



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

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MORLAB

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DIRECTORY

1. Technical Information	3
1.1. Applicant and Manufacturer Information	3
1.2. Equipment Under Test (EUT) Description	3
2. Test Results	4
2.1. Applied Reference Documents	4
2.2. Test Conditions	4
2.3. Measurement Uncertainty	4
2.4. Test Results lists	5
Annex A Test Setup Photos	6
Annex B Figures	7
1. 2D Radiation Pattern	7
2. 3D Radiation Pattern	8
3. VSWR	10
4. Return Loss	10
Annex C EUT Photos	11
Annex D General Information	14
1.1 Identification of the Responsible Testing Laboratory	14
1.2 Identification of the Responsible Testing Location	14
1.3 Test Equipments Utilized	14
1.4 Test Software Utilized	14

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

1. Technical Information

Note: Provide by applicant.

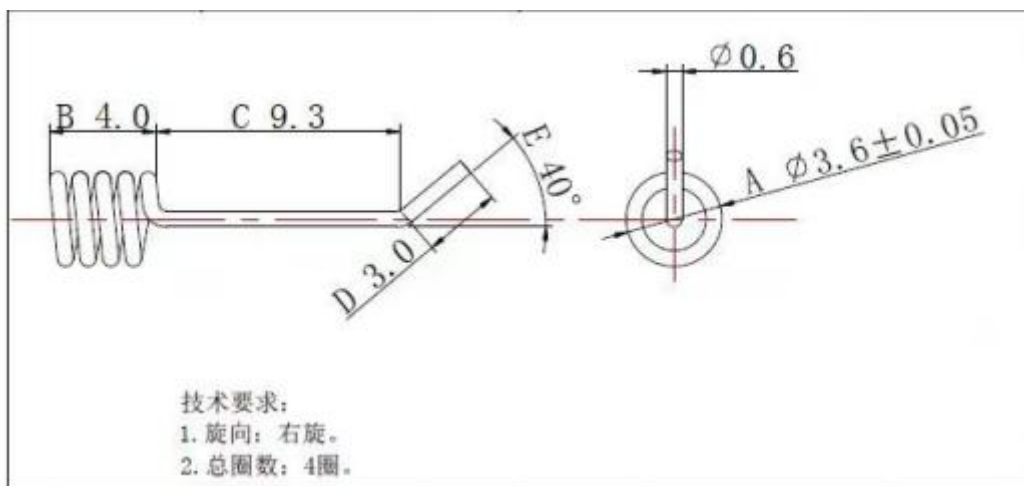
1.1. Applicant and Manufacturer Information

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

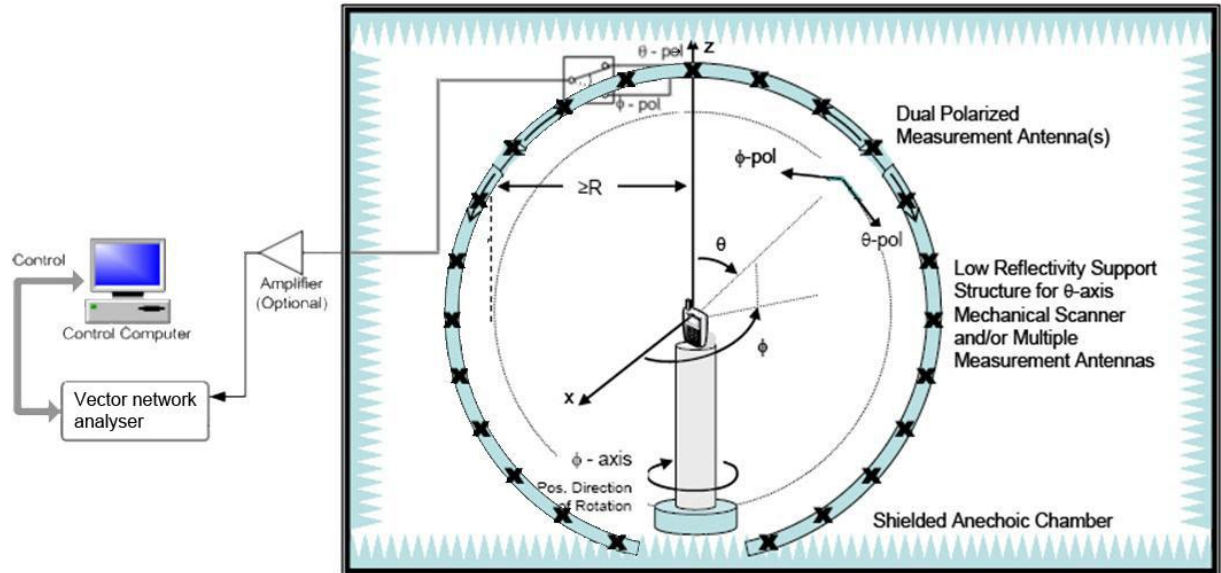
2.4.2. VSWR

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

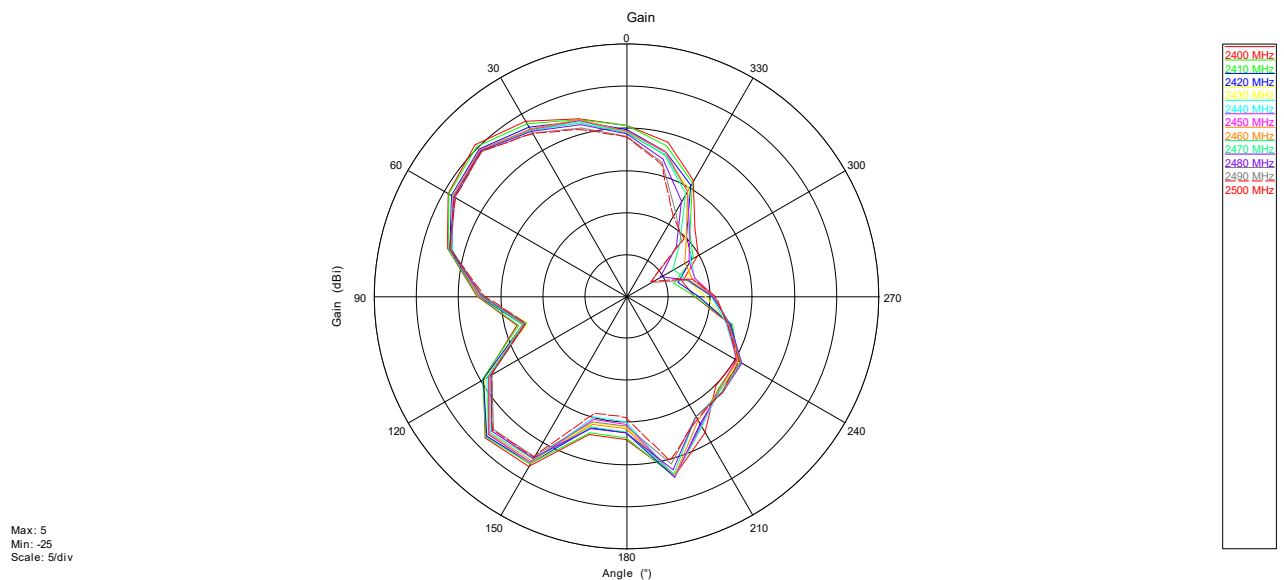
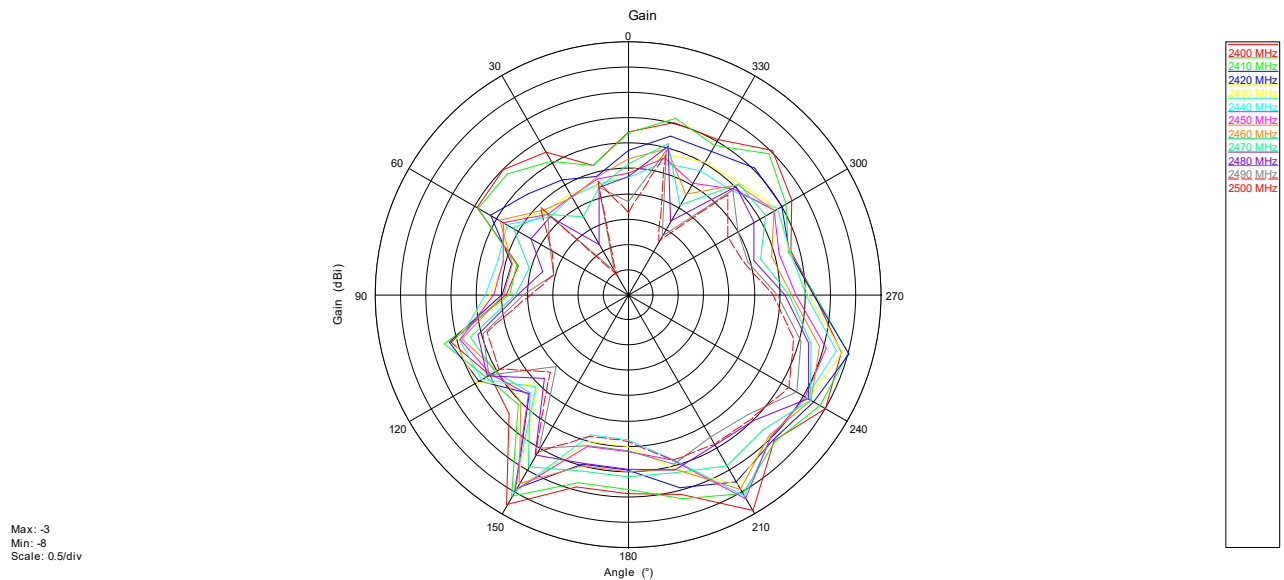
Annex A Test Setup Photos

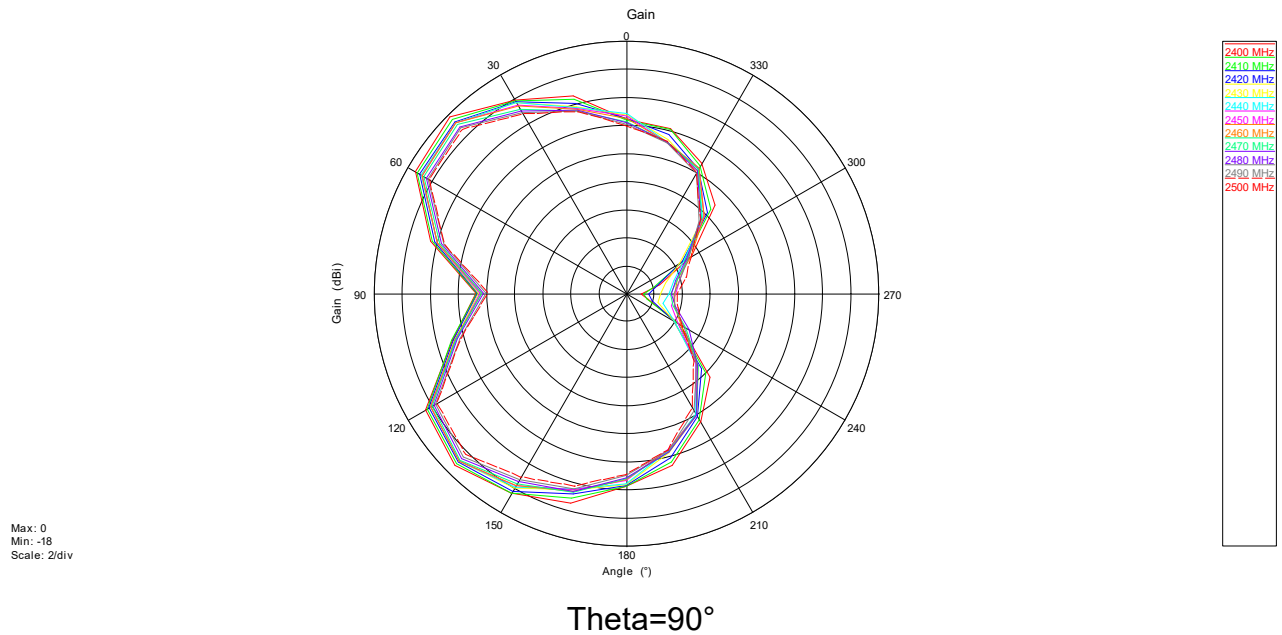




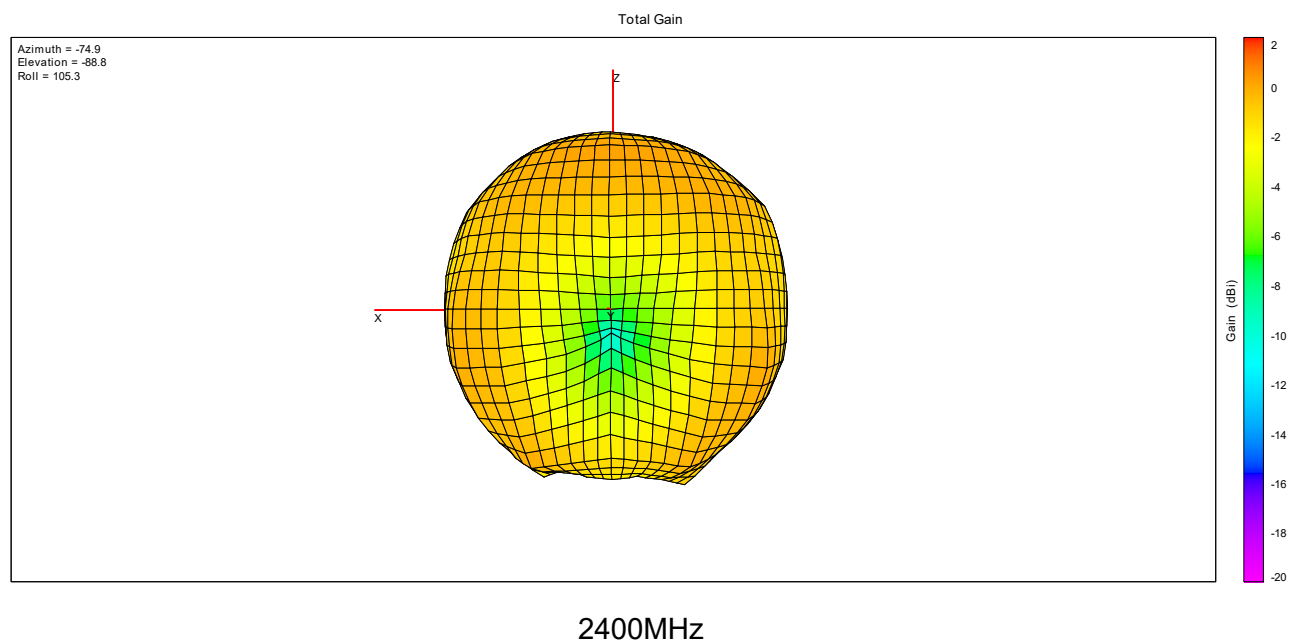
Annex B Figures

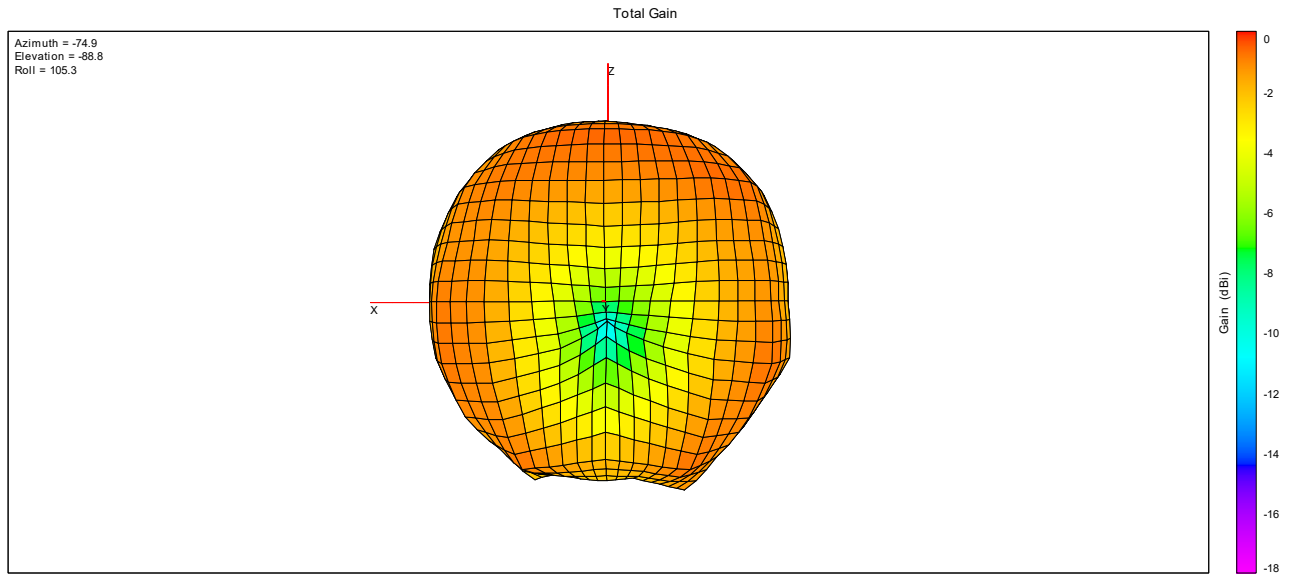
1. 2D Radiation Pattern



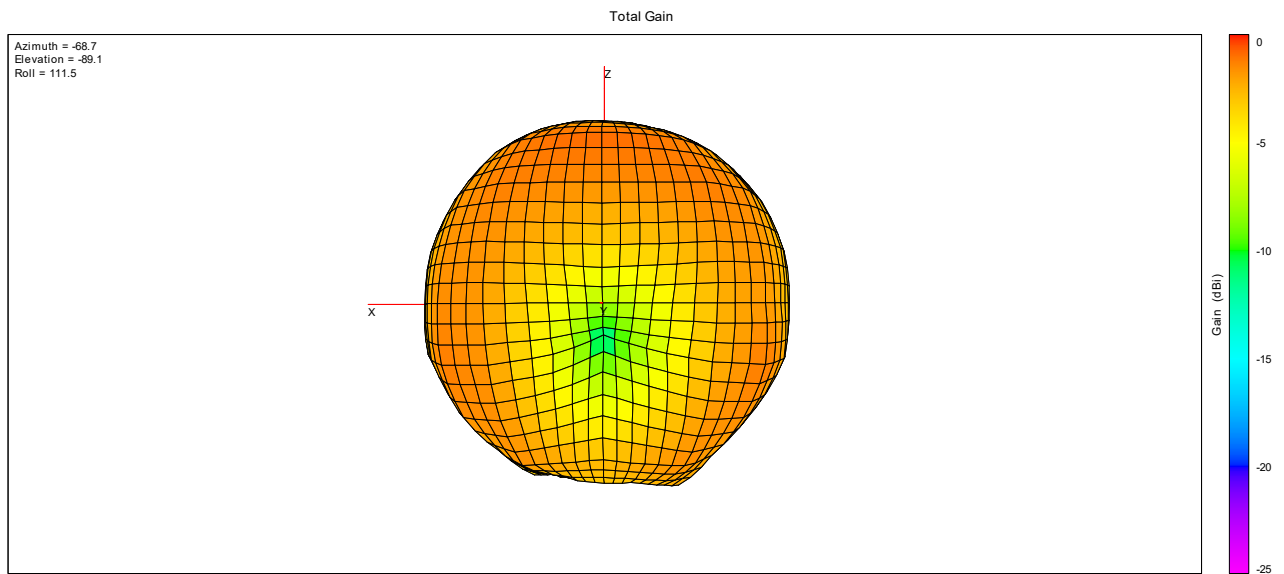


2. 3D Radiation Pattern





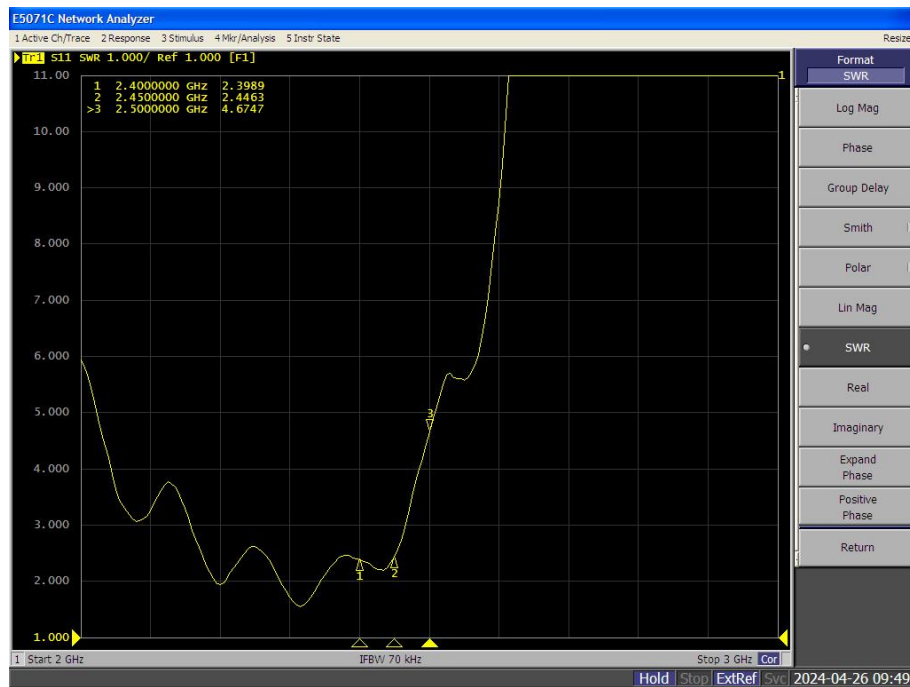
2450MHz



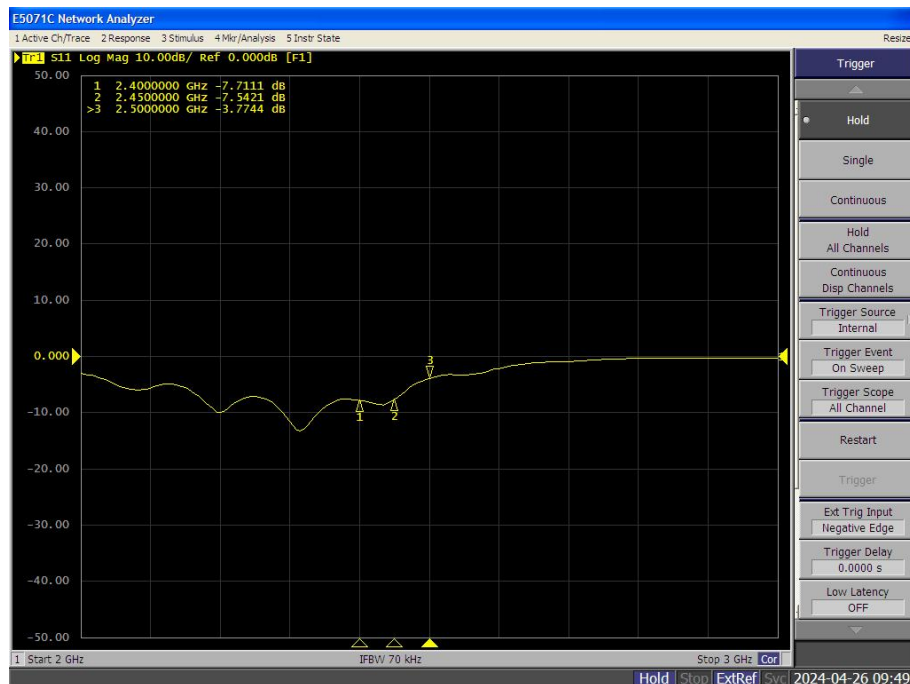
2500MHz



3. VSWR

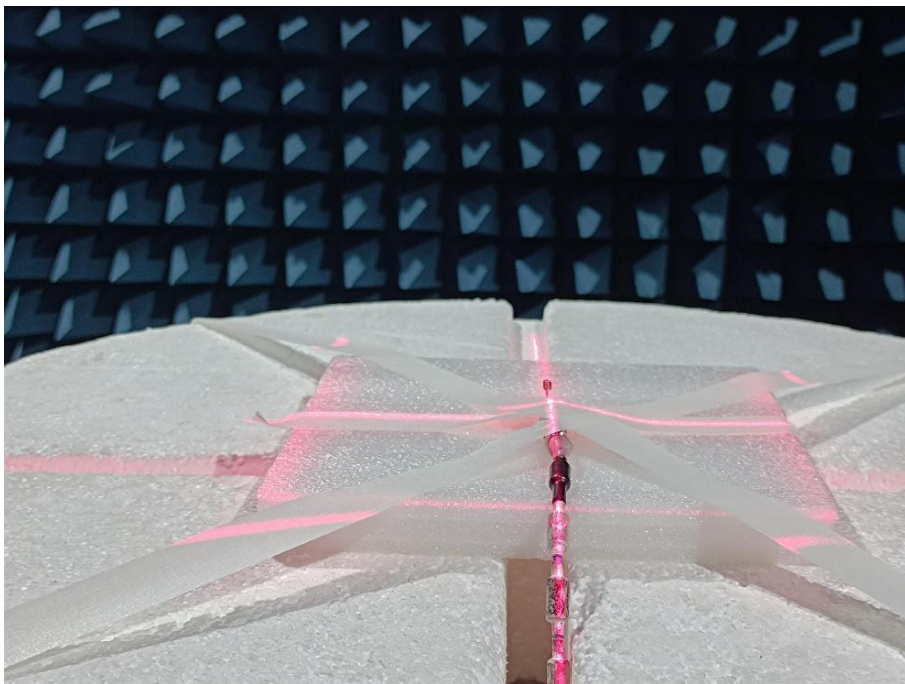


4. Return Loss

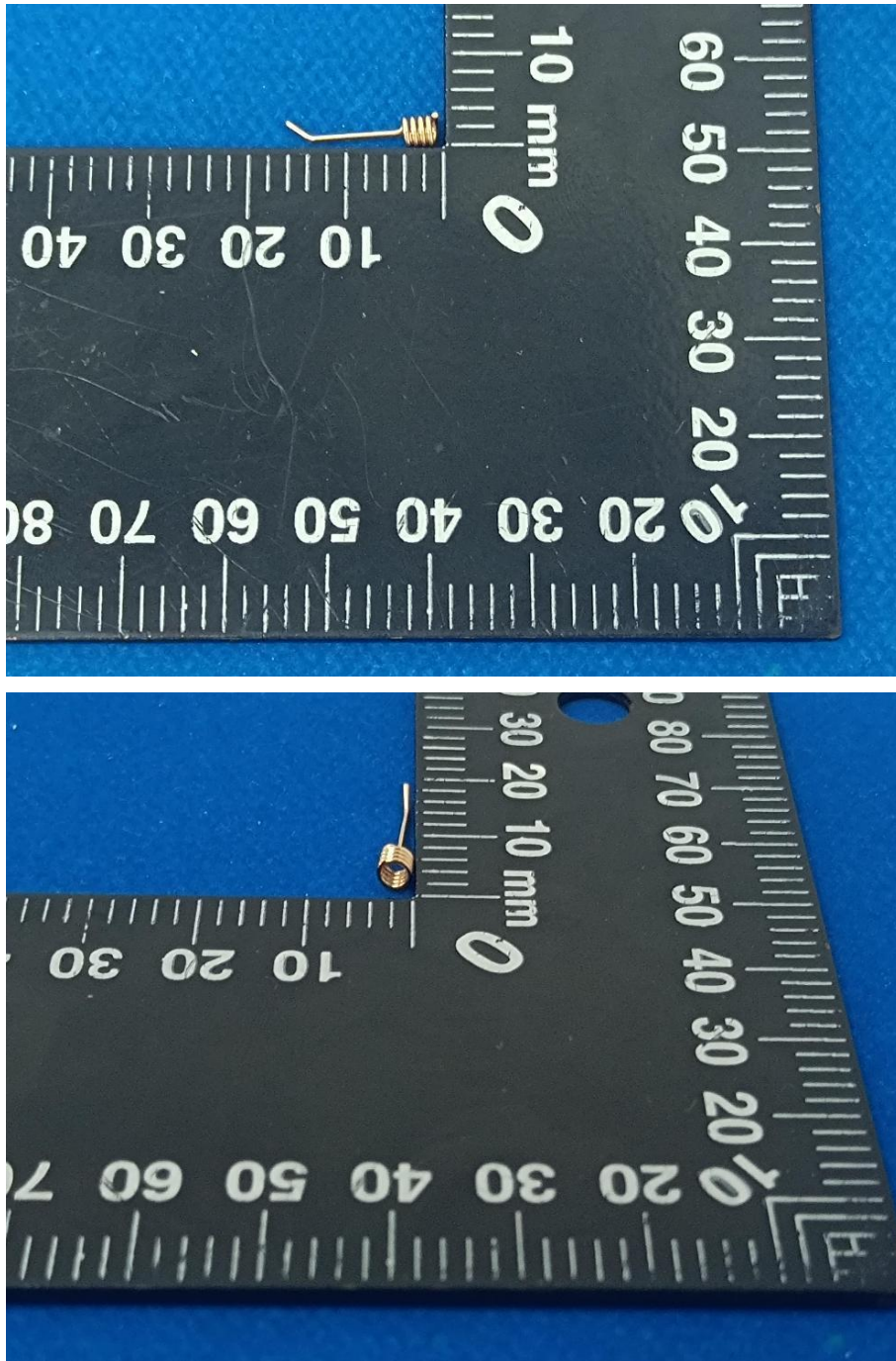


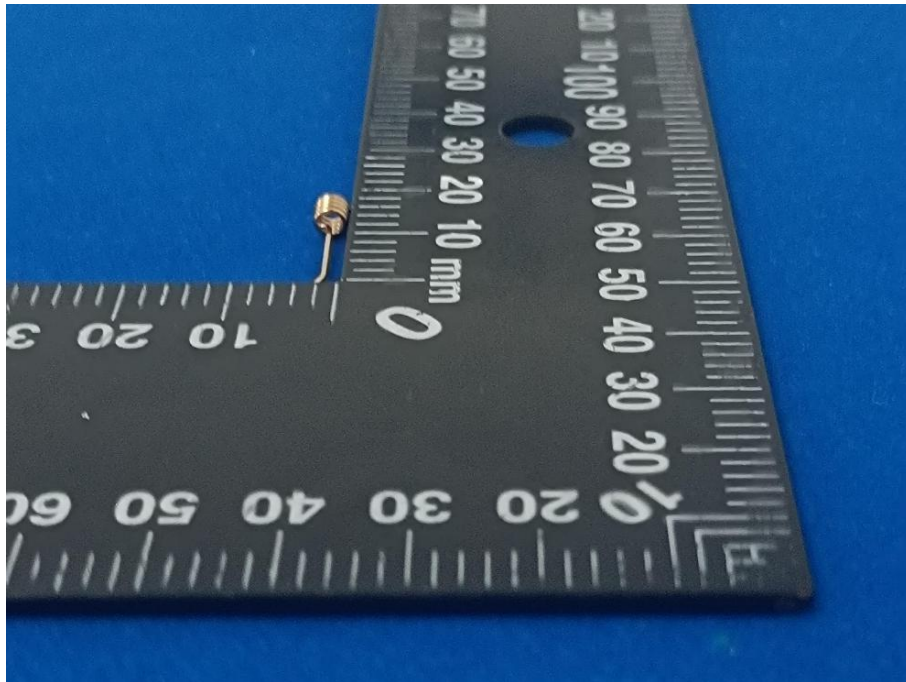
Annex C EUT Photos

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

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