



REPORT No.: SZ23100105E01

TEST REPORT

APPLICANT : PIKO Spielwaren GmbH

PRODUCT NAME : 2.4GHz Antenna

MODEL NAME : 55823

TRADE NAME : SmartController wlan

BRAND NAME : PIKO

STANDARD(S) : IEEE Std 149-2021

RECEIPT DATE : 2023-10-16

TEST DATE : 2023-10-16

ISSUE DATE : 2023-10-30



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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
Annex C EUT Photos	11
Annex D General Information	16
1.1 Identification of the Responsible Testing Laboratory	16
1.2 Identification of the Responsible Testing Location	16
1.3 Test Equipments Utilized	16

Change History		
Version	Date	Reason for change
1.0	2023-10-30	First edition

1. Technical Information

Note: Provide by applicant.

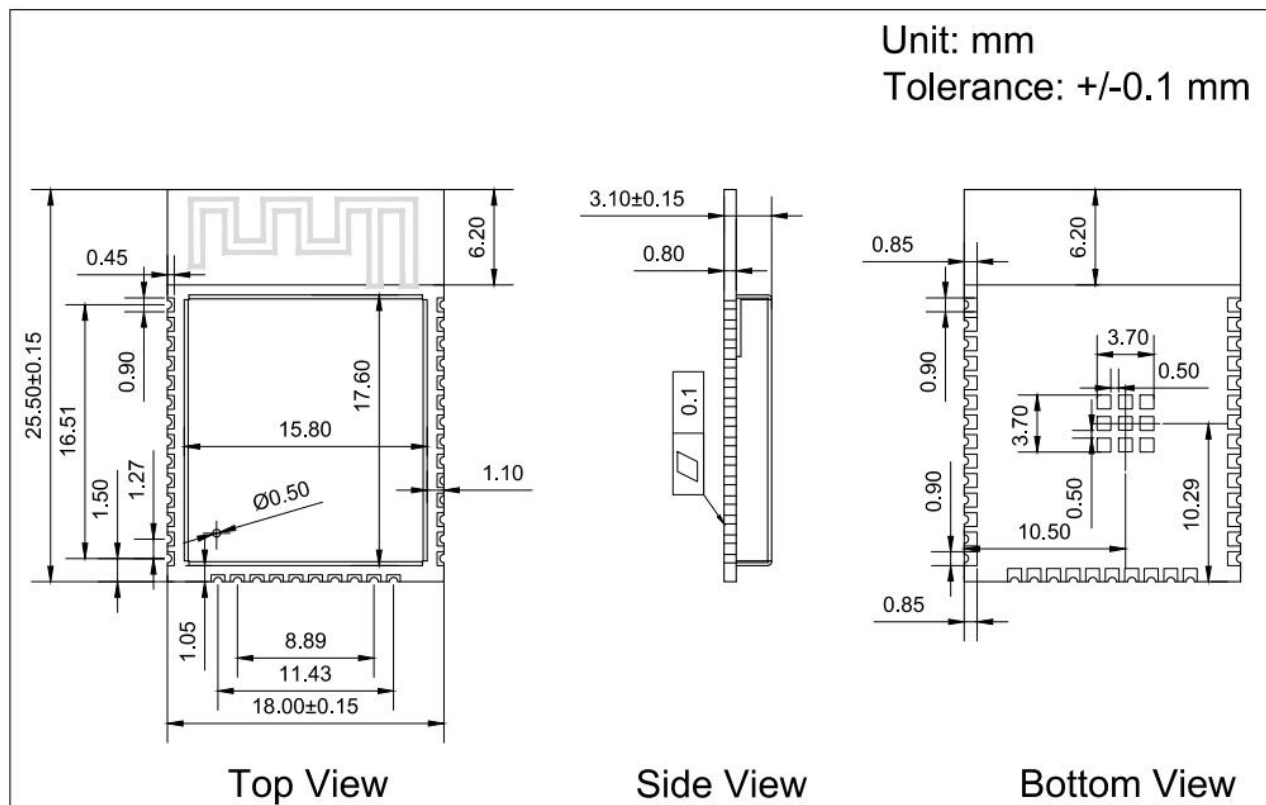
1.1. Applicant and Manufacturer Information

Applicant:	PIKO Spielwaren GmbH
Applicant Address:	Lutherstrasse 30 96515 Sonneberg Thuringia Germany
Manufacturer:	PIKO Spielwaren GmbH
Manufacturer Address:	Lutherstrasse 30 96515 Sonneberg Thuringia Germany

1.2. Equipment Under Test (EUT) Description

Wireless Type	N/A
Frequency	2400MHz-2500MHz
IMEI	N/A
Sample No.	2#

Dimension:





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

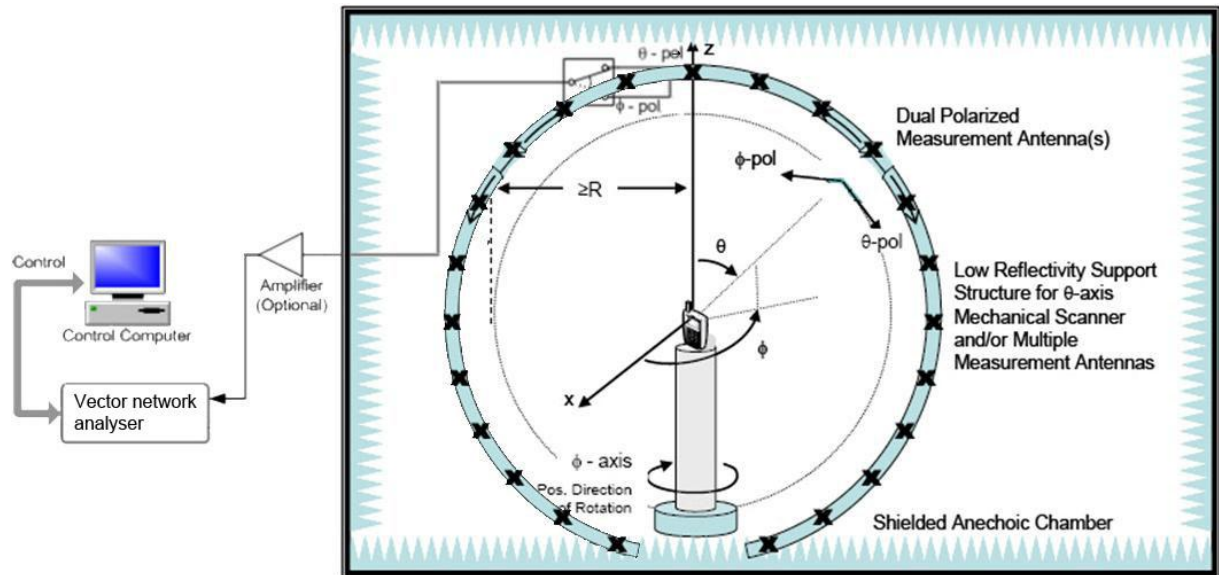
2.4.1. Gain

Frequency (MHz)	Gain(dBi)
2400	1.89
2450	0.32
2500	-1.37

2.4.2. VSWR

Frequency (MHz)	VSWR
2400	1.86
2450	3.44
2500	10.56

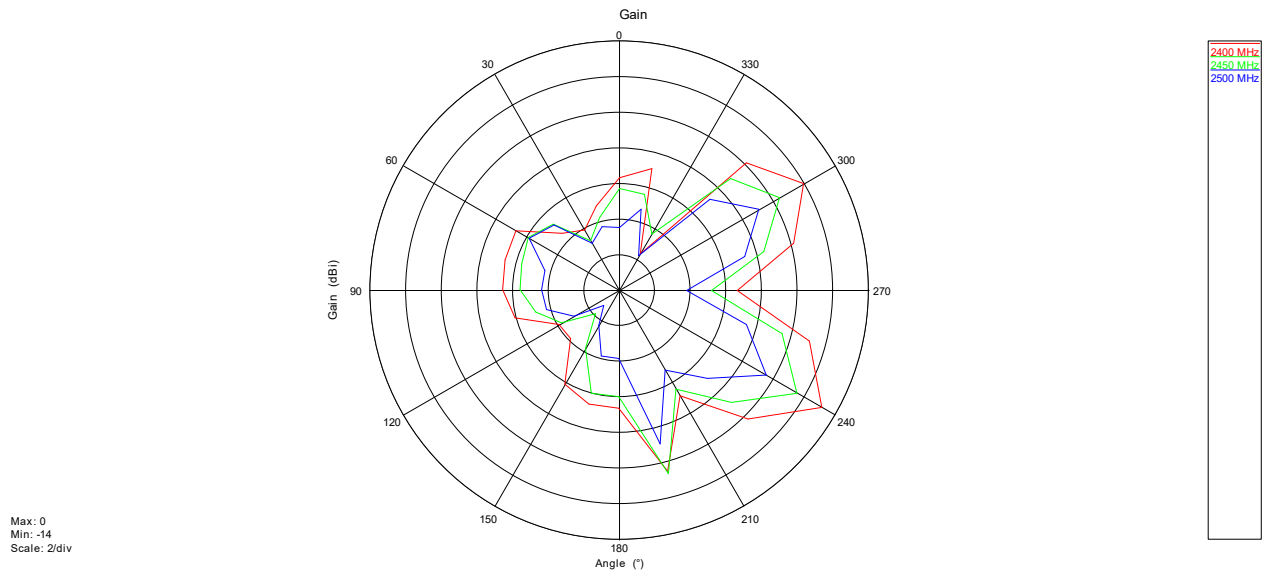
Annex A Test Setup Photos



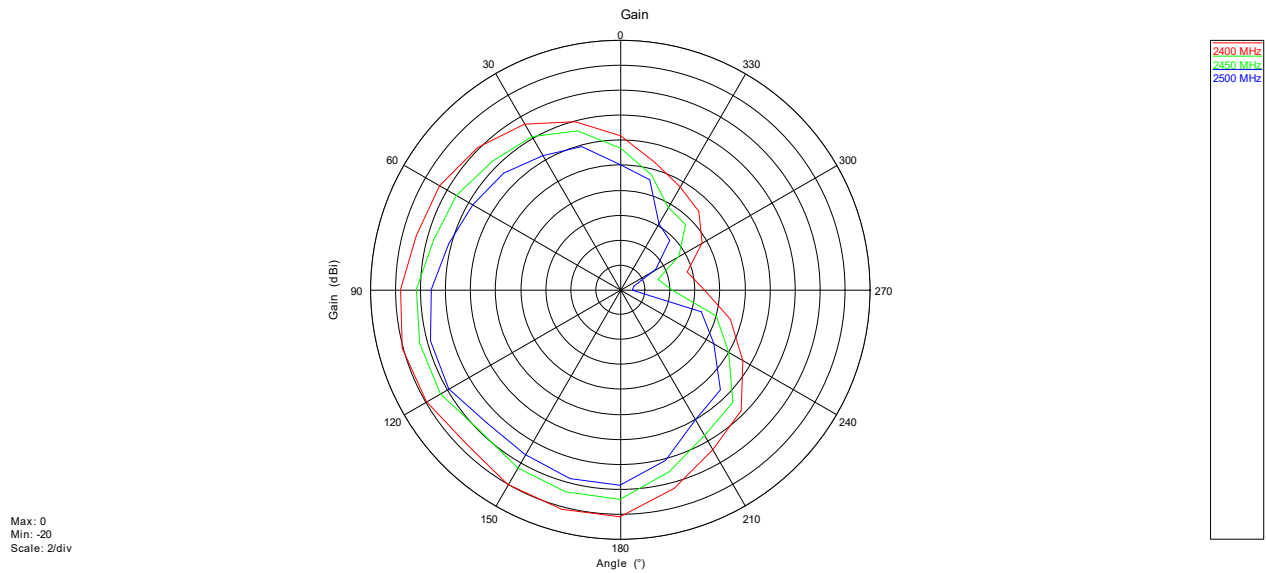


Annex B Figures

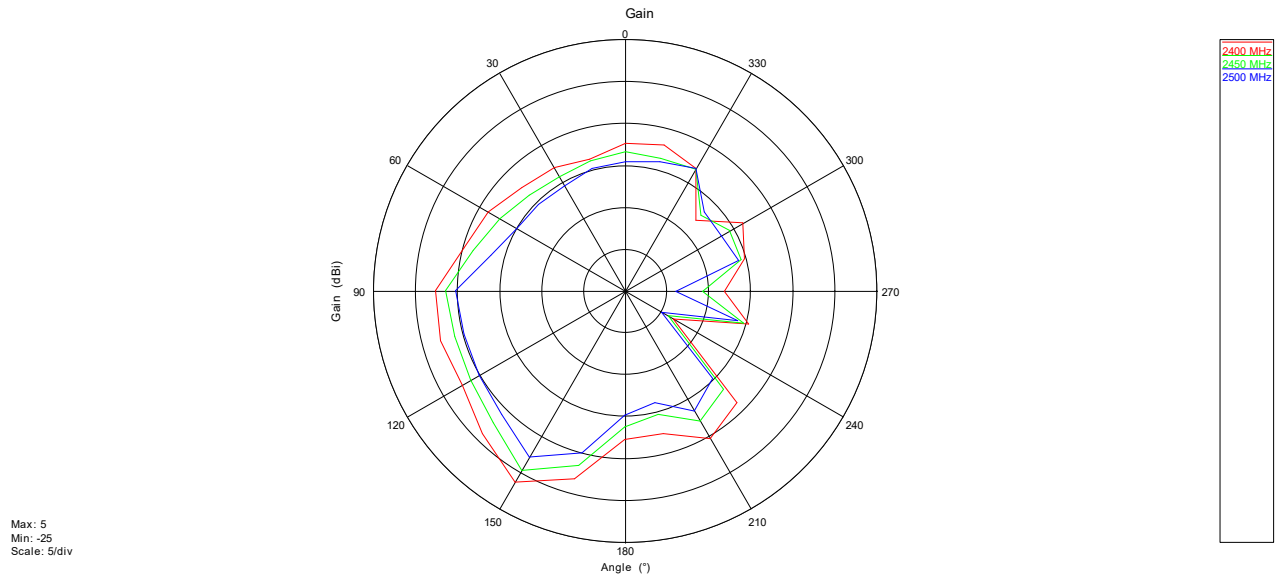
1. 2D Radiation Pattern



Phi=0°

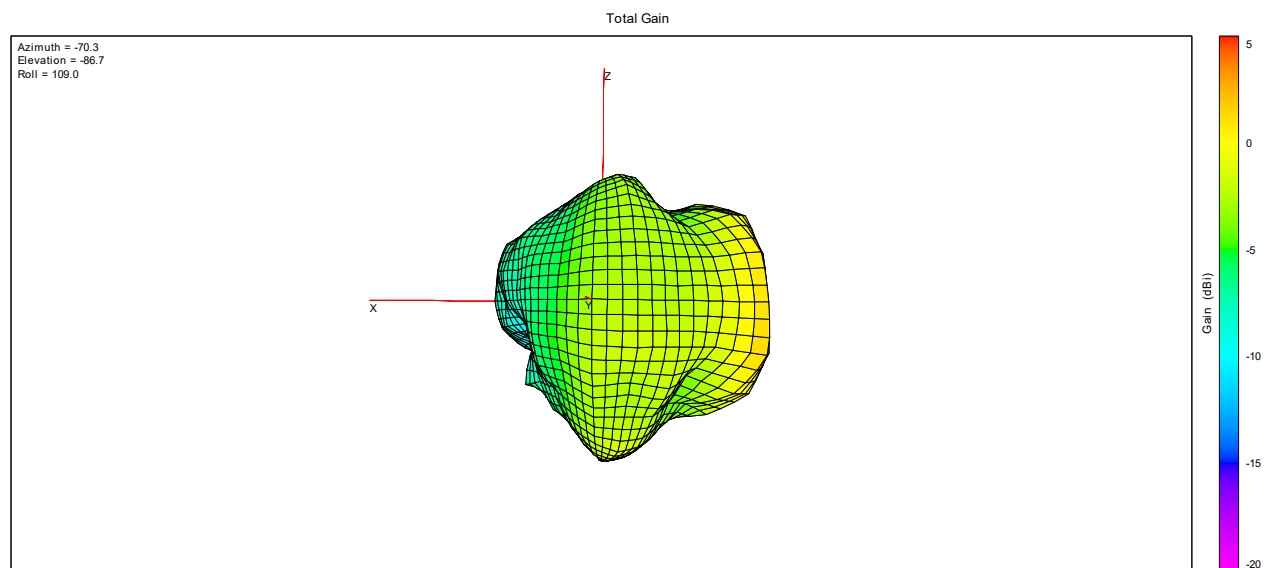


Phi=90°

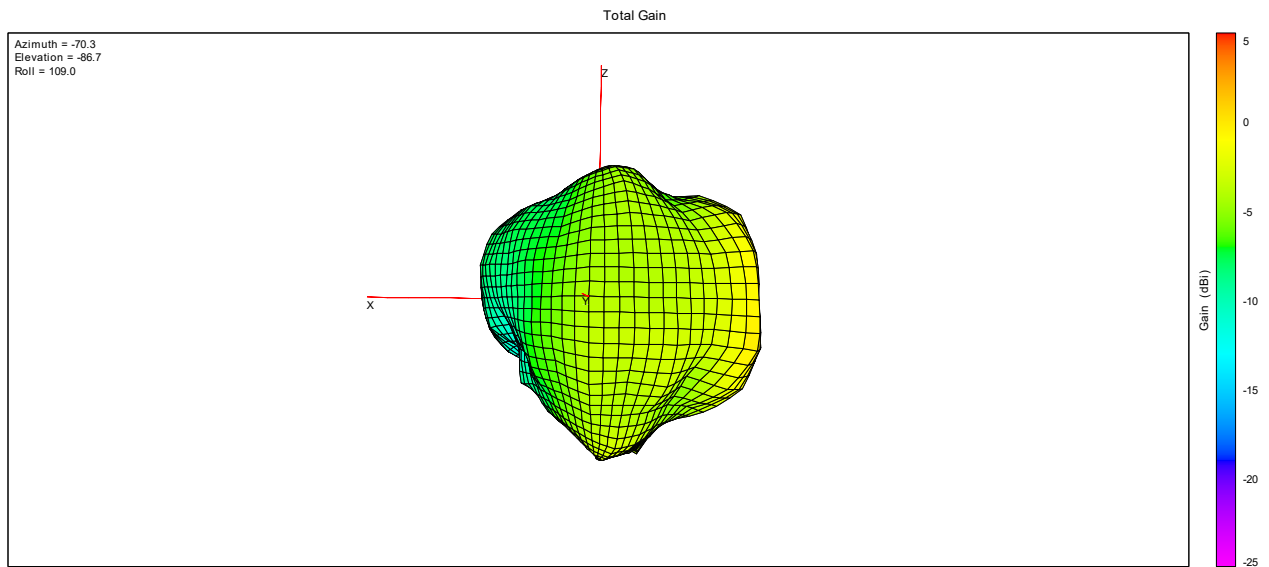


Theta=90°

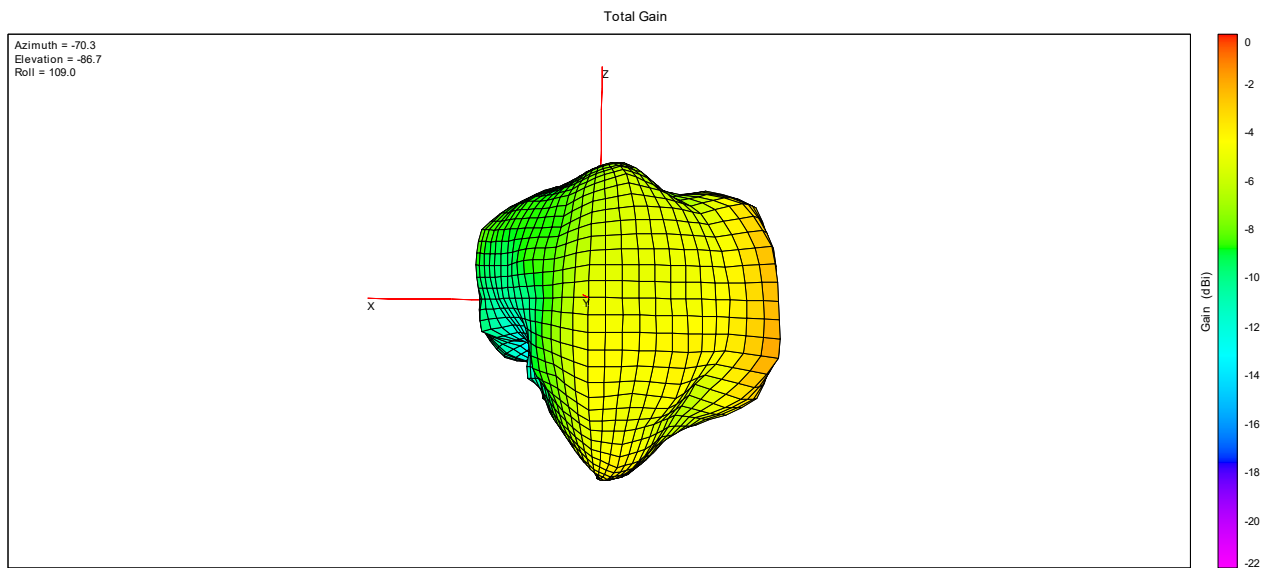
2. 3D Radiation Pattern



2400MHz



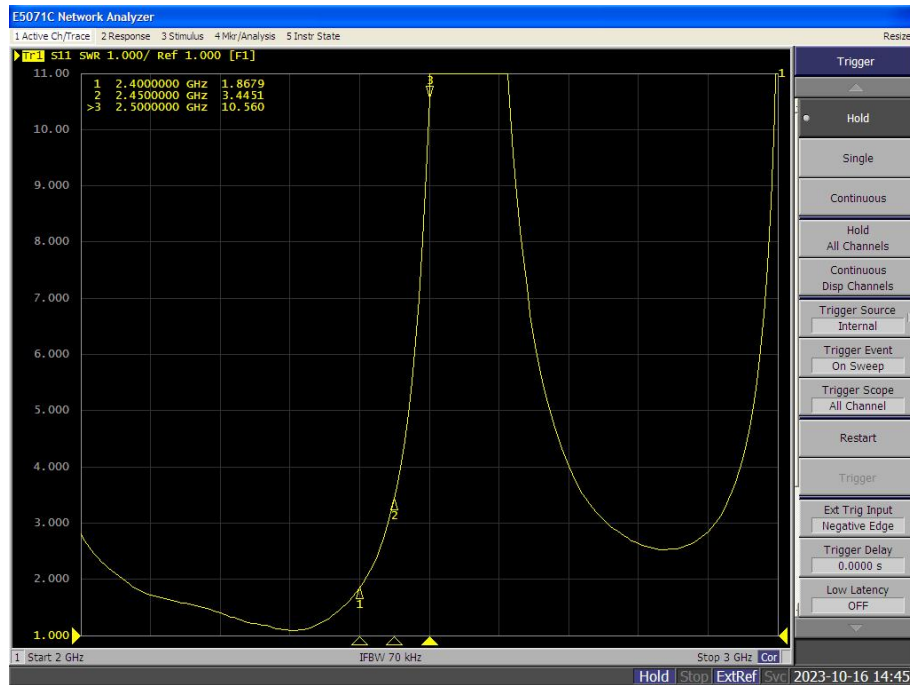
2450MHz



2500MHz

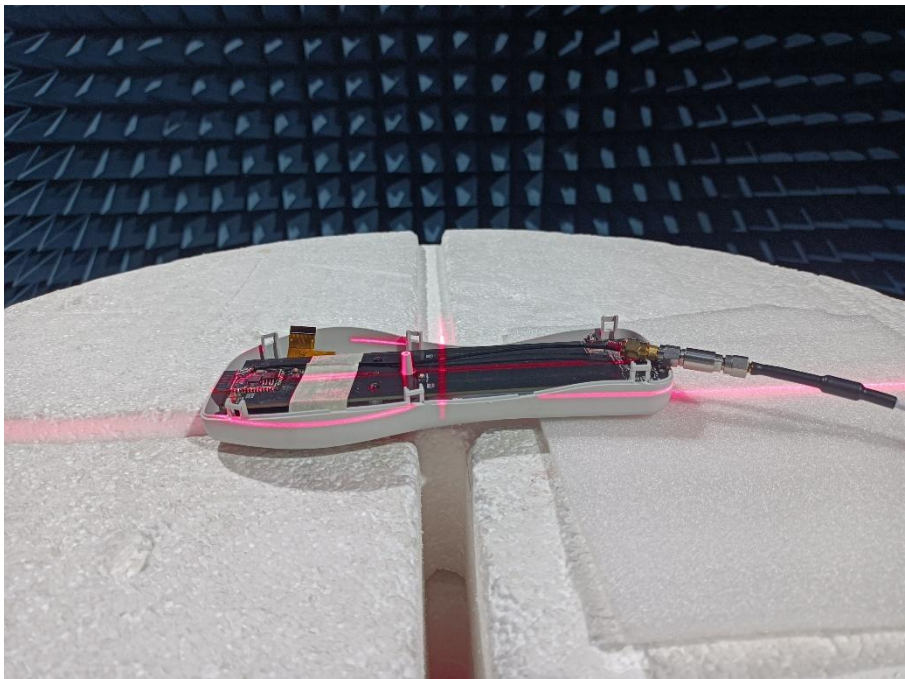
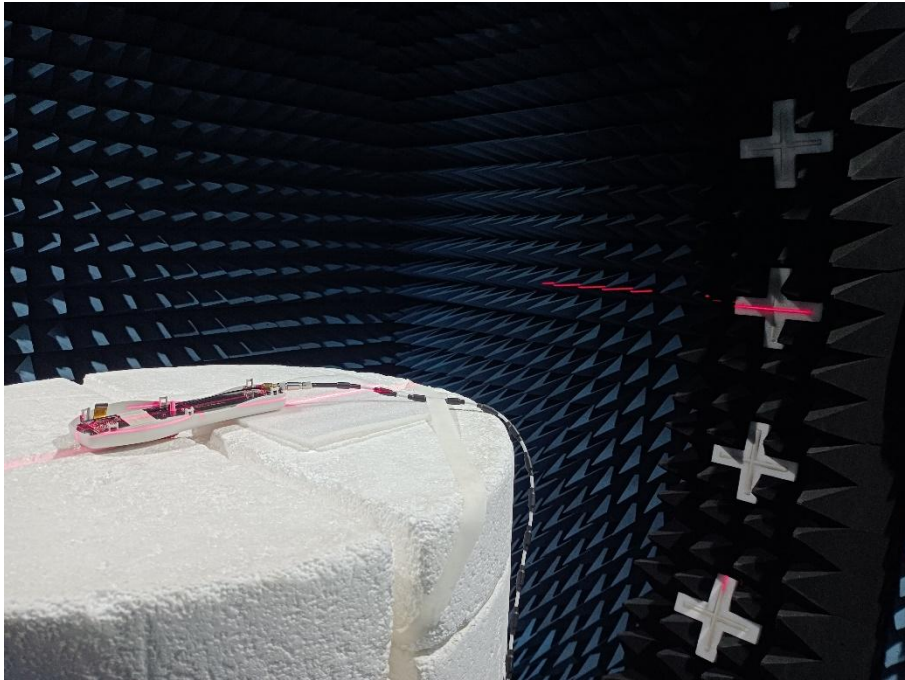


3. VSWR



Annex C EUT Photos

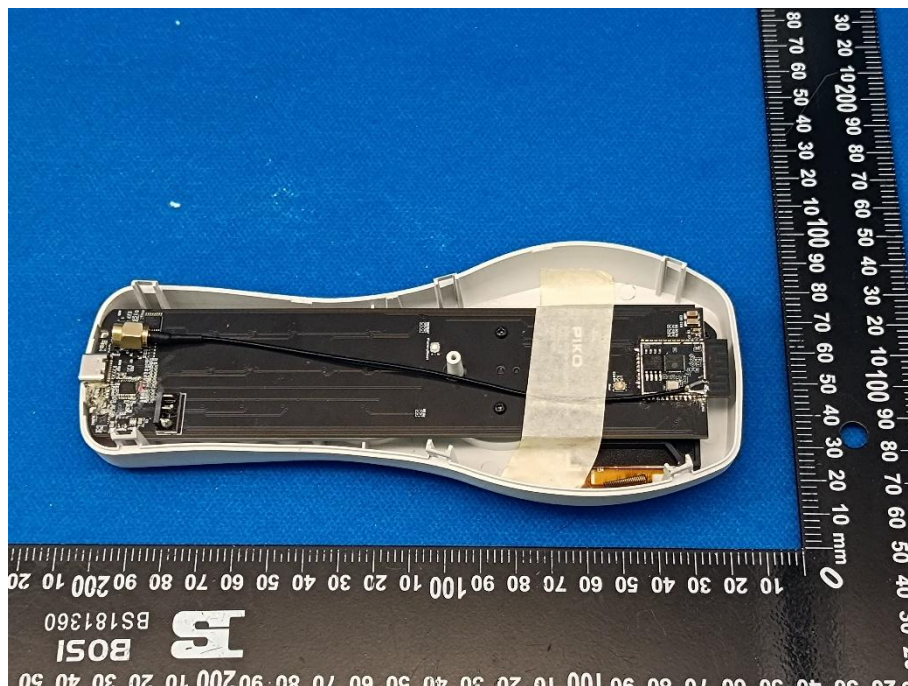
1. Test environment

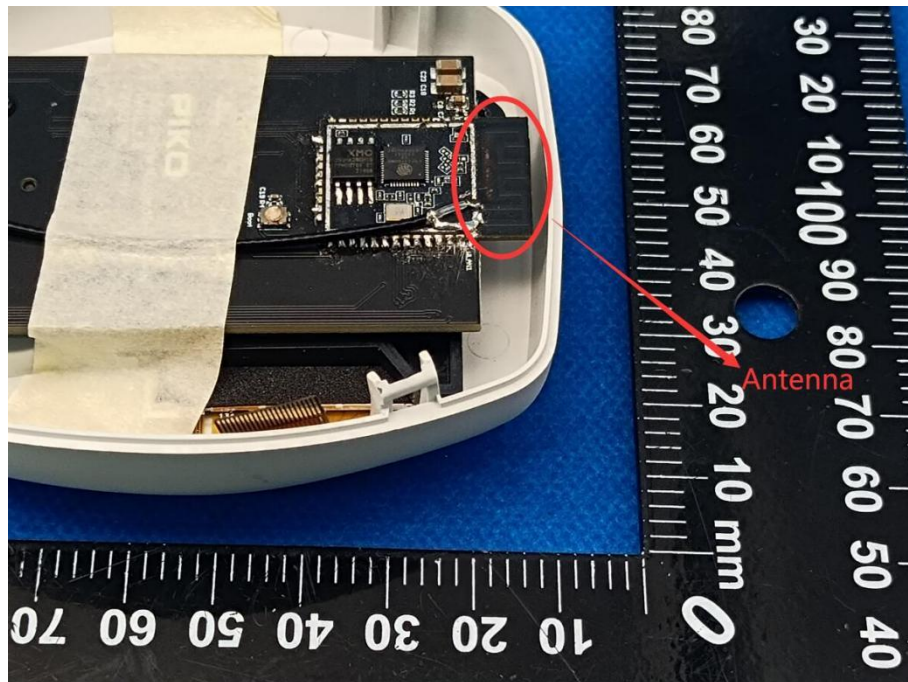


2. EUT











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
3	Antenna Measurement System	1685	EMQuest EMQ-100 V 1.13 Build 21267	ETS	N/A	N/A

————— END OF REPORT —————