



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

1. Technical Information

Note: Provide by applicant.

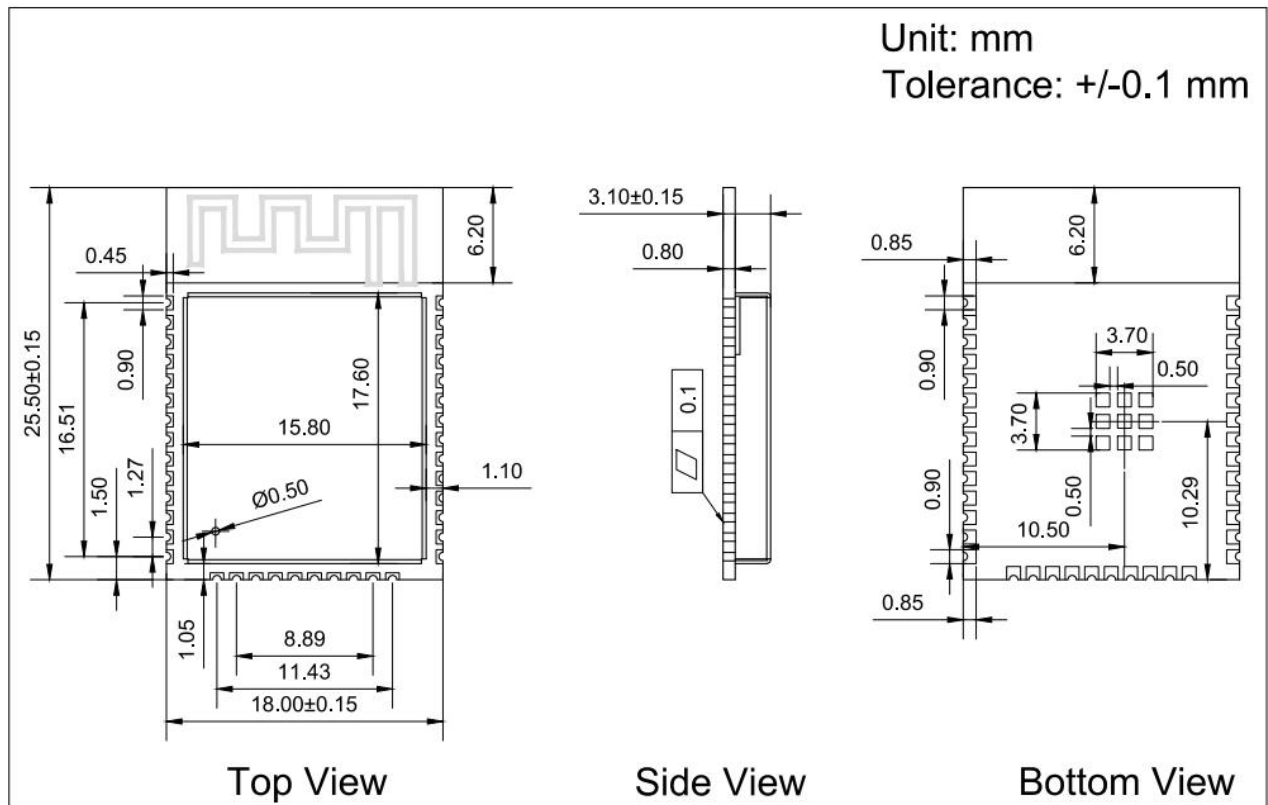
1.1. Applicant and Manufacturer Information

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

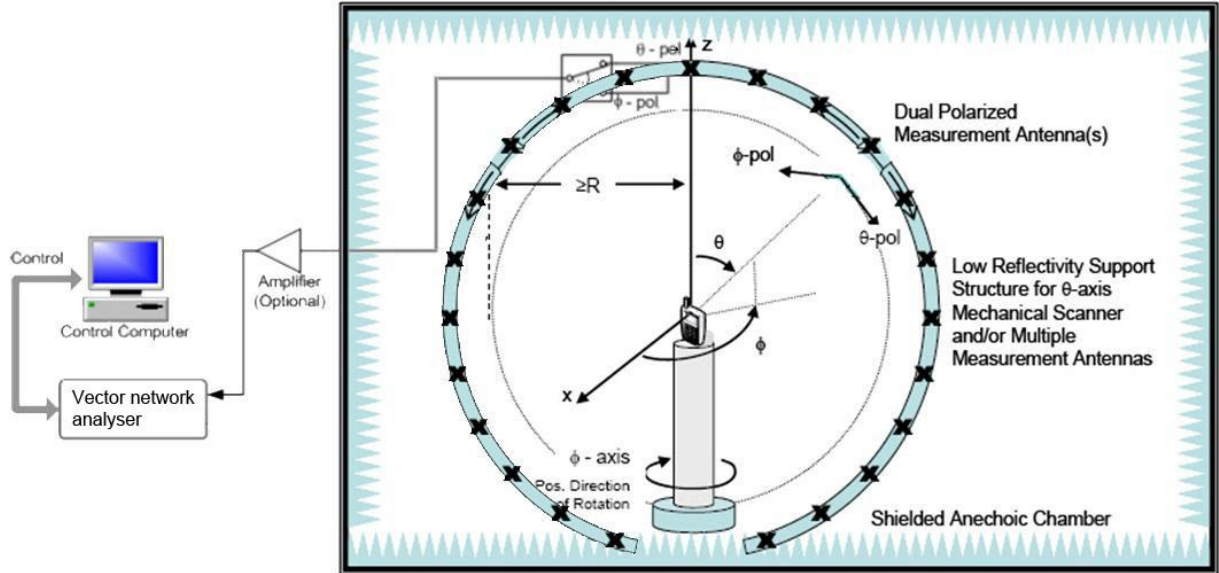
2.4.1. Gain

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

2.4.2. VSWR

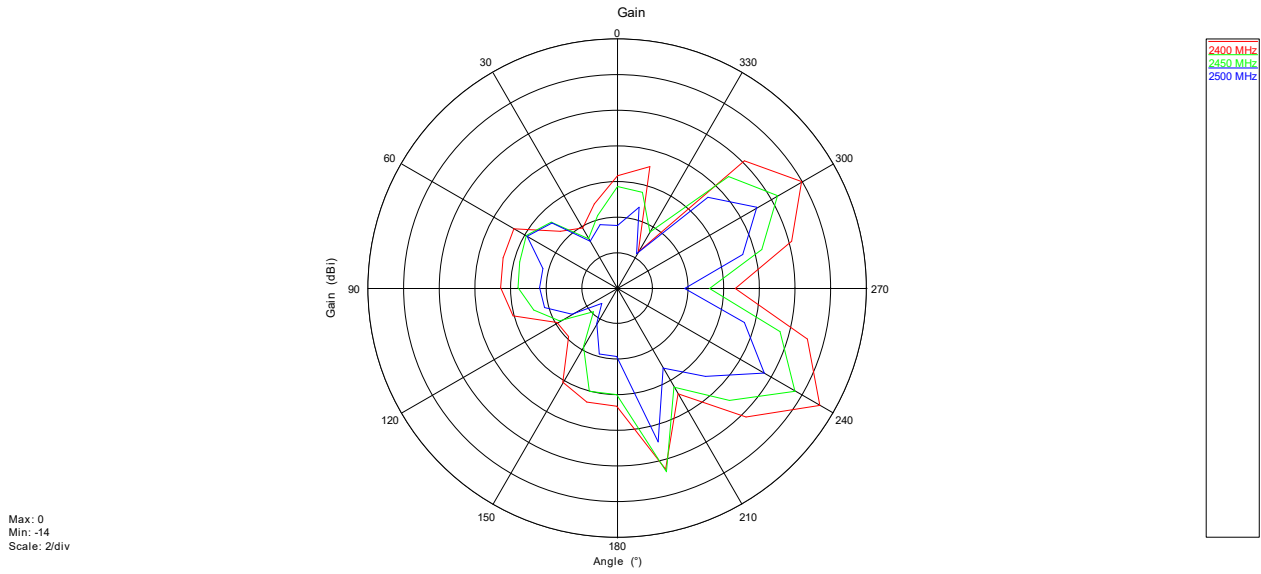
Frequency (MHz)	VSWR
2400	1.86
2450	3.44
2500	10.56

Annex A Test Setup Photos

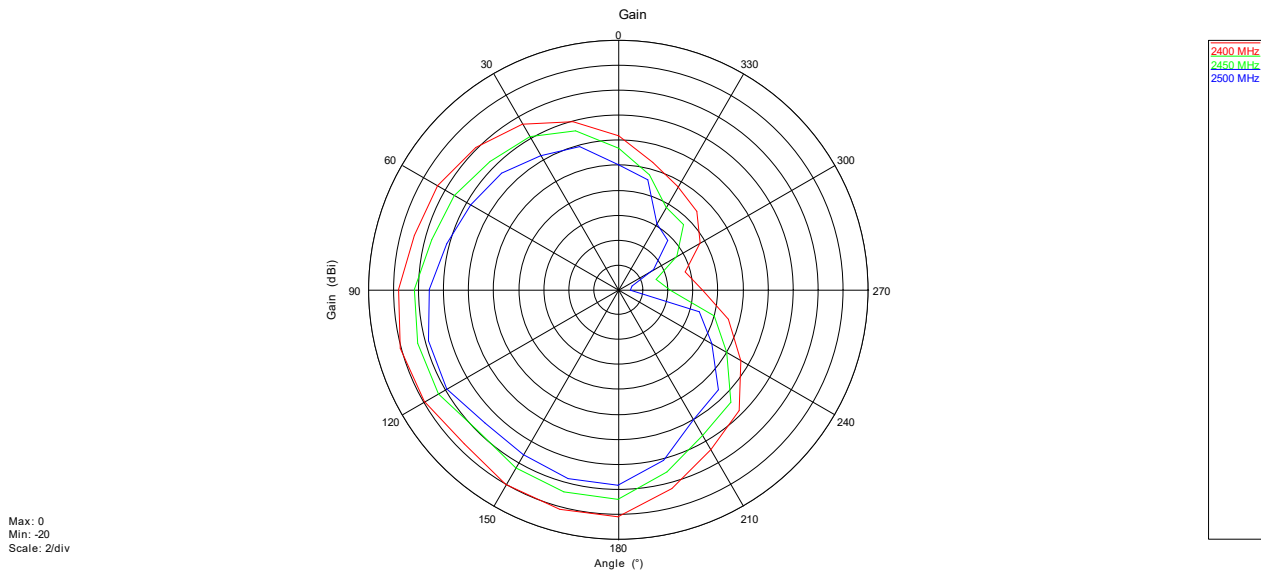


Annex B Figures

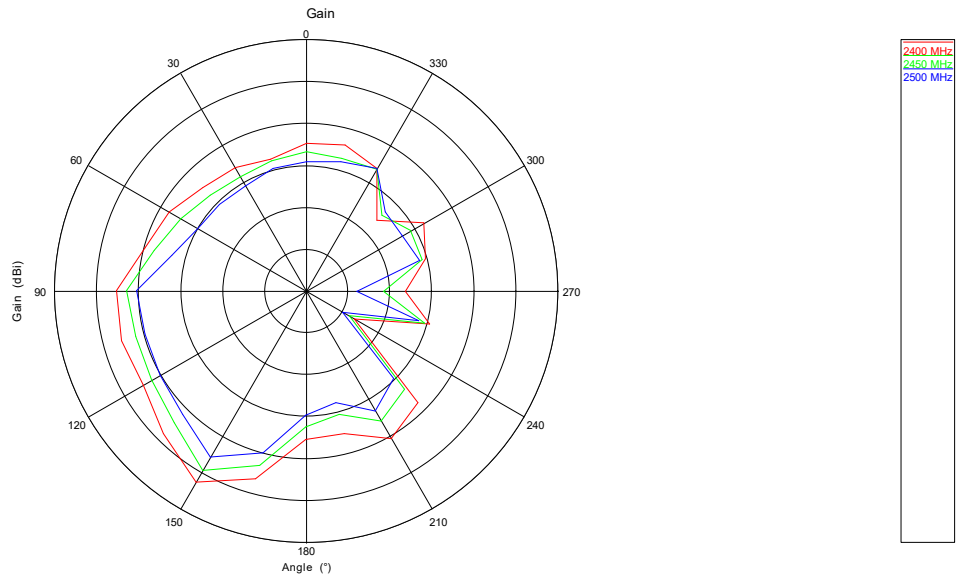
1. 2D Radiation Pattern



Phi=0°

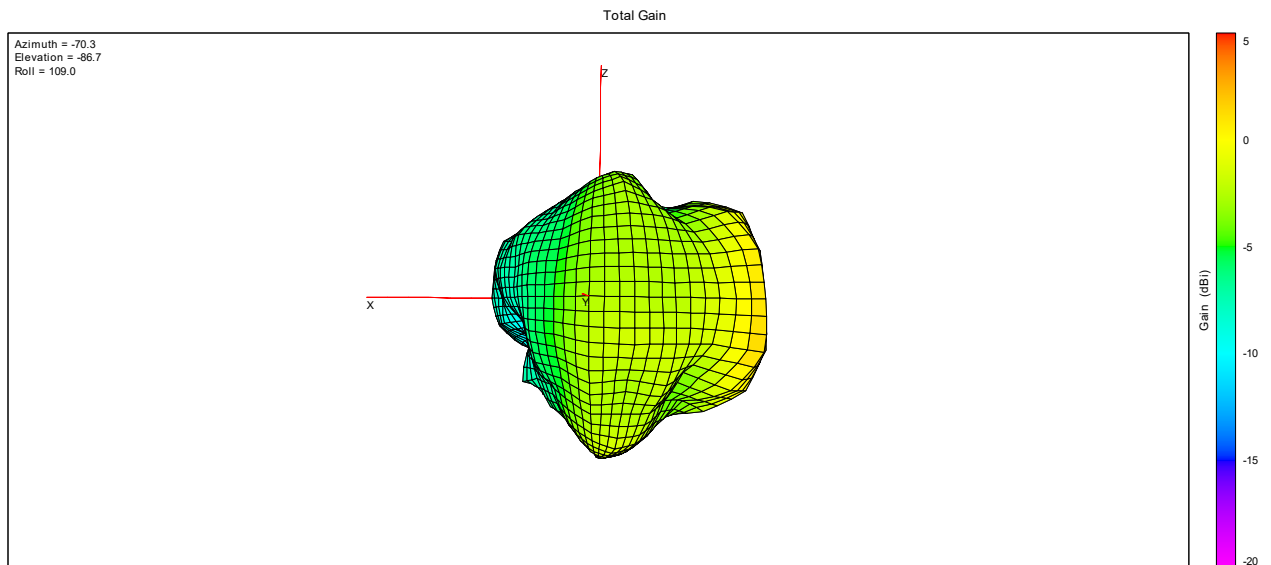


Phi=90°

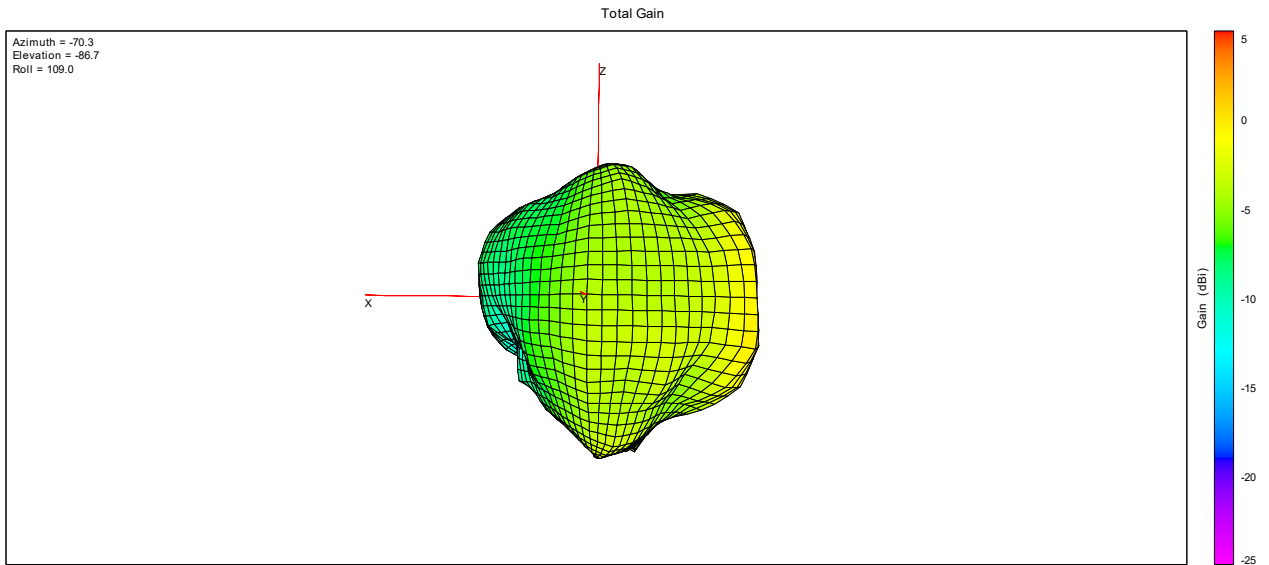


Theta=90°

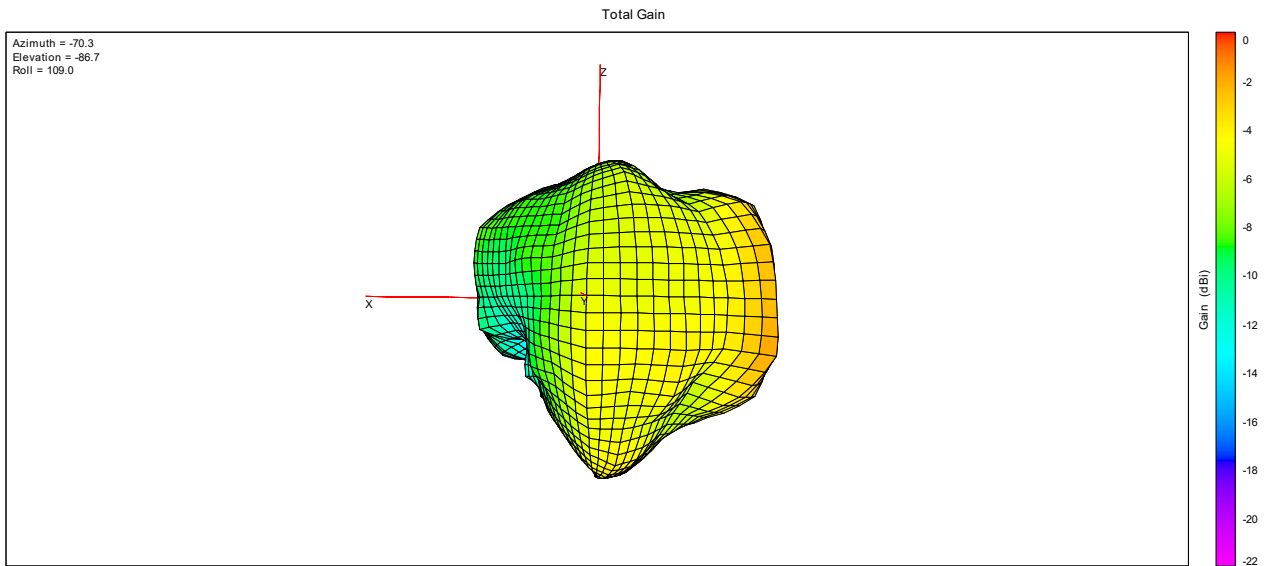
2. 3D Radiation Pattern



2400MHz



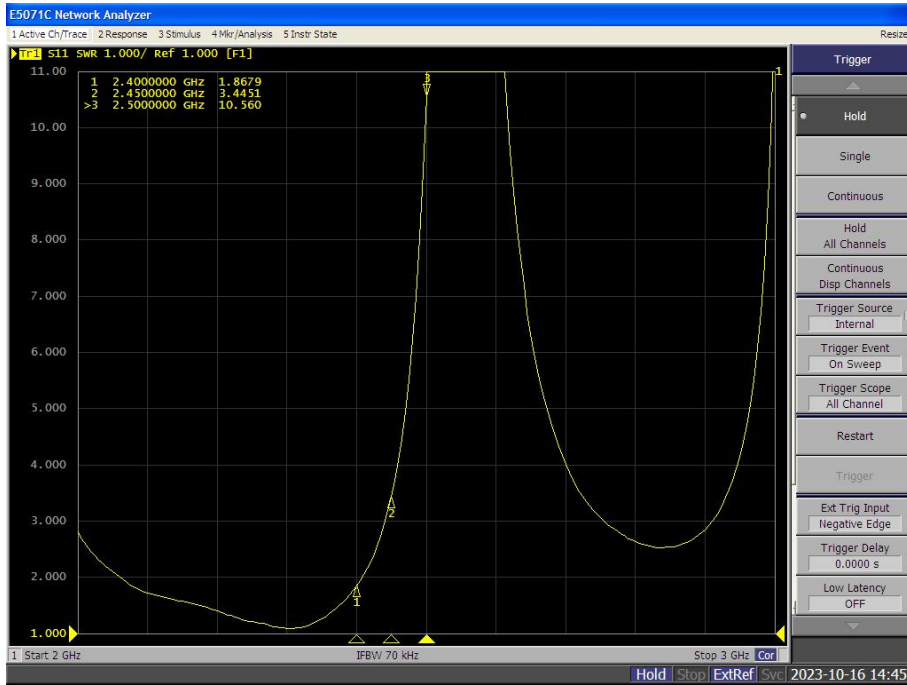
2450MHz



2500MHz

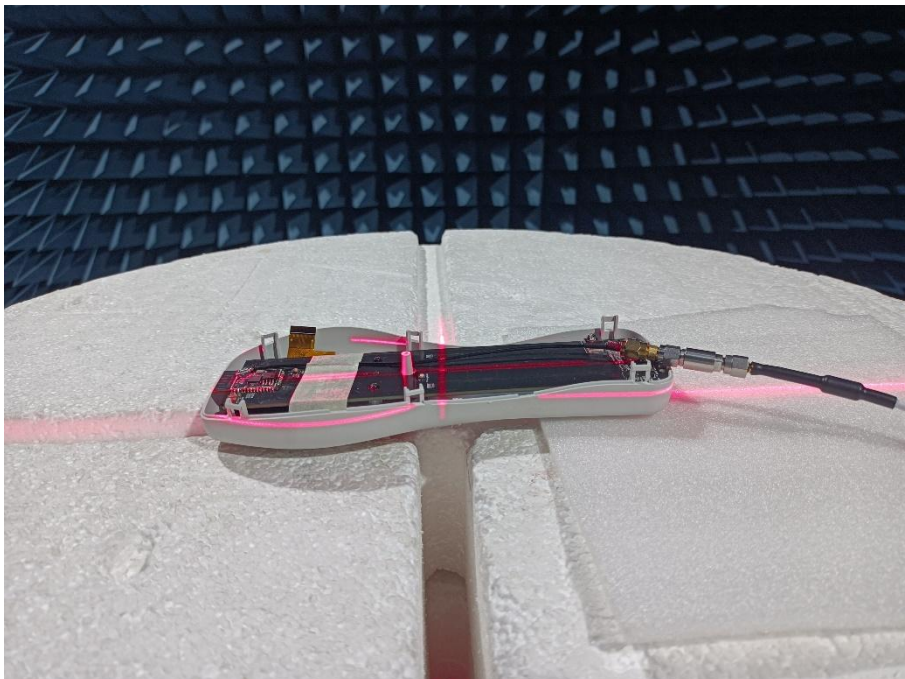
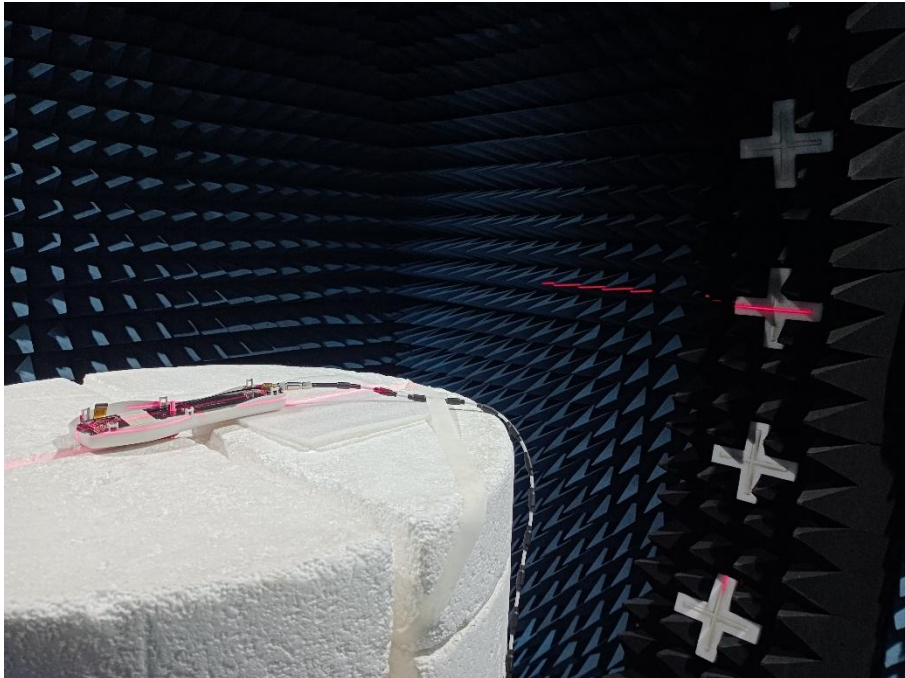


3. VSWR



Annex C EUT Photos

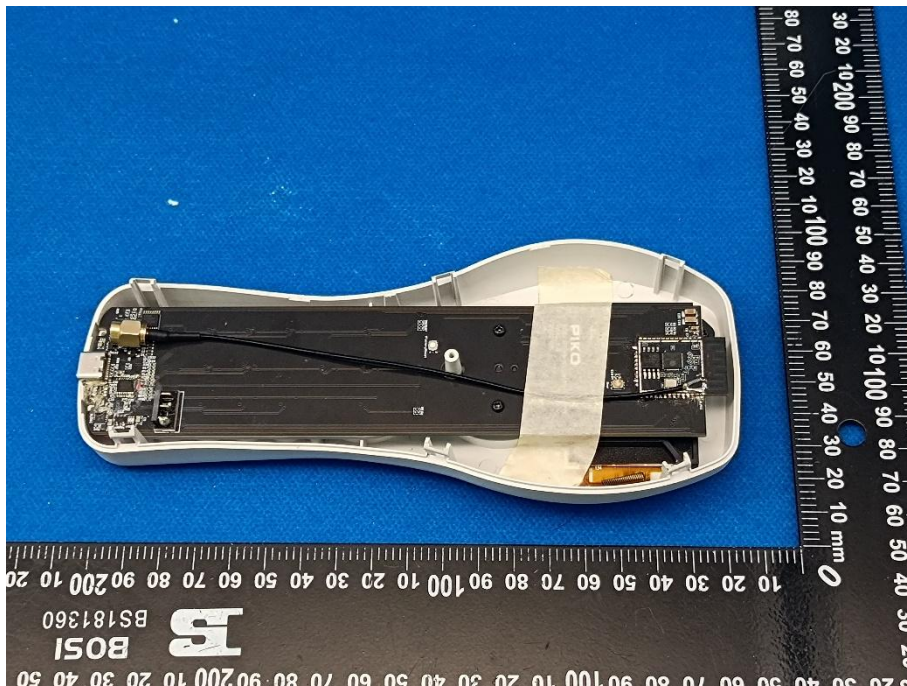
1. Test environment

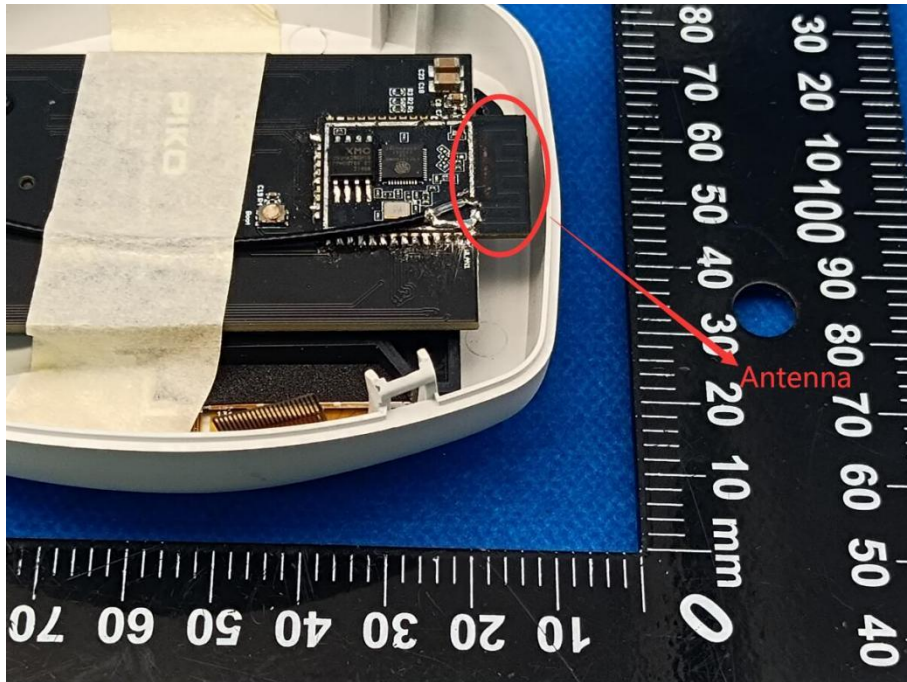


2. EUT











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 —————