REPORT No.: SZ22110064E04

TEST REPORT

APPLICANT	:	Acrox Technologies Co., Ltd
PRODUCT NAME	:	PCB Antenna
MODEL NAME	:	Ant-B2J
TRADE NAME	:	N/A
BRAND NAME	:	N/A
STANDARD(S)	:	IEEE Std 149-2021
RECEIPT DATE	:	2022-11-04
TEST DATE	:	2022-11-07
ISSUE DATE	:	2022-11-17

Edited by: Fang Jinshan

Fang Jinshan(Rapporteur)

Approved by:

Chi Shide(Supervisor)

MORLAB

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DIRECTORY

Change History		
Version	Date	Reason for change
1.0	2022-11-17	First edition

1.Technical Information

Note: Provide by manufacturer.

1.1. Applicant and Manufacturer Information

Applicant:	Acrox Technologies Co., Ltd
Applicant Address:	4F., No.89, Minshan St., Neihu Dist., Taipei City 114, Taiwan, R.O.C
Manufacturer:	Acrox Technologies Co., Ltd
Manufacturer Address:	4F., No.89, Minshan St., Neihu Dist., Taipei City 114, Taiwan, R.O.C

1.2. Equipment Under Test (EUT) Description

Wireless Type	Bluetooth
Frequency	N/A
IMEI	N/A
Antenna Type	Meander PCB antenna
Sample No.	4#

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:	+10 °C to +30 °C

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.

Item	Measurement Uncertainty(dB)
Gain	±0.5
VSWR	±0.2
Measurement Uncertainty(95% Confidence Interval) K=2	

2.4. Test Results

2.4.1. Gain

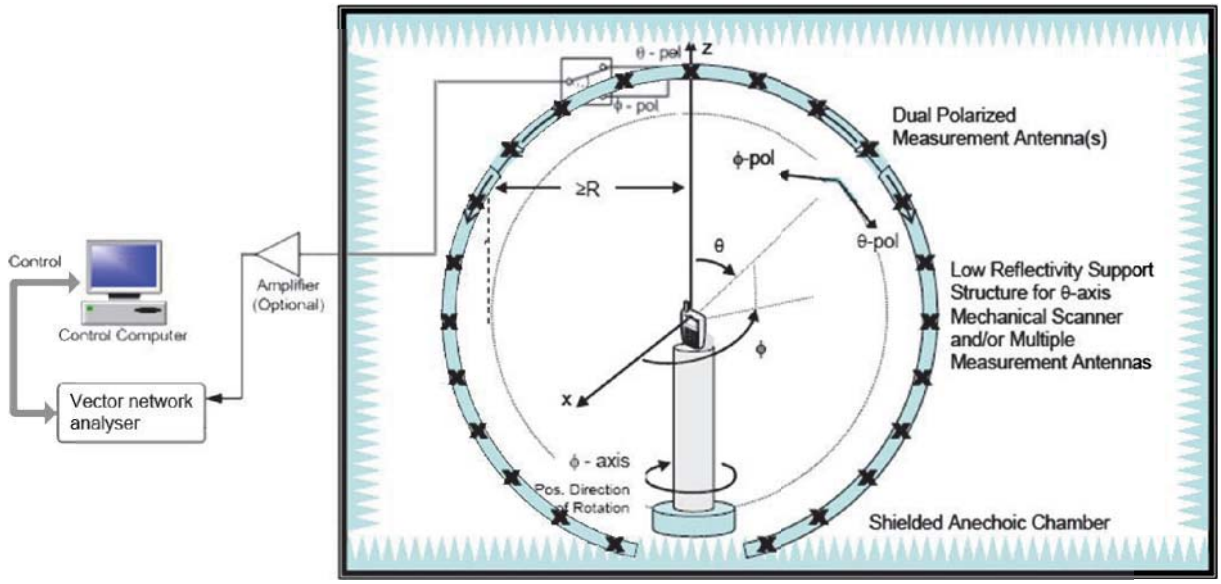
Frequency (MHz)	Gain(dBi)
2400	2.99
2410	3.07
2420	2.91
2430	2.77
2440	3.02
2450	3.05
2460	3.17
2470	3.03
2480	2.98
2490	3.10
2500	3.17

2.4.2. VSWR

Frequency	VSWR
2400MHz	2.25
2440MHz	1.99
2480MHz	1.94

Annex A Photographs

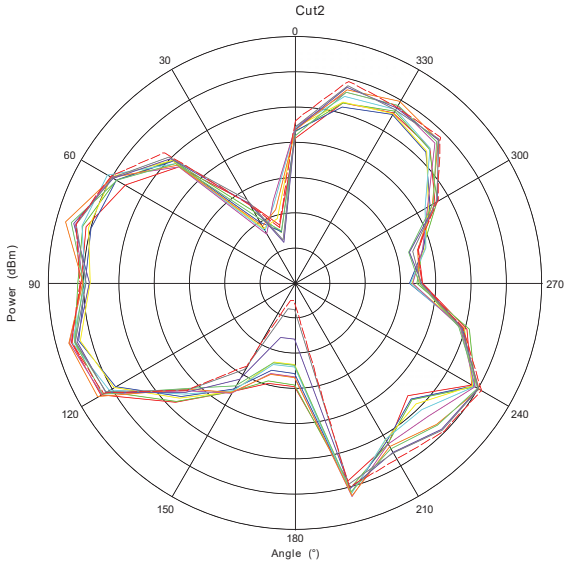
1. Test Setup



Annex B Figures

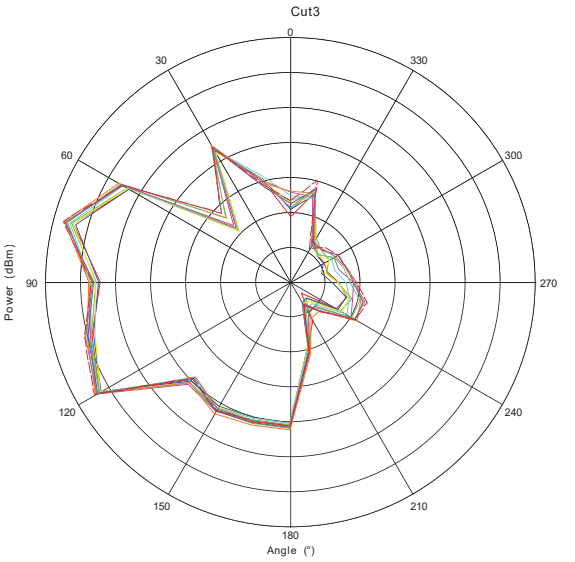
1. 2D Radiation Pattern

Phi=0°



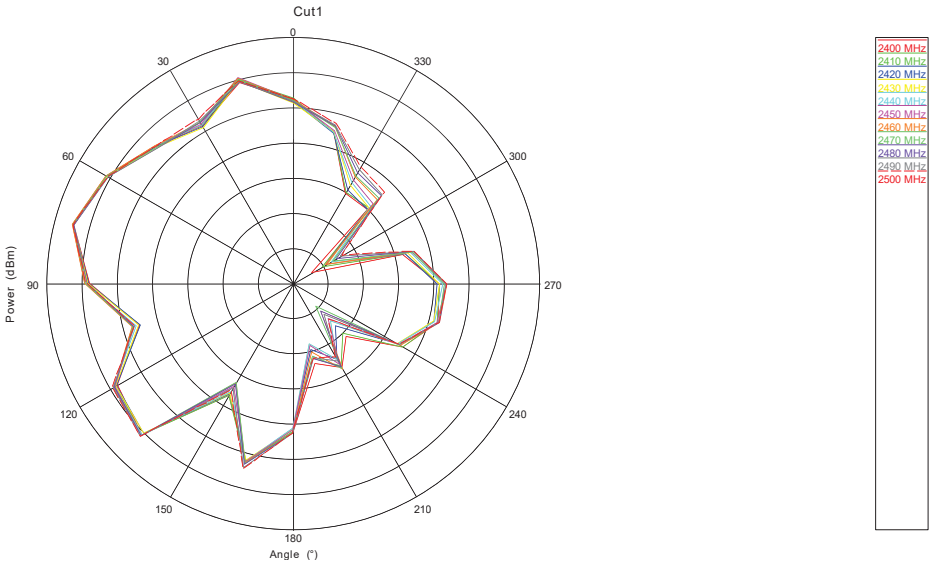
Max: -2
Min: -16
Scale: 2/div

Phi=90°

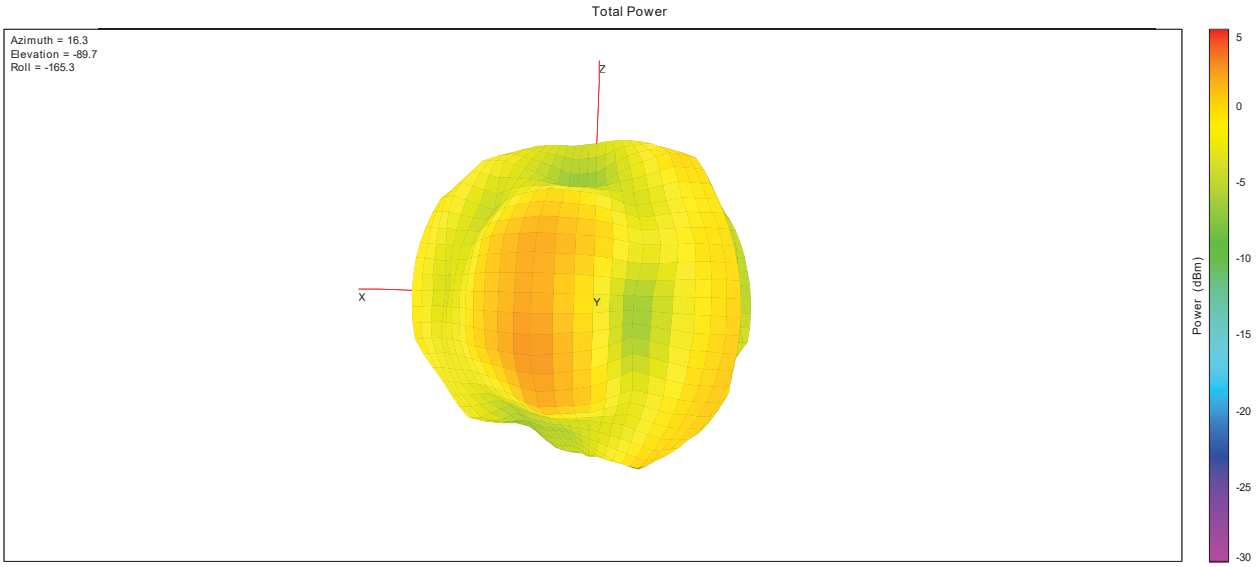


Max: 2
Min: -12
Scale: 2/div

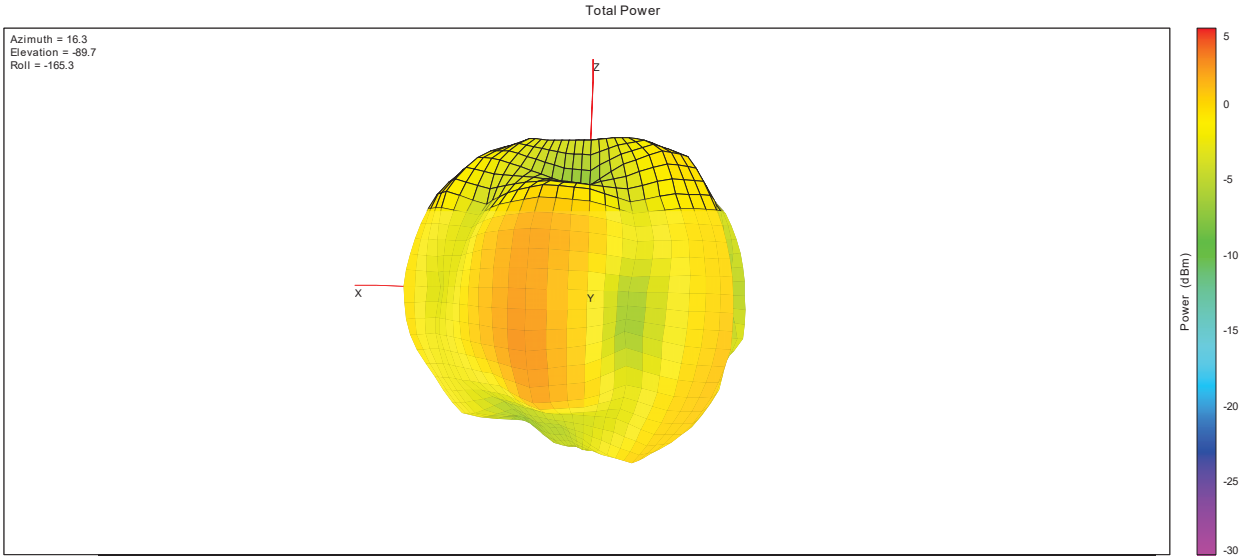
Theta=90°



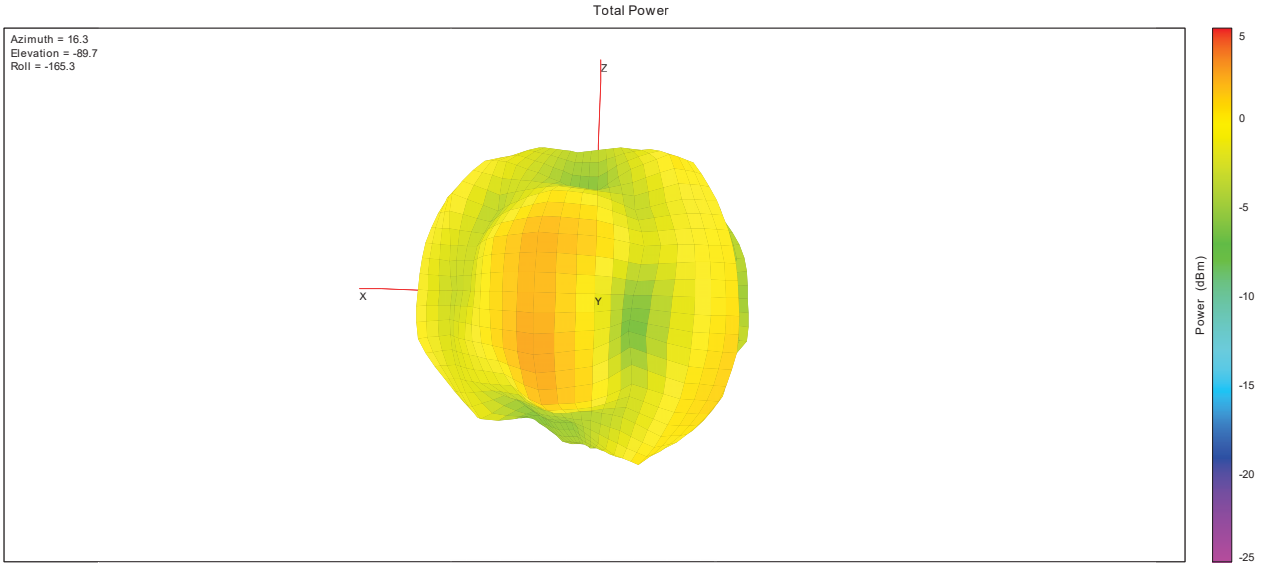
2. 3D Radiation Pattern



2400MHz

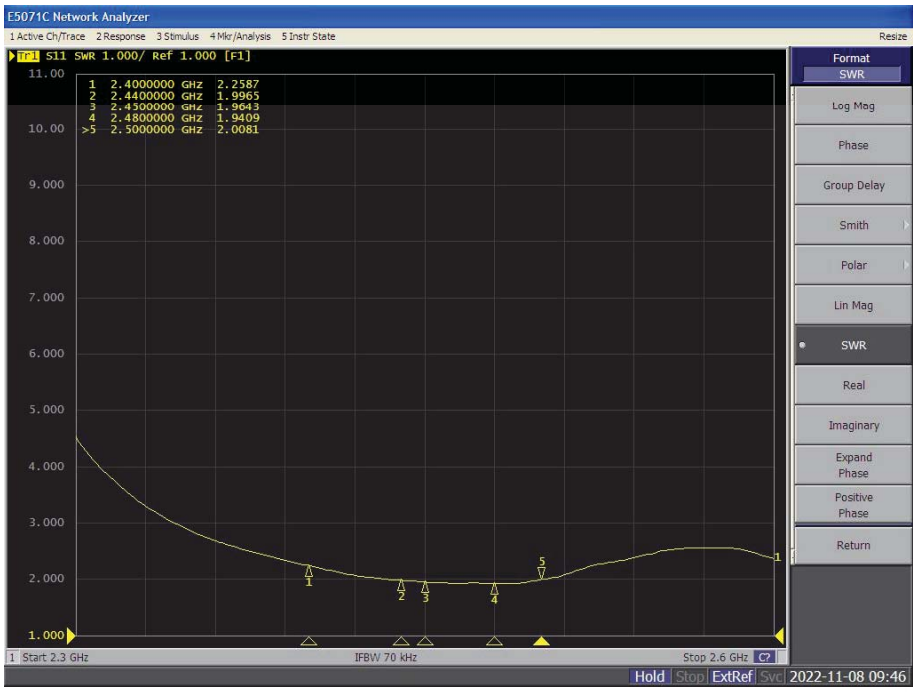


2440MHz



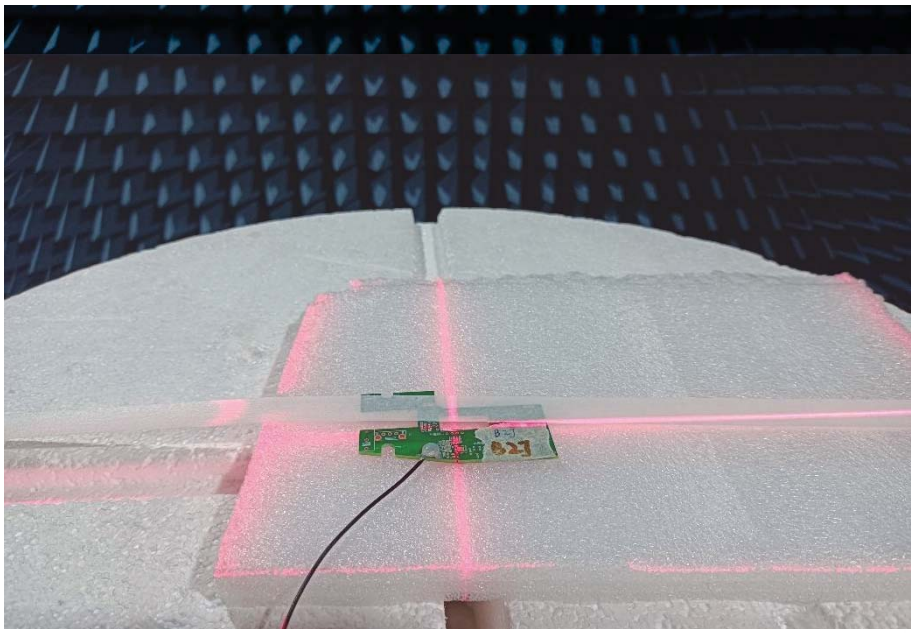
2480MHz

3. VSWR

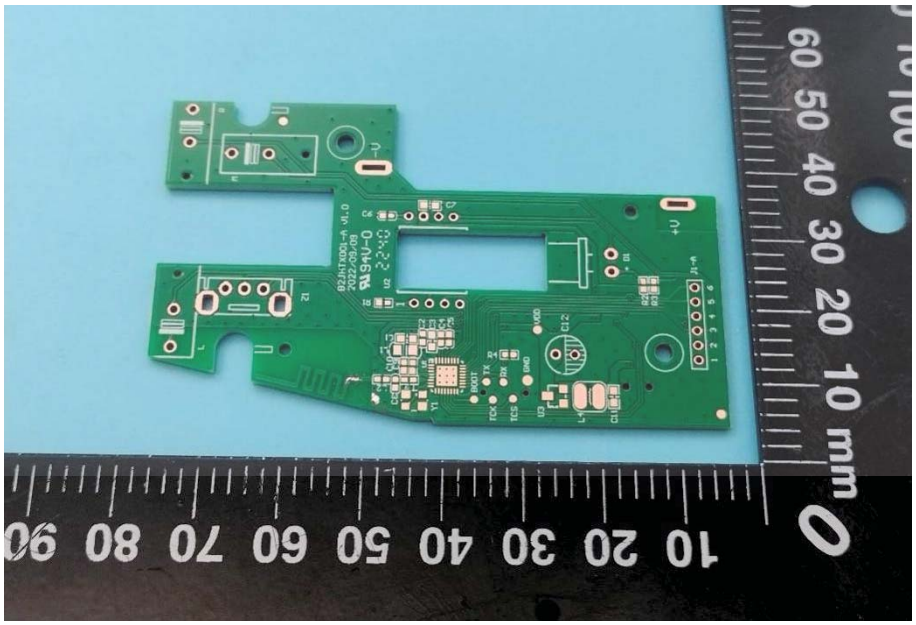

E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Resize
Tr1 S11 SWR 1.000/ Ref 1.000 [F1]
1 2.4000000 GHz 2.2587
2 2.4400000 GHz 1.9965
3 2.4500000 GHz 1.9643
4 2.4800000 GHz 1.9409
>5 2.5000000 GHz 2.0081
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
Format
SWR
Log Mag
Phase
Group Delay
Smith
Polar
Lin Mag
SWR
Real
Imaginary
Expand Phase
Positive Phase
Return
1 Start 2.3 GHz
IFBW 70 kHz
Stop 2.6 GHz
Hold
Stop
ExtRef
Svc
2022-11-08 09:46

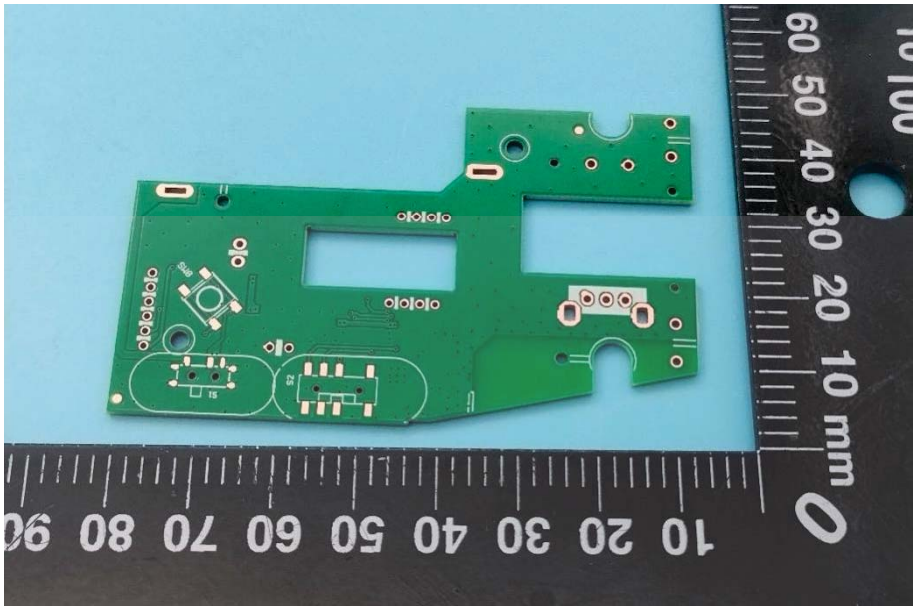
Annex C Photographs

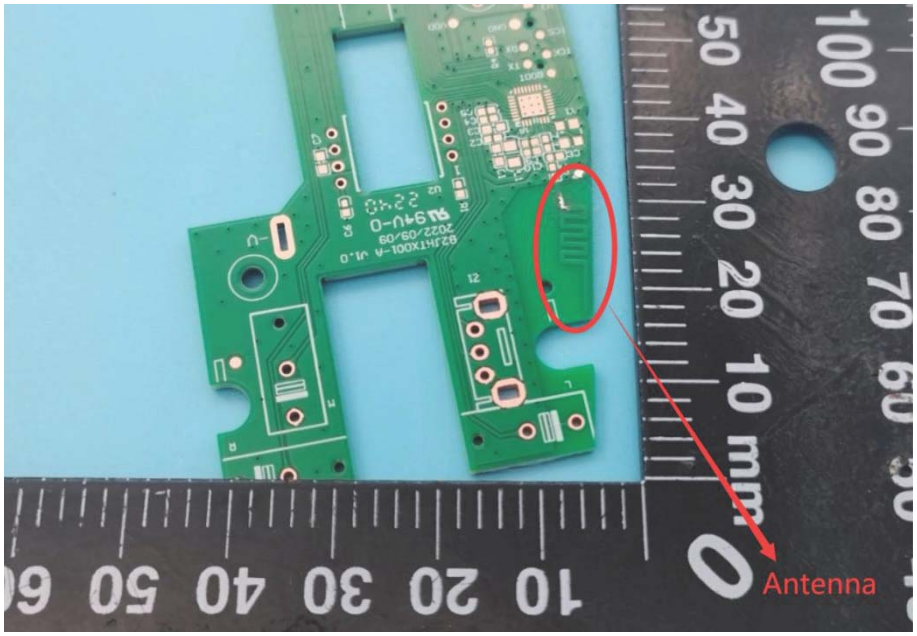
1. Test environment



2. EUT






Antenna

Annex D General Information

1.1 Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL1-3, 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:	FL1-3, 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	2022.07.04	2023.07.03
2	OTA Chamber	TJ2235-Q1793	AMS-8923-150	ETS	2020.01.06	2023.01.05
3	Antenna Measurement System	1685	EMQuest EMQ-100 V 1.13 Build 21267	ETS	N/A	N/A

END OF REPORT

1. Test Methods

The Antenna Gain Test is performed according to The ANSI/IEEE Std 149 12.3.1 Antenna Gain (Small size (< 42cm) Linear Polarization Antennas), using a two-axis support device and one fixed measurement antenna. The EUT is positioned along the required MAPS centerline fixture holder. The EUT is then stepped between 0 and 180 degrees along the theta axis in 15-degree increments. At each theta position, the phi axis is stepped from 0-360 degrees in 15-degree increments. Data is recorded using the Network analyzer for both theta and phi polarizations at each position. Depending on the protocol, an appropriate filter is used in the EMQuest software to process the data. Upon completion of the test, test results (angular dependent EIRP) is calculated at each measurement point and the required value is automatically calculated. This test procedure is repeated for frequency and configuration as required.