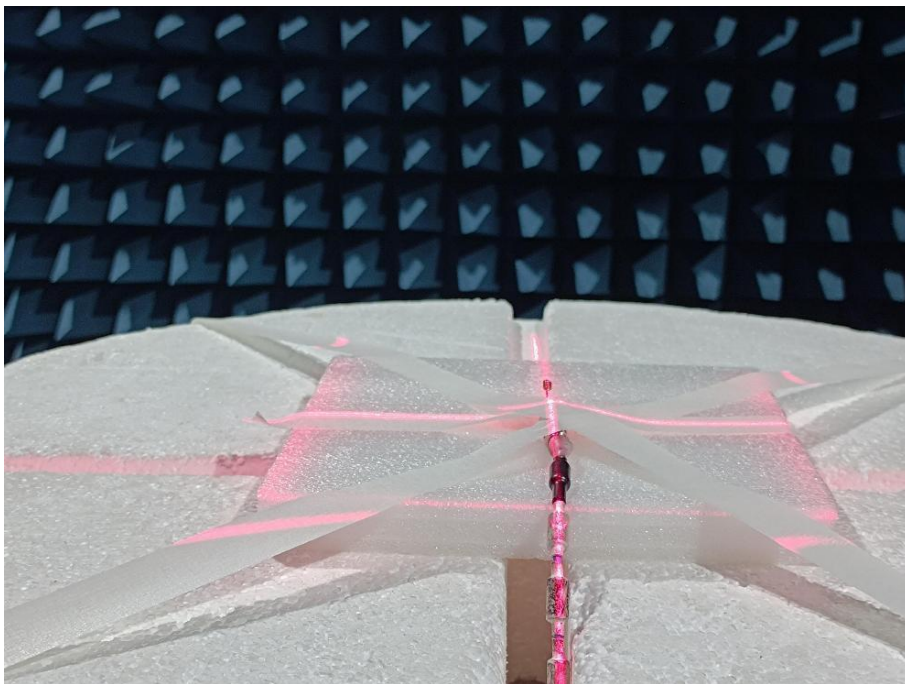


4. Return Loss

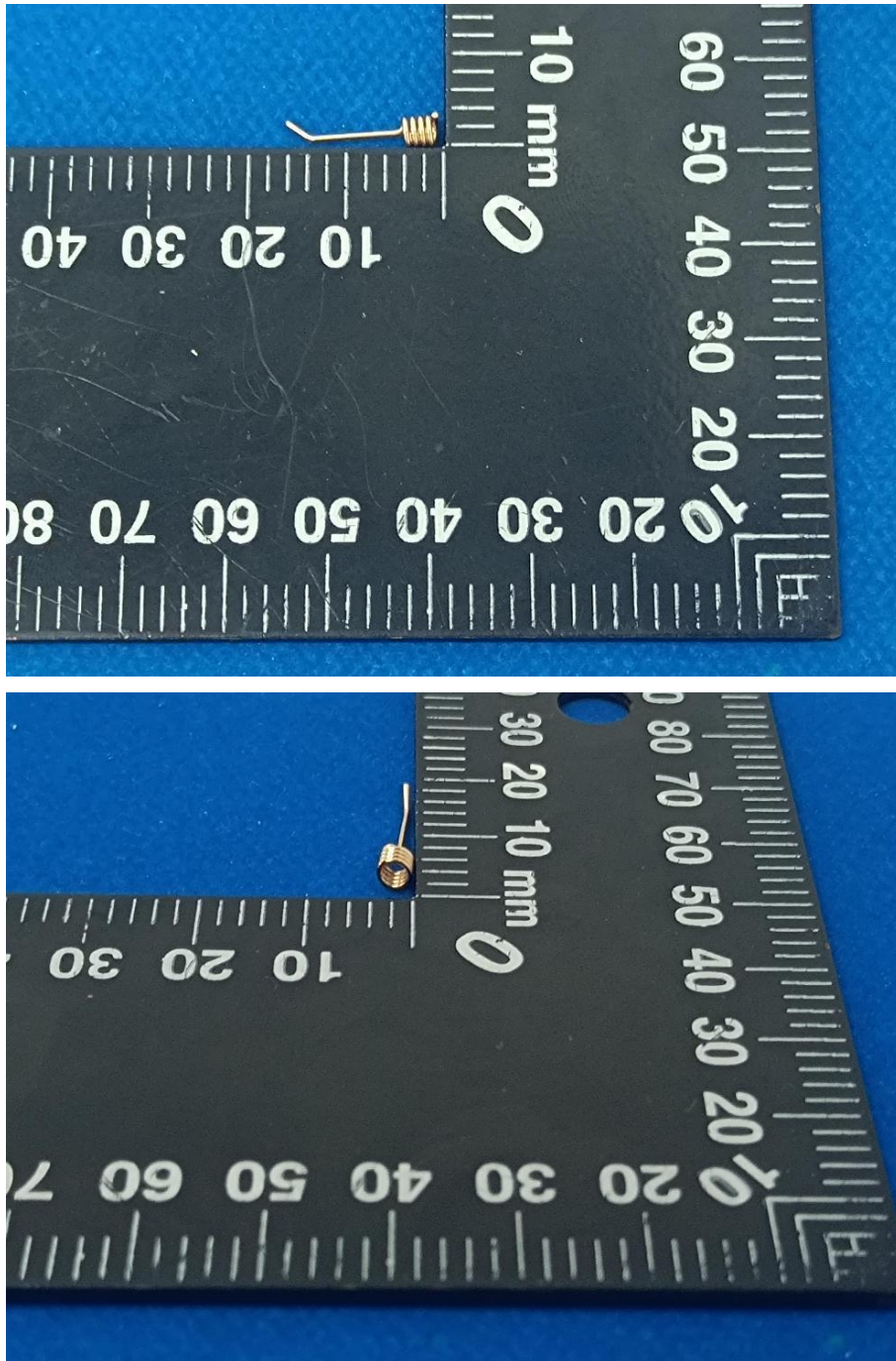


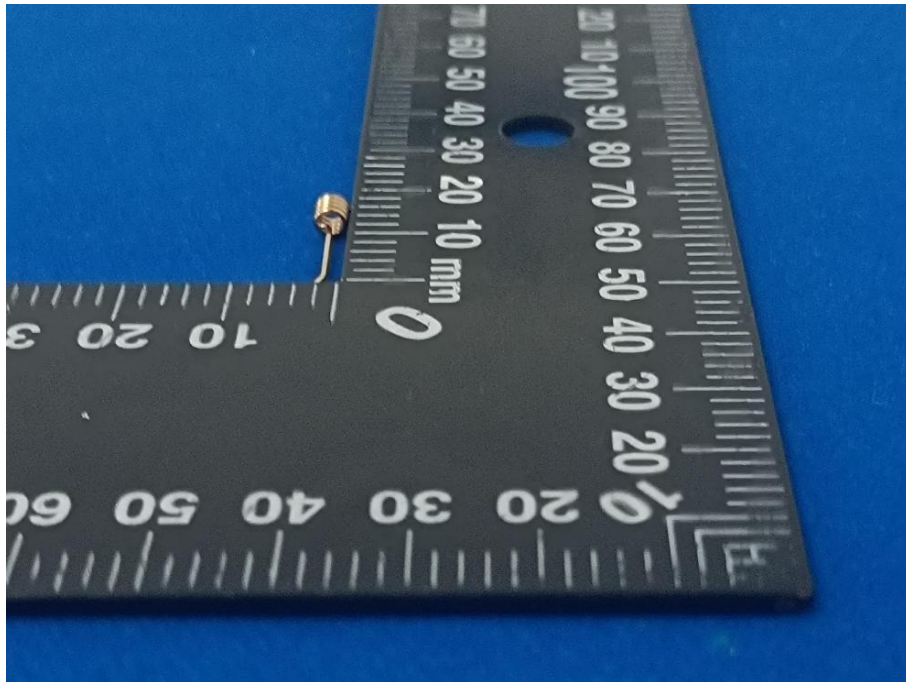
Annex C EUT Photos

1. Test environment



2. EUT







Annex D General Information

1.1 Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block67, BaoAn District, ShenZhen , Guangdong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

1.2 Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block67, BaoAn District, ShenZhen , Guangdong Province, P. R. China

1.3 Test Equipments Utilized

No.	Equipement Name	Serial No.	Type	Manufacturer	Cal.Date	Cal.Due Date
1	Network Analyzer	MY46110140	E5071C	Agilent	2023.06.21	2024.06.20
2	OTA Chamber	TJ2235-Q1793	AMS-8923 -150	ETS	2022.11.30	2025.11.29

1.4 Test Software Utilized

No.	Software Name	Serial No.	Version	Manufacturer
1	Antenna Measurement System	1685	EMQuest EMQ-100 V 1.13 Build 21267	ETS

————— END OF REPORT —————