



# TEST REPORT

**APPLICANT** : Feit Electric Company Inc.

**PRODUCT NAME** : PCB Antenna

**MODEL NAME** : Driver-116

**TRADE NAME** : Feit, Naspil

**BRAND NAME** : N/A

**STANDARD(S)** : IEEE Std 149-2021

**RECEIPT DATE** : 2023-02-08

**TEST DATE** : 2023-02-09

**ISSUE DATE** : 2023-03-15

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Chi Shide(Supervisor)

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Change History		
Version	Date	Reason for change
1.0	2023-03-15	First edition



# 1. Technical Information

Note: Provide by applicant.

## 1.1. Applicant and Manufacturer Information

<b>Applicant:</b>	Feit Electric Company Inc.
<b>Applicant Address:</b>	4901 Gregg Road Pico Rivera, Ca 90660
<b>Manufacturer:</b>	National State Industries Limited
<b>Manufacturer Address:</b>	XinXing Group, WuLian Village, FengGang Town, DongGuan City, Guangdong Province, 523695 China

## 1.2. Equipment Under Test (EUT) Description

<b>Wireless Type</b>	N/A
<b>Frequency</b>	N/A
<b>IMEI</b>	N/A
<b>Sample No.</b>	2#

## 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	-3.49
2410	-3.65
2420	-3.98
2430	-4.23
2440	-4.23
2450	-4.25
2460	-4.34
2470	-4.48
2480	-4.59
2490	-4.62
2500	-4.57

### 2.4.2. VSWR

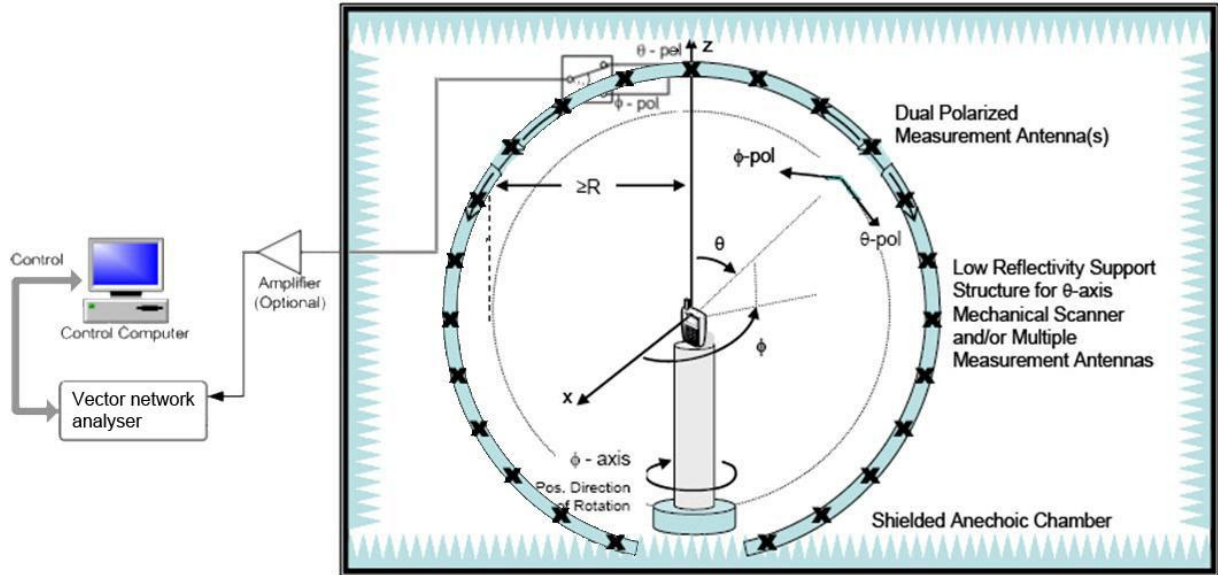
Frequency	VSWR
2400MHz	9.82
2440MHz	9.54
2480MHz	8.36



### 2.4.3.Return Loss

Frequency (MHz)	Return Loss (dB)
2400	-1.77
2440	-1.82
2480	-2.08

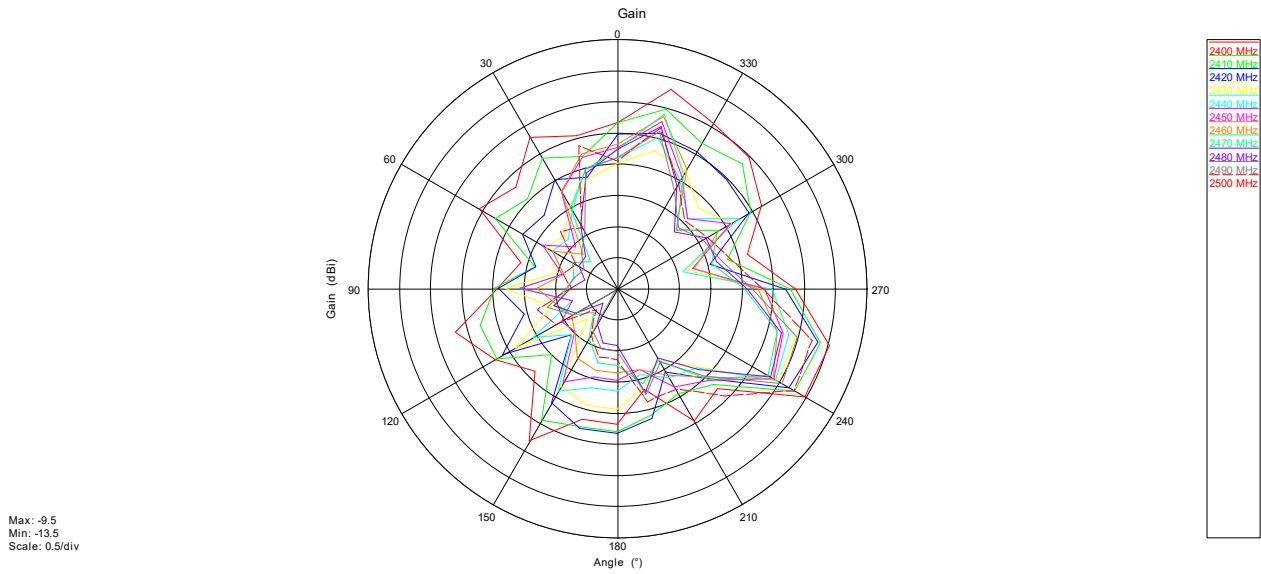
## Annex A Test Setup Photos



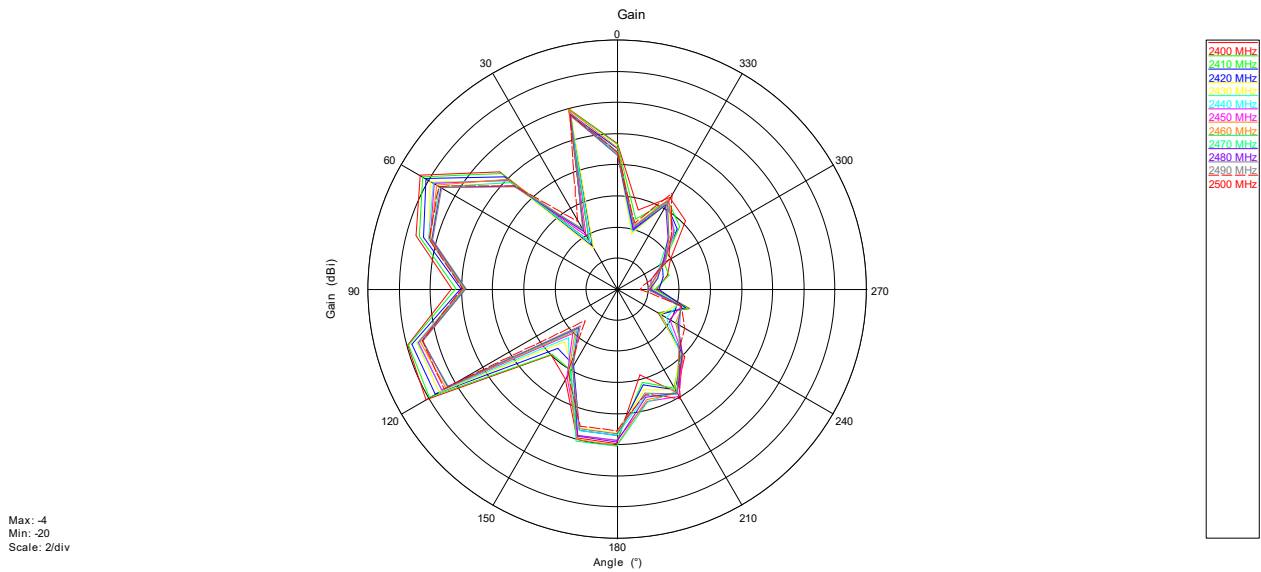
## Annex B Figures

### 1. 2D Radiation Pattern

Phi=0°



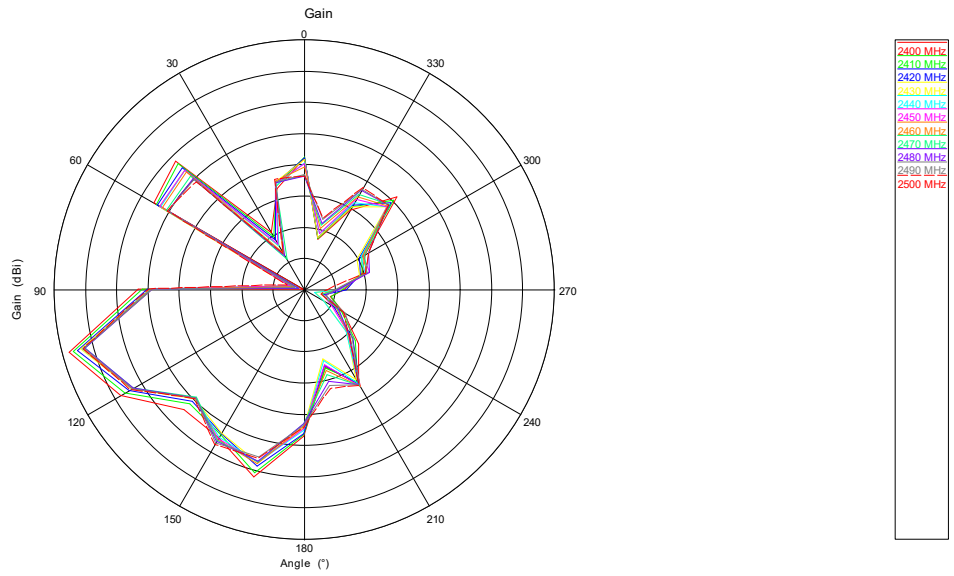
Phi=90°



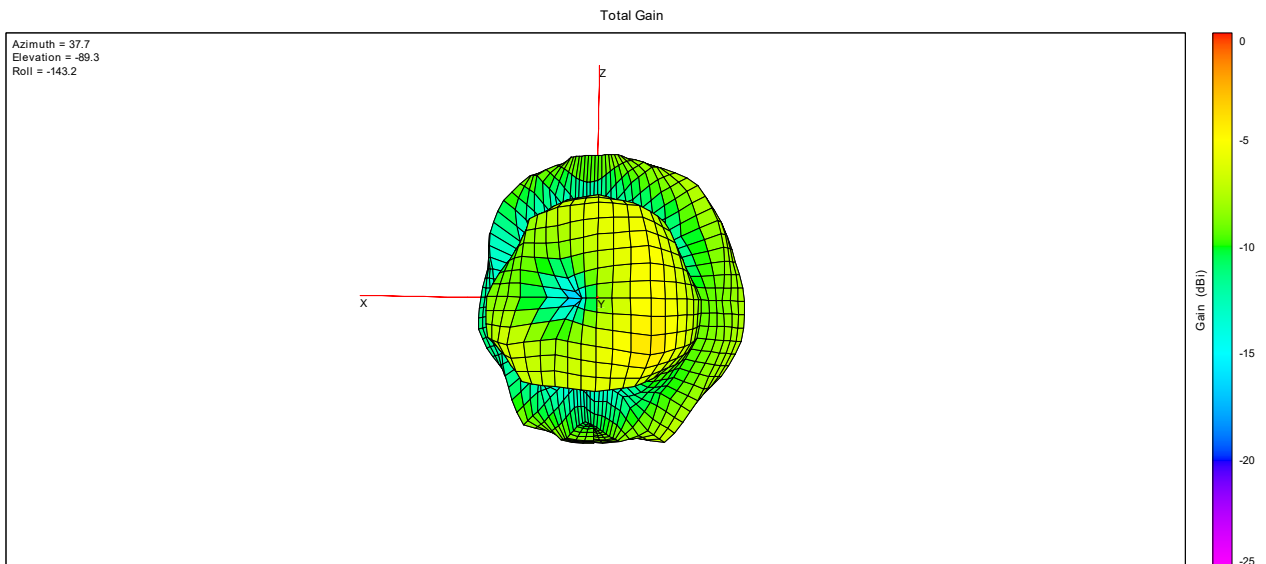




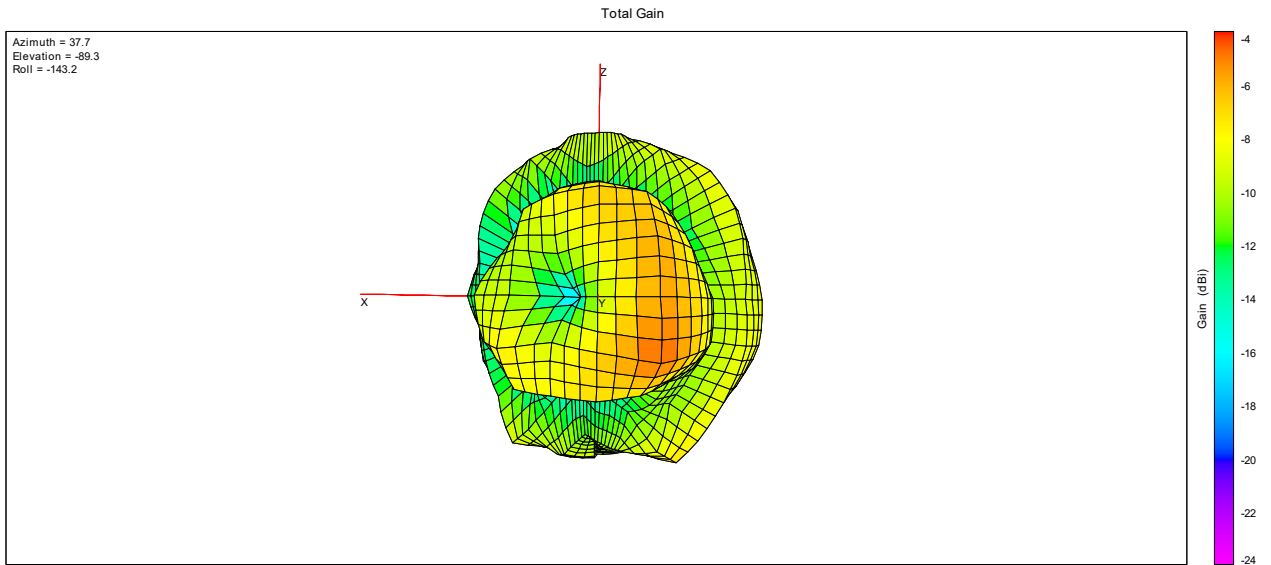
Theta=90°



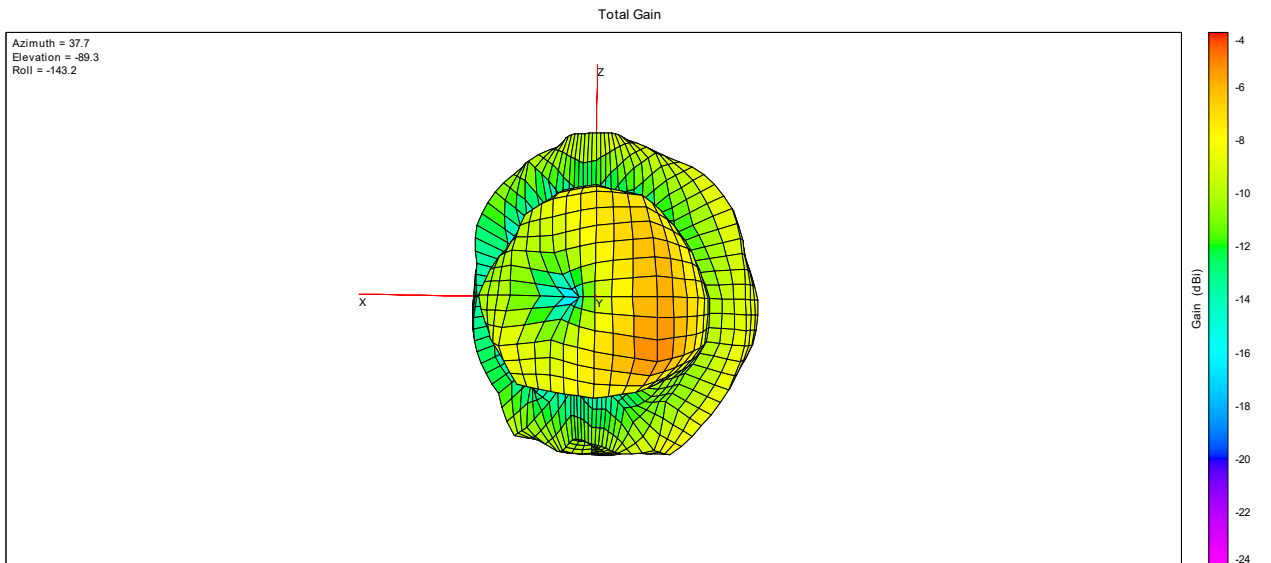
## 2. 3D Radiation Pattern



2400MHz



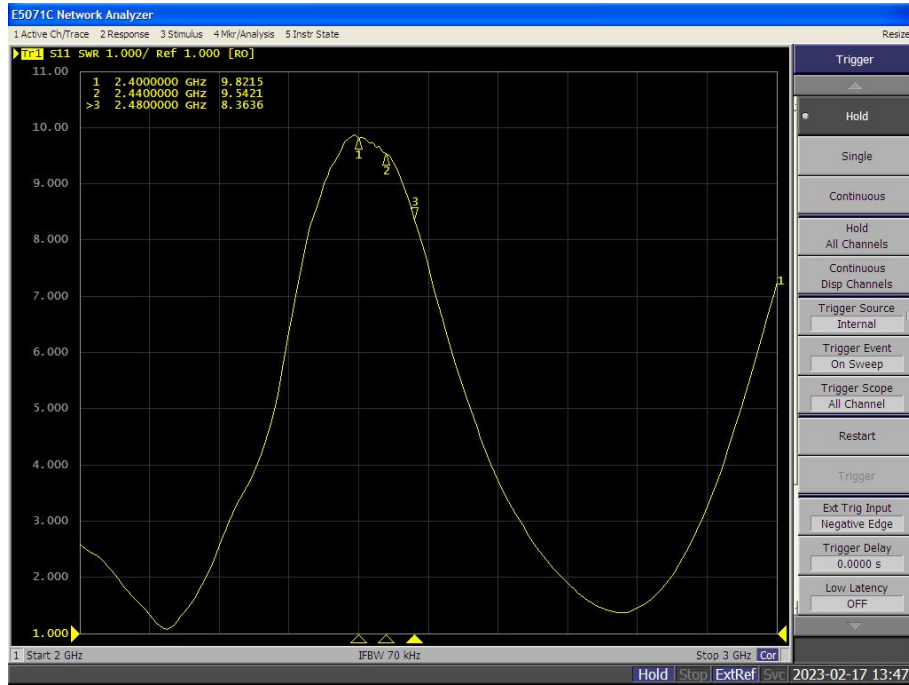
2440MHz



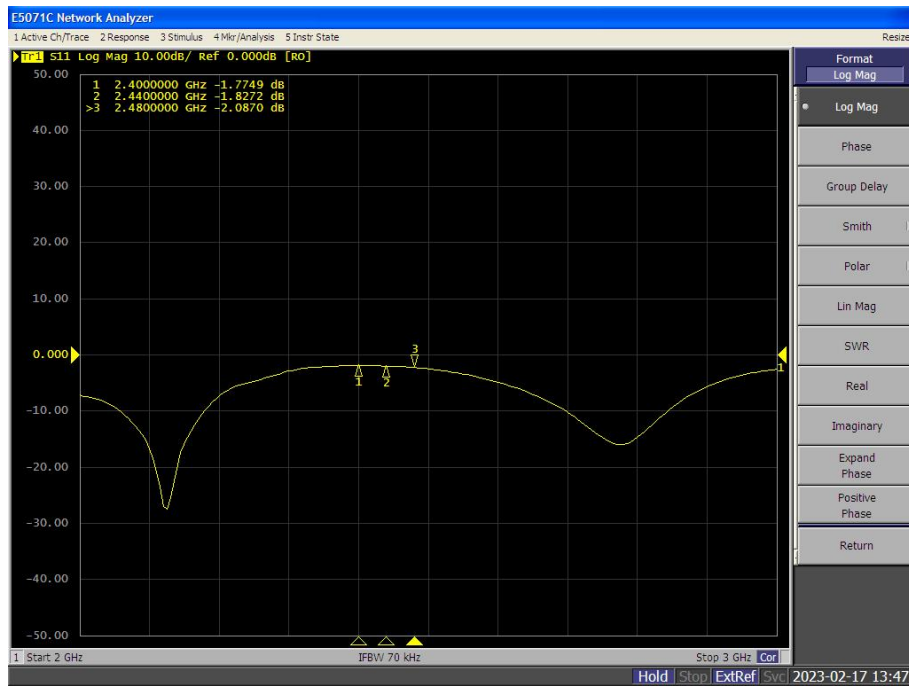
2480MHz



### 3. VSWR

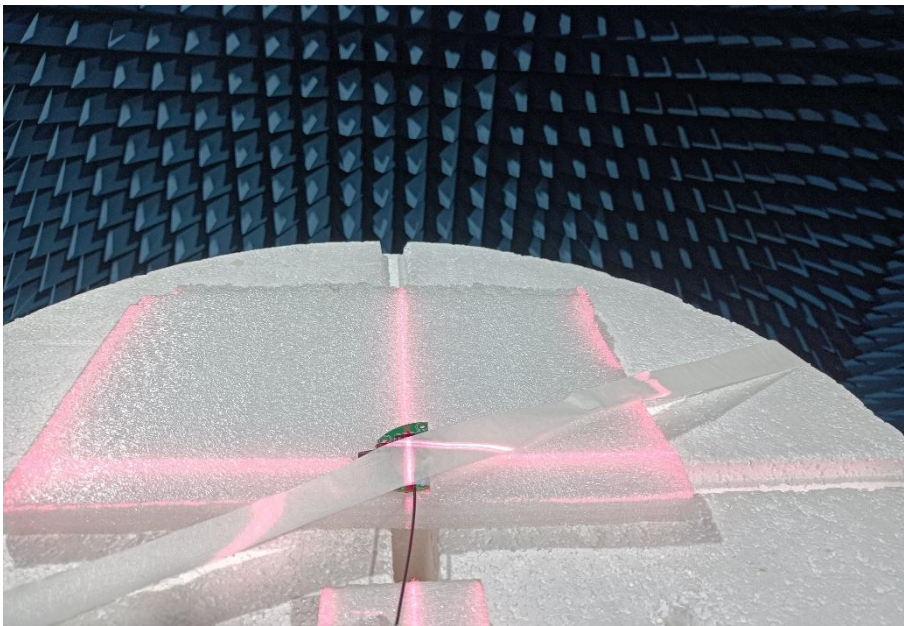
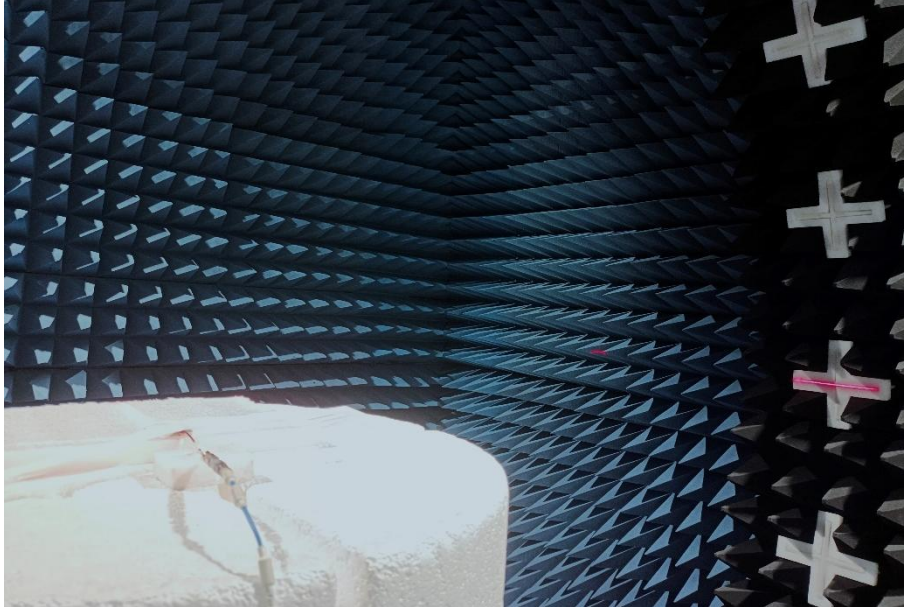


### 4. Return Loss



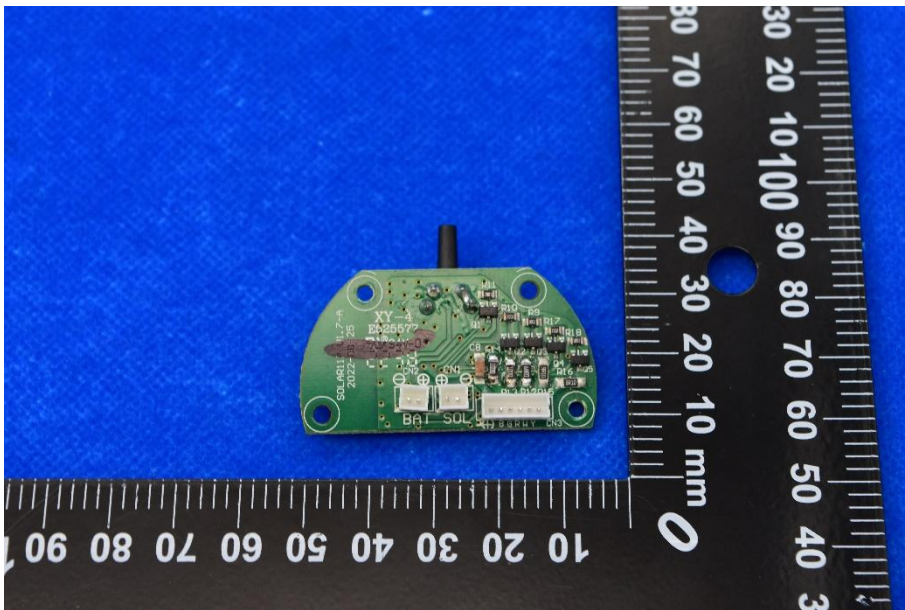
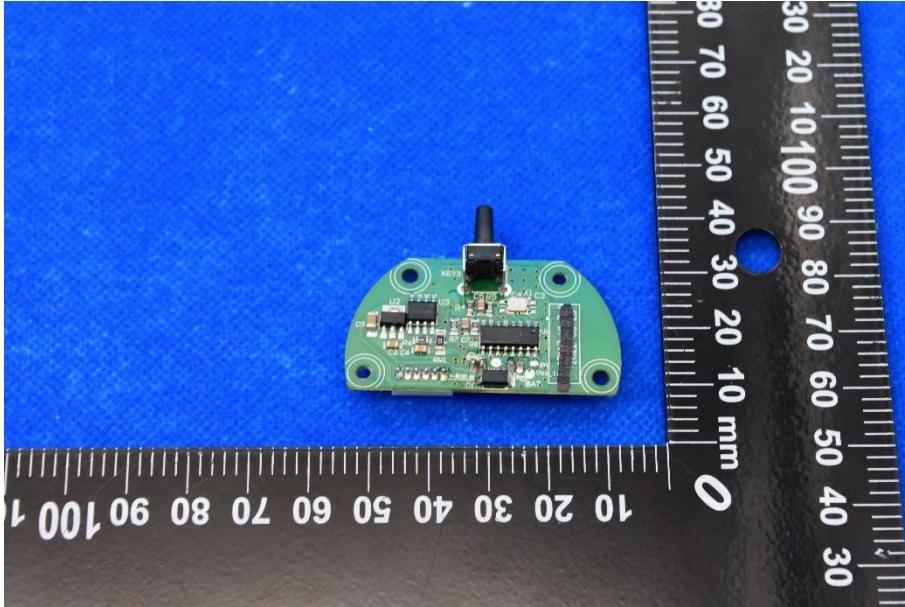
## Annex C EUT Photos

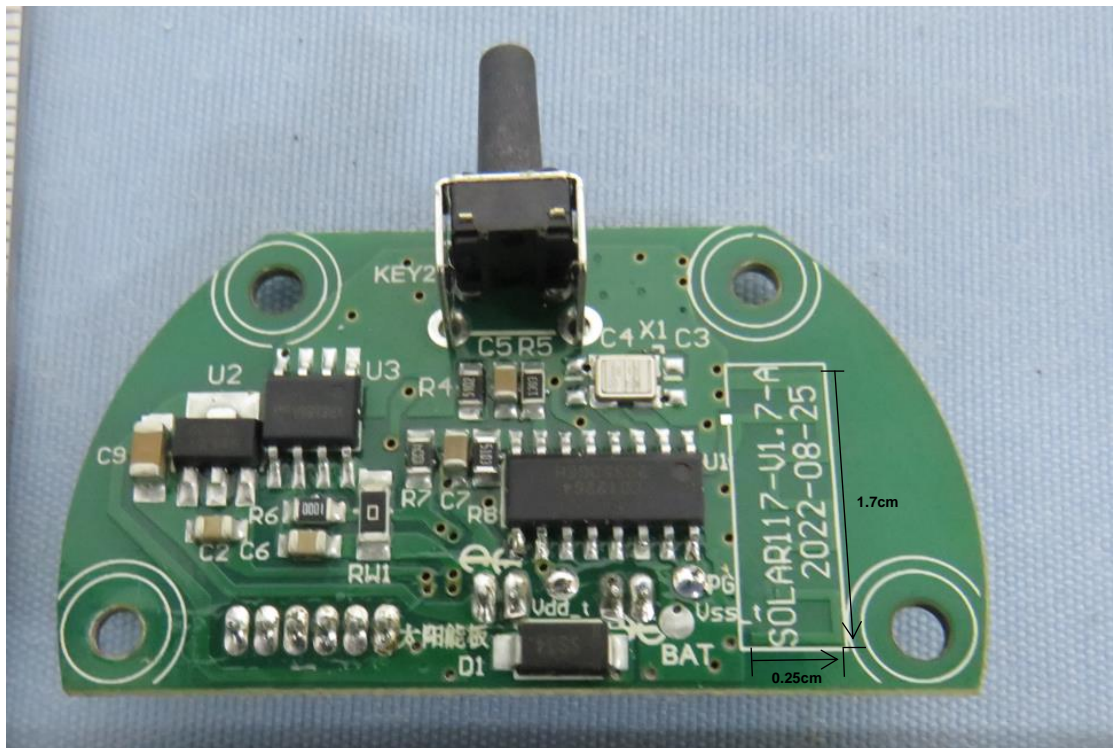
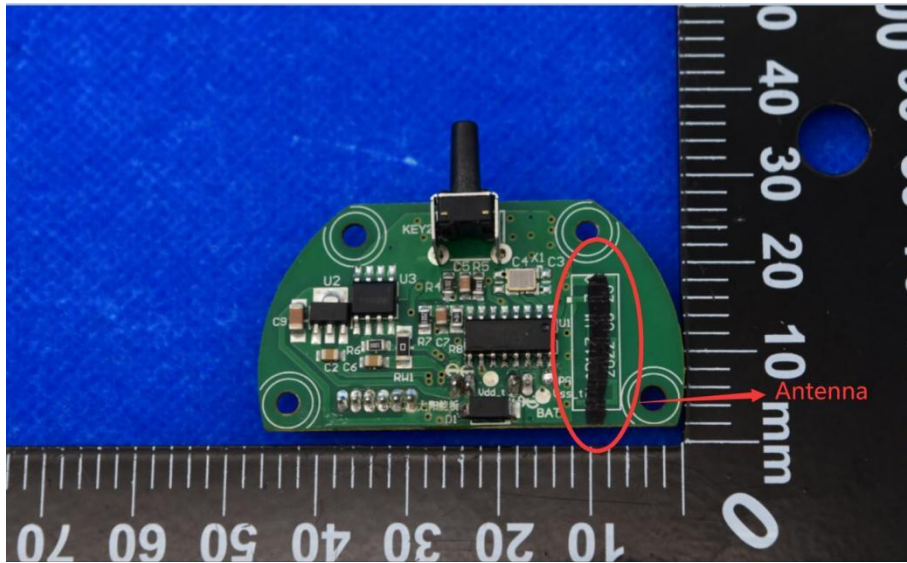
### 1. Test environment





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.	Equipment 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-892 3-150	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 —————