



REPORT No.: SZ26040184E01

TEST REPORT

APPLICANT : Quang Dong Vu Hao Electronics Co., Ltd

PRODUCT NAME : PCB Antenna

MODEL NAME : FR-4

TRADE NAME : N/A

BRAND NAME : N/A

STANDARD(S) : IEEE Std 149-2021

RECEIPT DATE : 2026-04-16

TEST DATE : 2026-04-16

ISSUE DATE : 2026-04-29



Edited by:

Guo Penghua

Guo Penghua(Rapporteur)

Approved by:

Chi Shide

Chi Shide(Supervisor)

NOTE: This document is issued by Shenzhen Morlab Communications Technology Co., Ltd., the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.

MORLAB

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

Tel: 86-755-36698555

Http://www.morlab.cn

Fax: 86-755-36698525

E-mail: service@morlab.cn





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
Annex C EUT Photos	10
Annex D General Information	13
1. Identification of the Responsible Testing Laboratory	13
2. Identification of the Responsible Testing Location	13
3. Test Equipment Utilized	13
3.1 Test Equipments	13
3.2 Test Software	13
Notes	14

Change History		
Version	Date	Reason for change
1.0	2026-04-20	First edition
2.0	2026-04-29	Change the addresses of the applicant and the manufacturer

Note: the latest revision of the report supersedes all previous version.

1. Technical Information

Note: Provide by applicant.

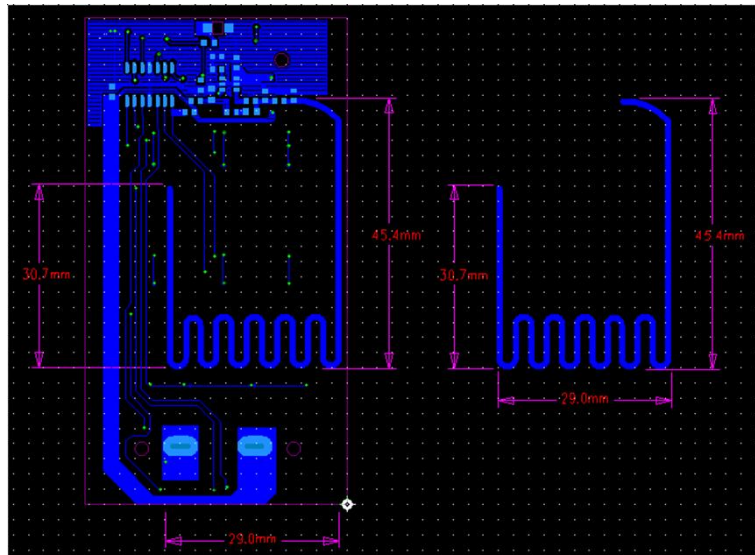
1.1. Applicant and Manufacturer Information

Applicant:	Quang Dong Vu Hao Electronics Co., Ltd
Applicant Address:	Toan My Village, Voi Town, Lang Giang District, Bac Giang Province, Lang Giang Vietnam
Manufacturer:	Quang Dong Vu Hao Electronics Co., Ltd
Manufacturer Address:	Toan My Village, Voi Town, Lang Giang District, Bac Giang Province, Lang Giang Vietnam

1.2. Equipment Under Test (EUT) Description

Wireless Type	PCB Antenna
Test frequency band	433.90MHz,433.92MHz
Hardware Version	N/A
Software Version	N/A
Serial Number	N/A
Sample number	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

Notes: Any additions, deviation, or exclusions from the method shall be noted in the "Remark".

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.



2.4. Test Results lists

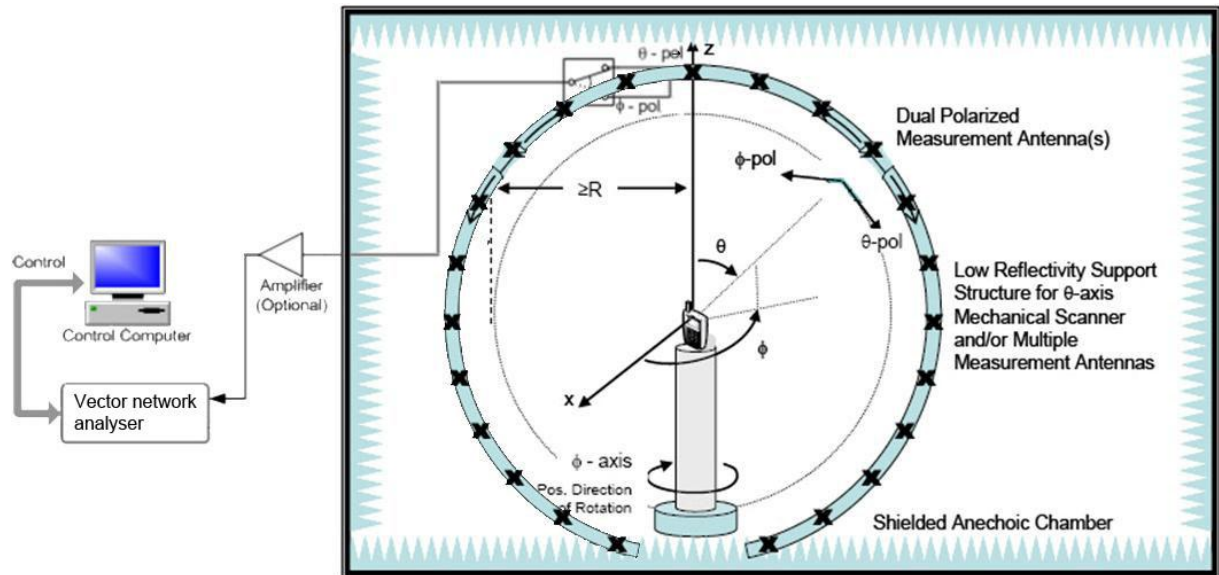
2.4.1. Gain

Frequency(MHz)	Gain(dBi)
433.9MHz	-11.69
433.92MHz	-11.60

2.4.2. VSWR

Frequency(MHz)	VSWR
433.9MHz	2.16
433.92MHz	2.16

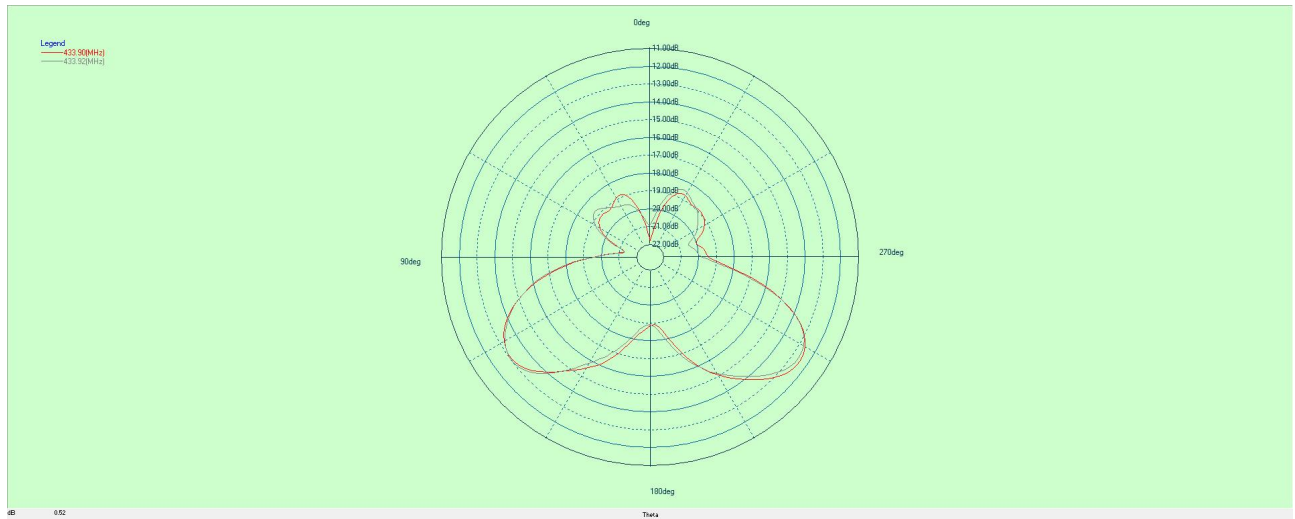
Annex A Test Setup Photos



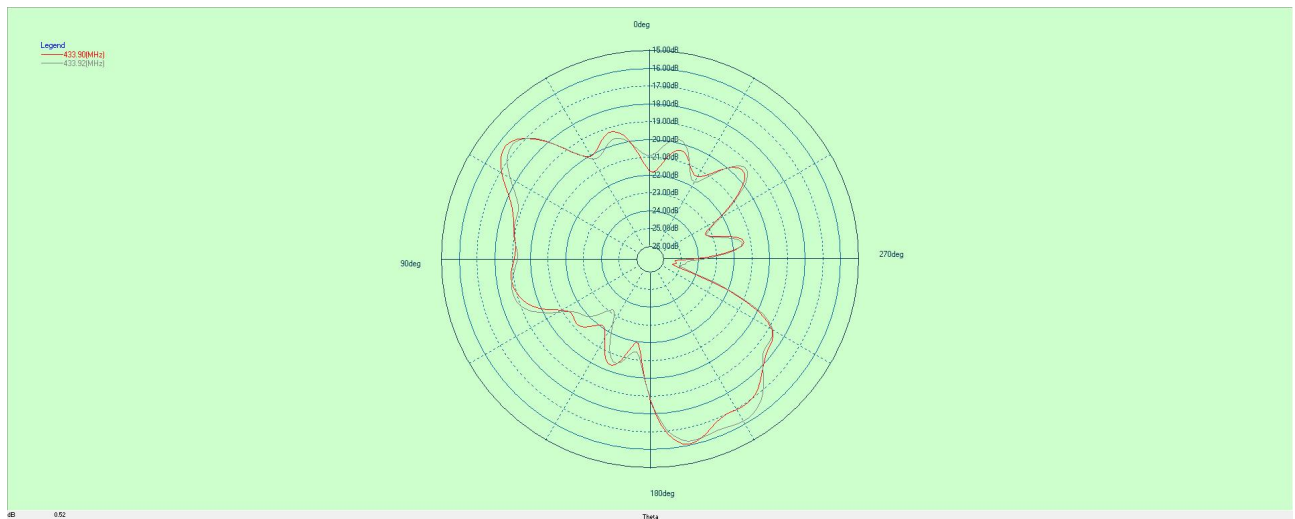
Annex B Figures

1. 2D Radiation Pattern

Phi=0°

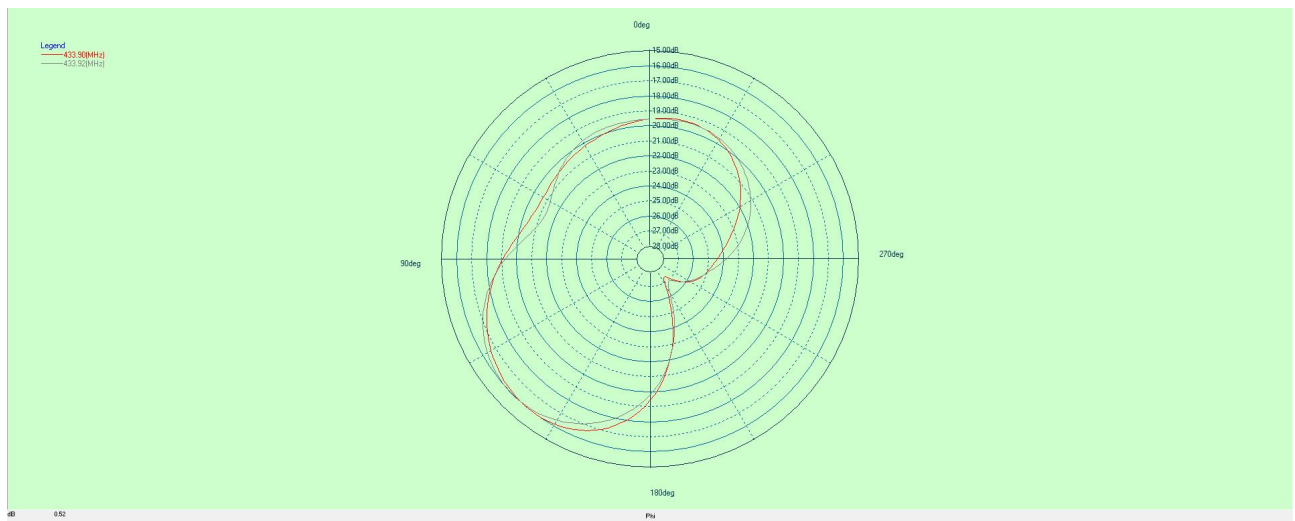


Phi=90°

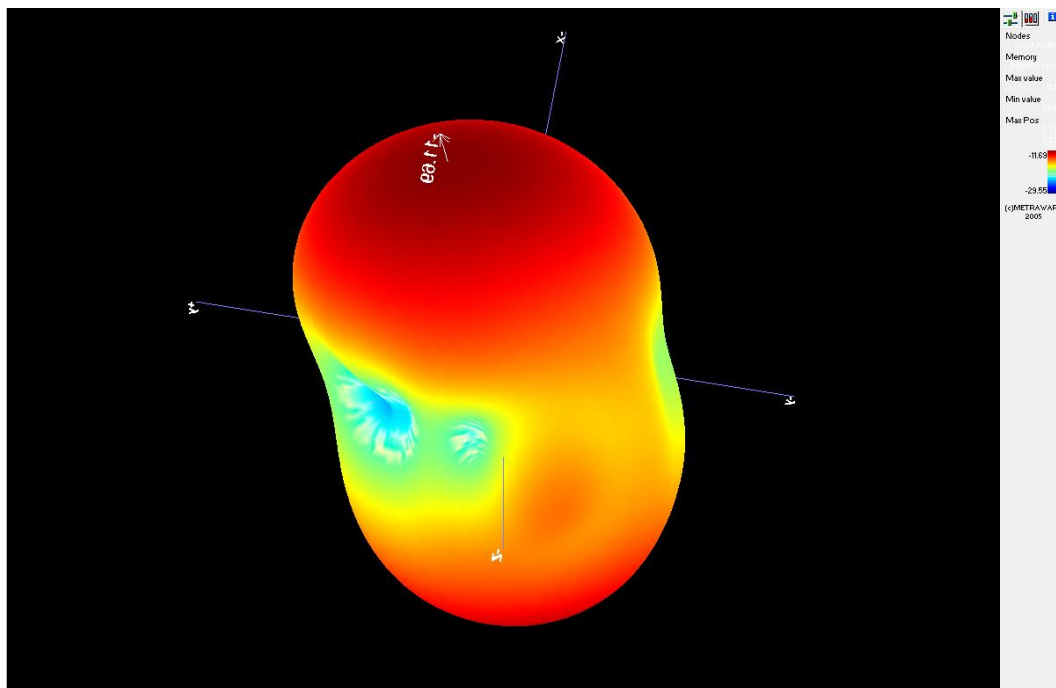




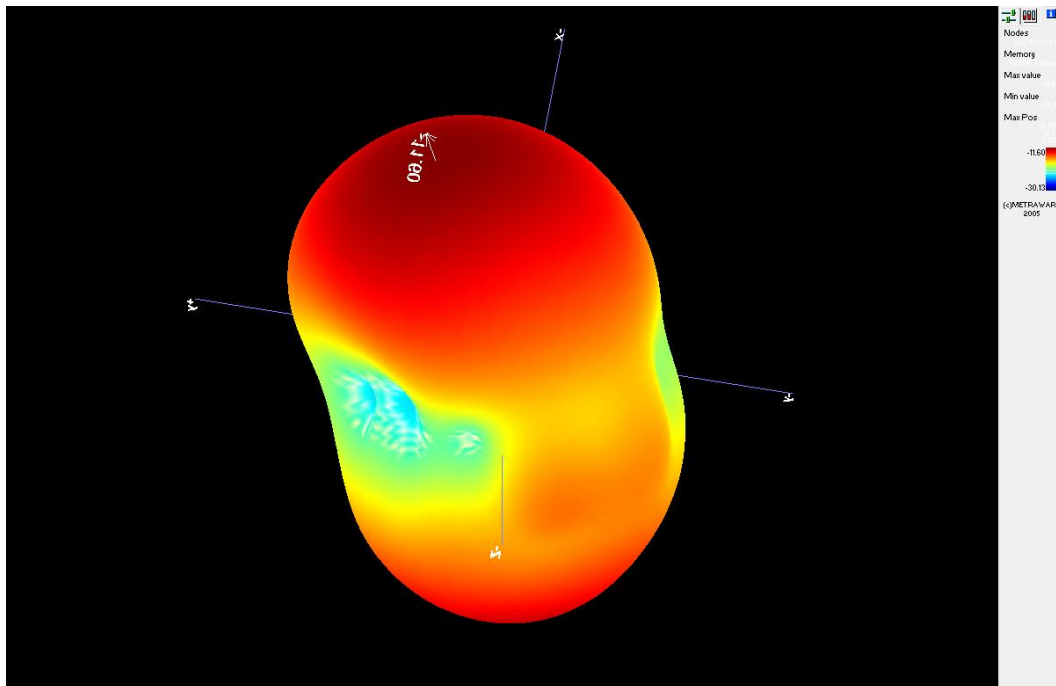
Theta=90°



2. 3D Radiation Pattern

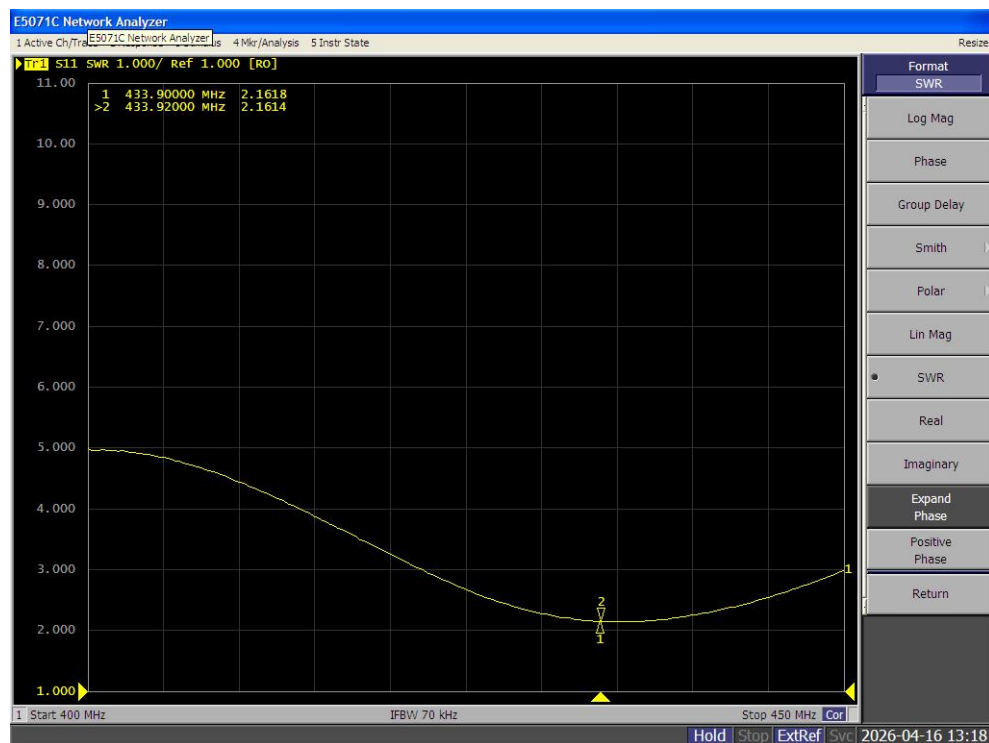


433.90MHz



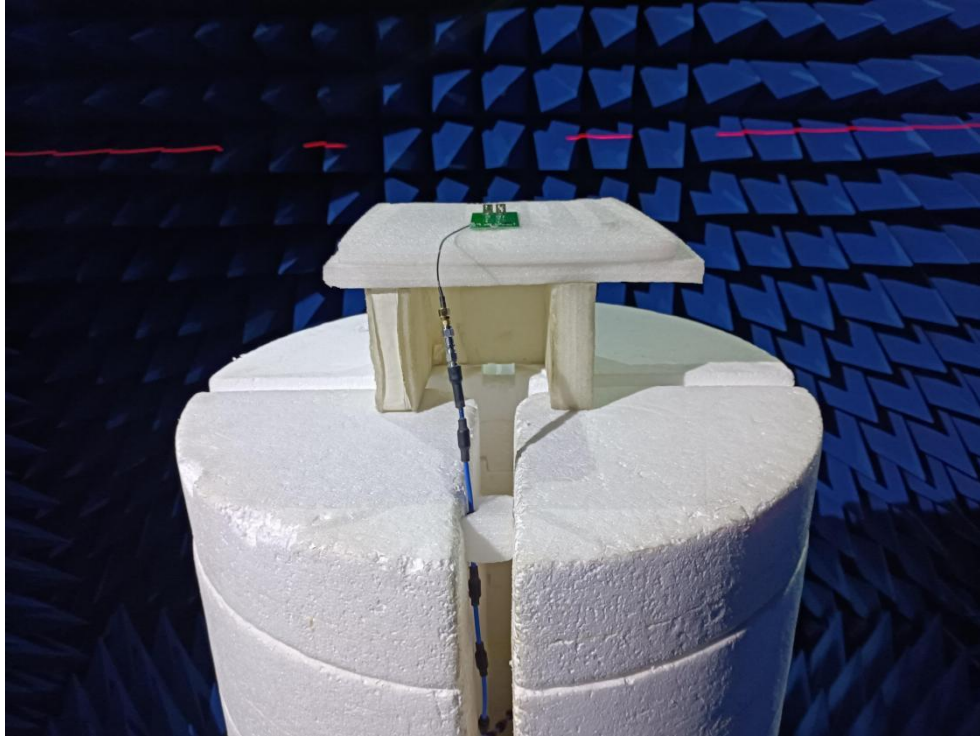
433.92MHz

VSWR

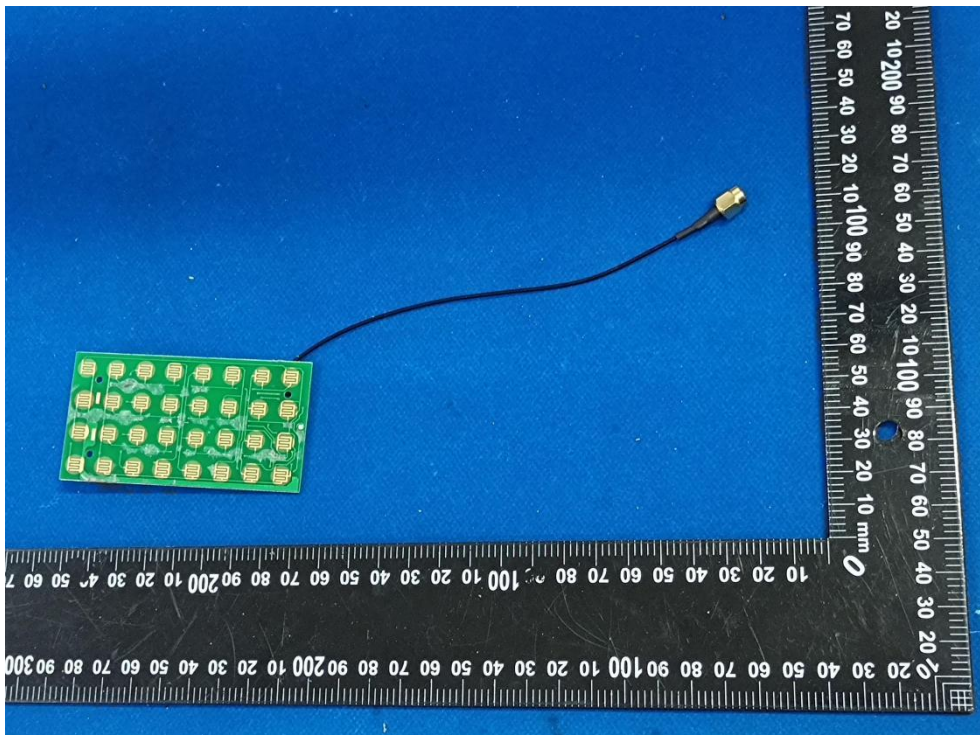
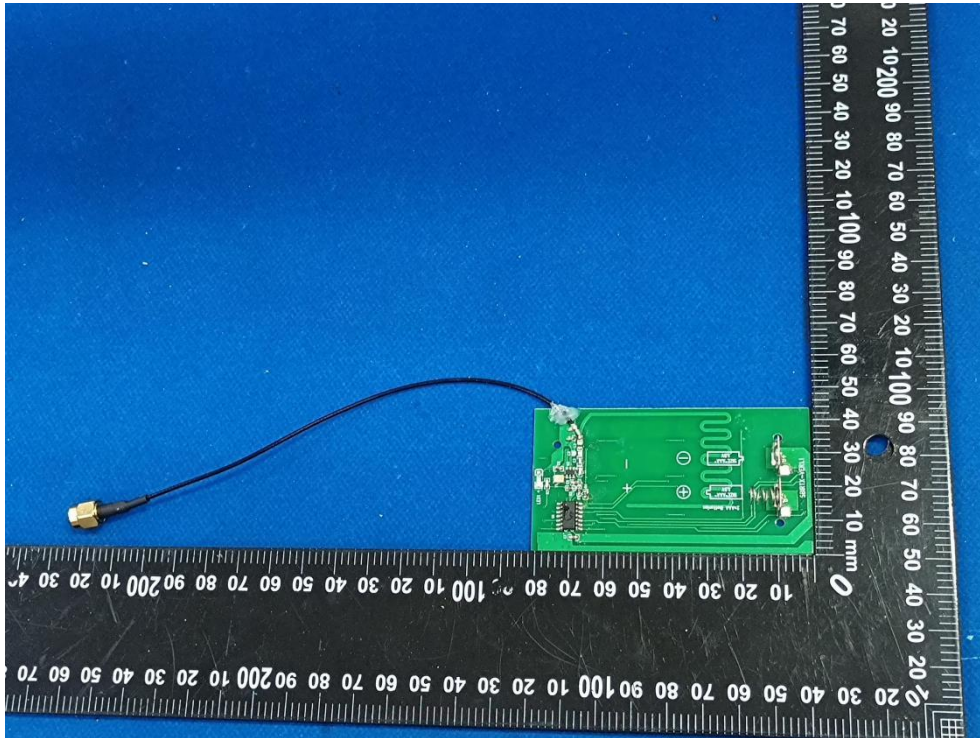


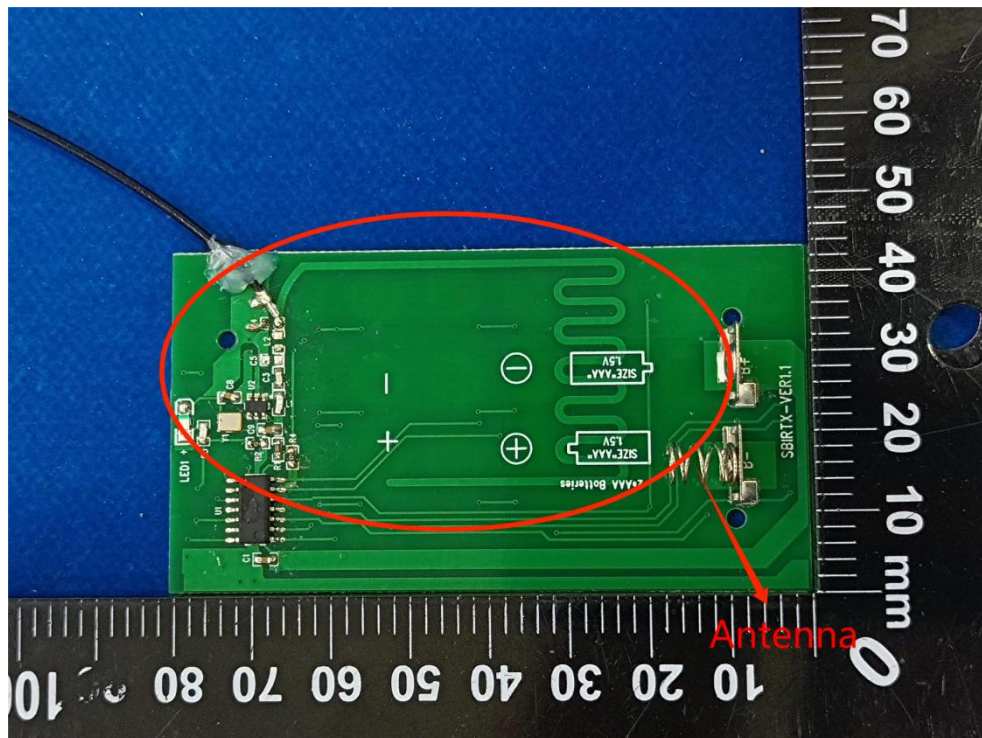
Annex C EUT Photos

1. Test environment



2. EUT







Annex D General Information

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

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

3. Test Equipment Utilized

3.1 Test Equipments

No.	Equipment Name	Serial No.	Type	Manufacturer	Cal.Date	Cal.Due Date
1	Vector Network Analyzer	MY46214666	E5071C	Agilent	2025.12.24	2026.12.23
2	OTA Chamber	N/A	SG24	Satimo	2025.01.11	2028.01.10

3.2 Test Software

No.	Software Name	Serial No.	Version	Manufacturer
1	SatEnv	N/A	2.0.1.5 build 12	Satimo
2	SPM	N/A	1.11	Satimo



Notes

1. The report shall have report stamp or our company stamp.
2. The report shall be invalid without all the signatures of the editor and approver.
3. The report shall not be changed.
4. Any objections must be raised to Morlab within 15 days since the date when the report is received. It will not be taken into consideration beyond this limit.
5. Conformity declaration:
 - ☒ Morlab issues a statement of conformity based on the corresponding standards (default)
 - ☐ Morlab issues a statement of conformity based on the applicant requirement
6. Use of uncertainty of measurement for decisions on conformity (decision rule):

No decision rule is specified by the testing standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule).

————— END OF REPORT —————