



REPORT No.: SZ22110117E01

TEST REPORT

APPLICANT : Zhejiang Lierda Internet of Things Technology Co.,Ltd

PRODUCT NAME : T55 BLE Module

MODEL NAME : LSD4BT-T55ASTD001

TRADE NAME : Lierda

BRAND NAME : N/A

STANDARD(S) : IEEE Std 149-2021

RECEIPT DATE : 2022-11-10

TEST DATE : 2022-11-10

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Edited by:

Fang Jinshan

Fang Jinshan(Rapporteur)

Approved by:

Chi Shide

Chi Shide(Supervisor)

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MORLAB

Shenzhen Morlab Communications Technology Co., Ltd., FL1-3, 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





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Change History		
Version	Date	Reason for change
1.0	2022-11-22	First edition



1. Technical Information

Note: Provide by manufacturer.

1.1. Applicant and Manufacturer Information

Applicant:	Zhejiang Lierda Internet of Things Technology Co.,Ltd
Applicant Address:	Room 1402, building 1, No. 1326, Wenyi West Road, Cangqian street, Yuhang District, Hangzhou, Zhejiang
Manufacturer:	Zhejiang Lierda Internet of Things Technology Co.,Ltd
Manufacturer Address:	Room 1402, building 1, No. 1326, Wenyi West Road, Cangqian street, Yuhang District, Hangzhou, Zhejiang

1.2. Equipment Under Test (EUT) Description

Wireless Type	Bluetooth
Frequency	N/A
IMEI	N/A
Sample No.	1#

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 lists

2.4.1. Gain and Efficiency

Frequency(MHz)	Efficiency(%)	Gain(dBi)
2400	8.98	-5.12
2410	9.43	-4.99
2420	9.79	-4.80
2430	10.36	-4.48
2440	11.11	-4.12
2450	12.00	-3.79
2460	12.64	-3.74
2470	12.89	-3.71
2480	13.19	-3.51
2490	13.15	-3.40
2500	13.58	-3.13

2.4.2. VSWR and Impedance

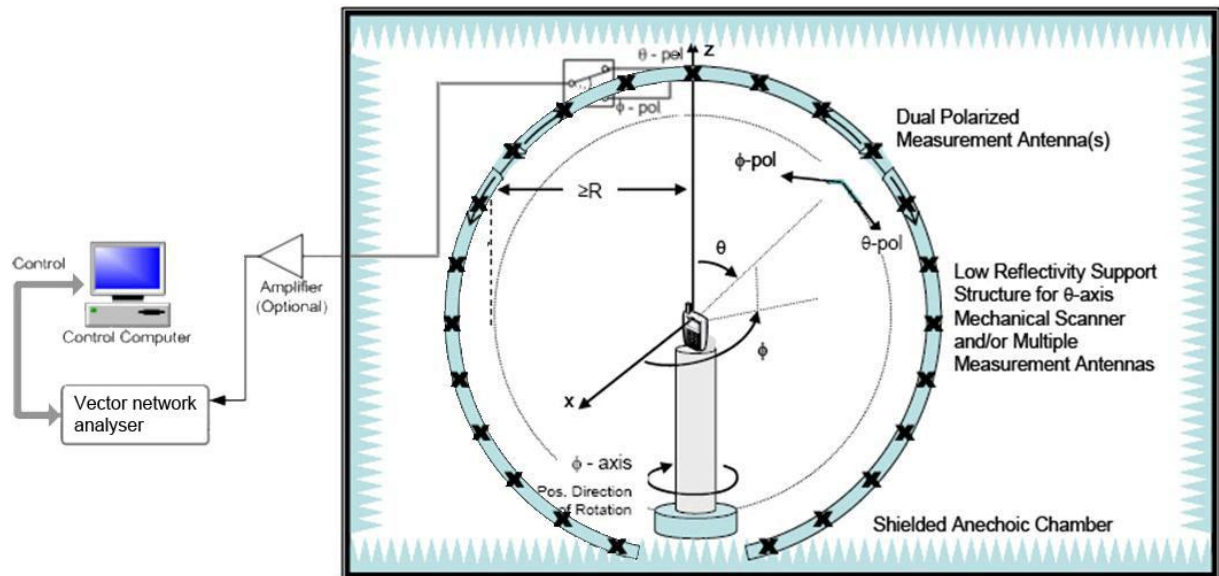
Frequency	VSWR	Impedance (Ω)
2400MHz	4.05	88.41
2440MHz	2.68	132.12
2480MHz	1.73	50.37

2.4.3. Return Loss

Frequency	Return Loss (dB)
2400MHz	-4.36
2440MHz	-6.79
2480MHz	-11.38

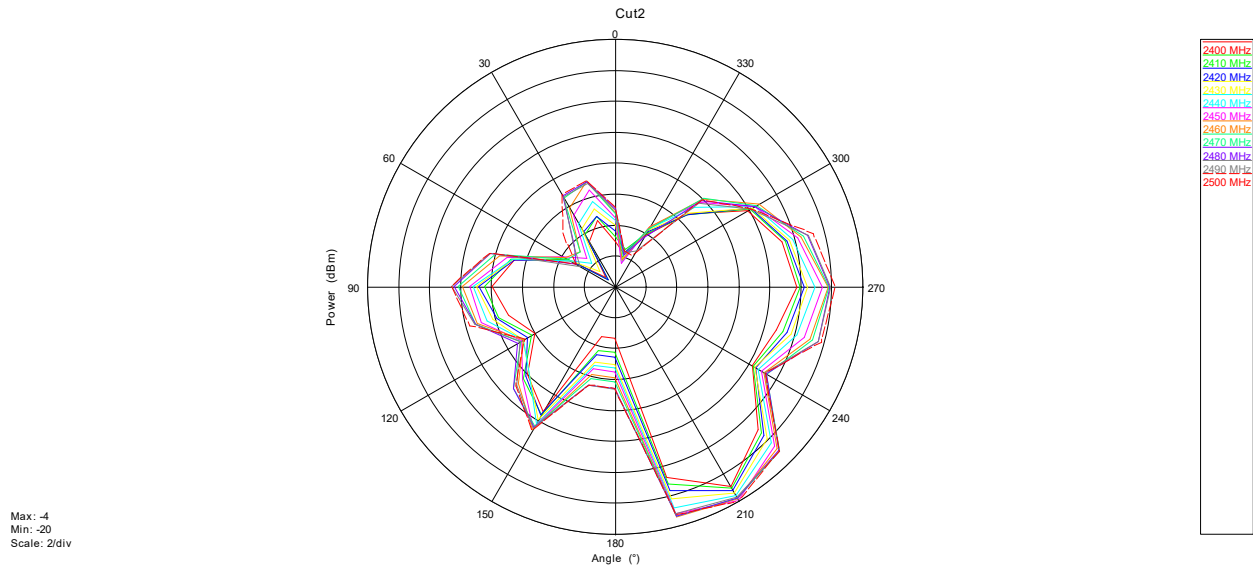
Annex A Photographs

1. Test Setup

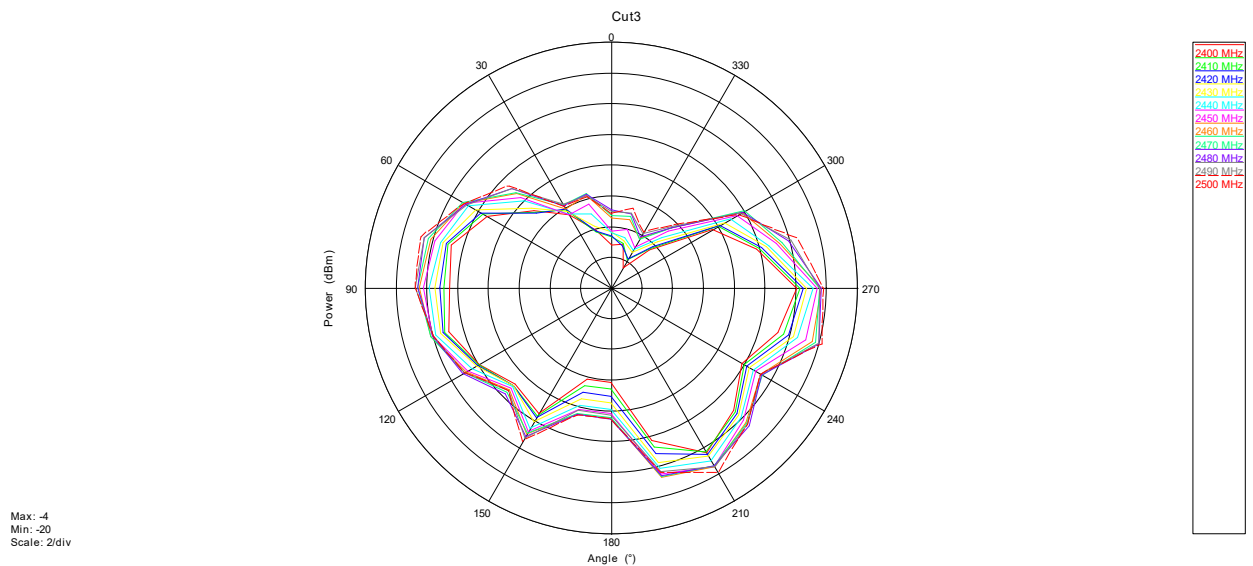


Annex B Figures

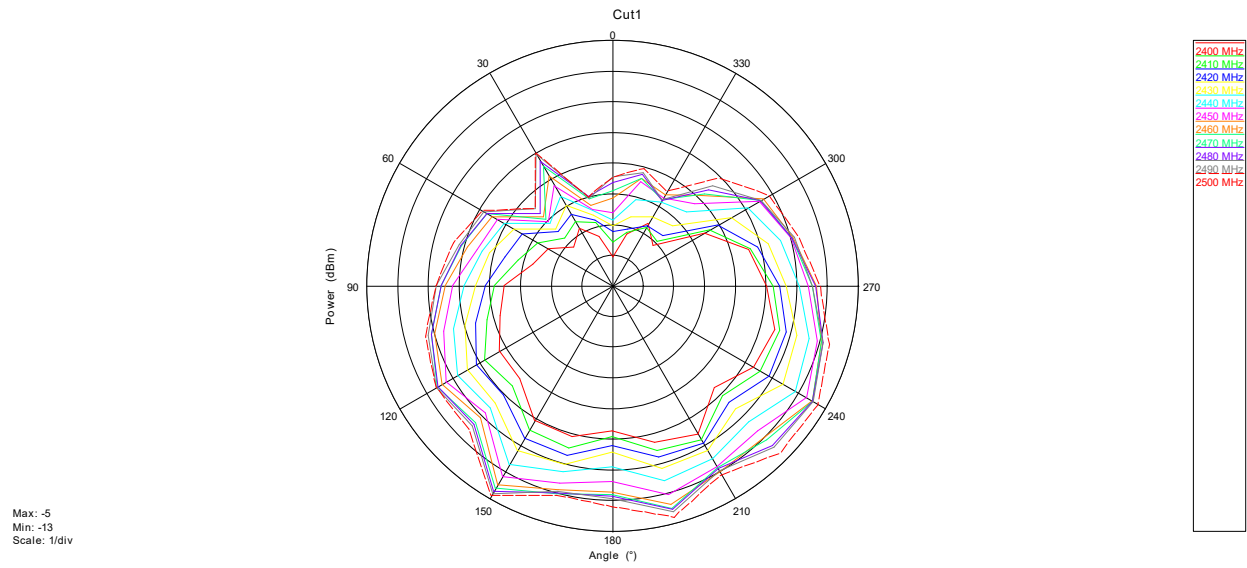
1. 2D Radiation Pattern



Phi=0°

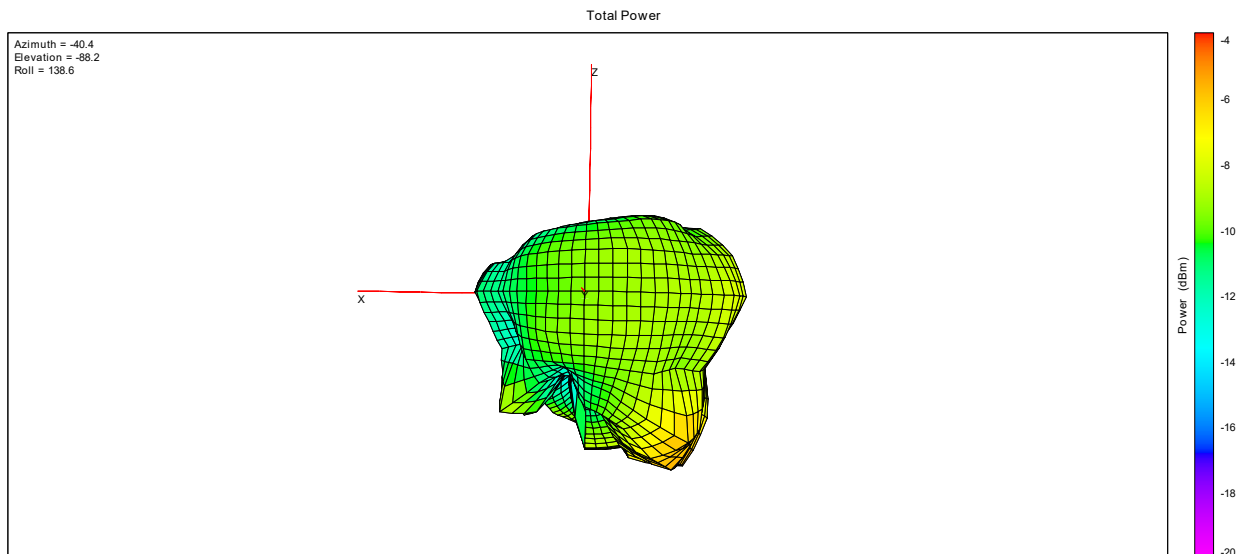


Phi=90°

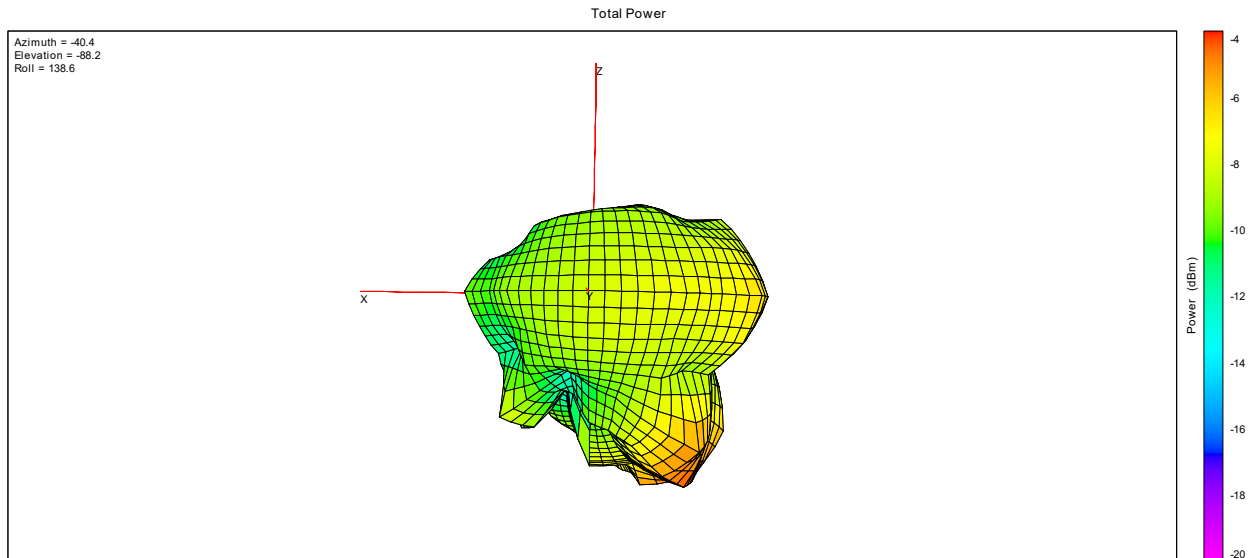


$\Theta = 90^\circ$

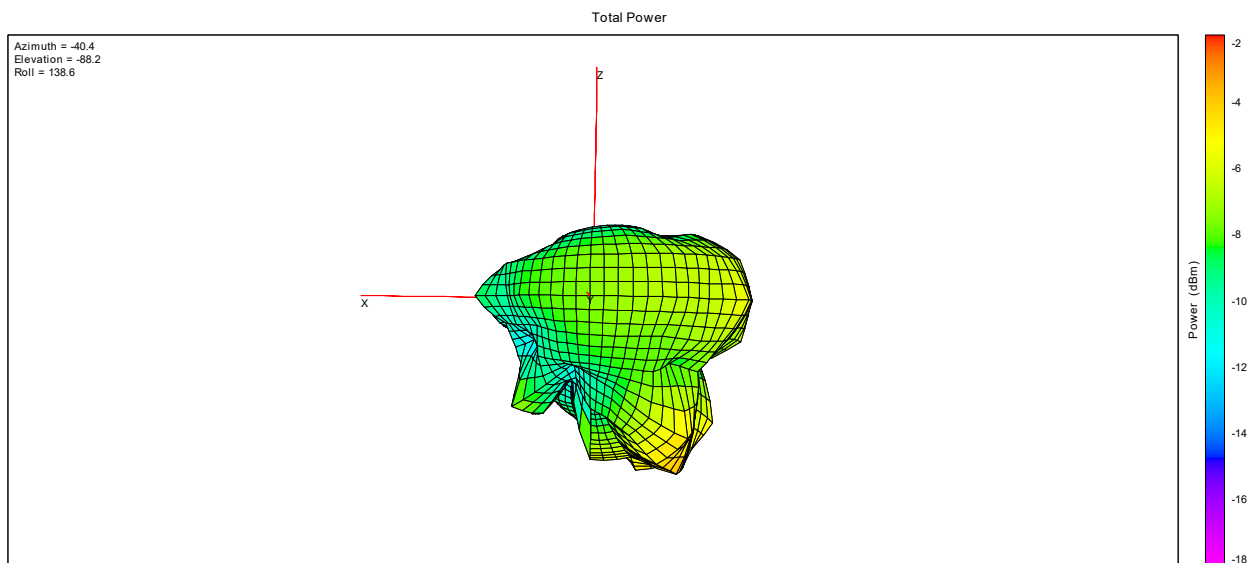
2. 3D Radiation Pattern



2400MHz



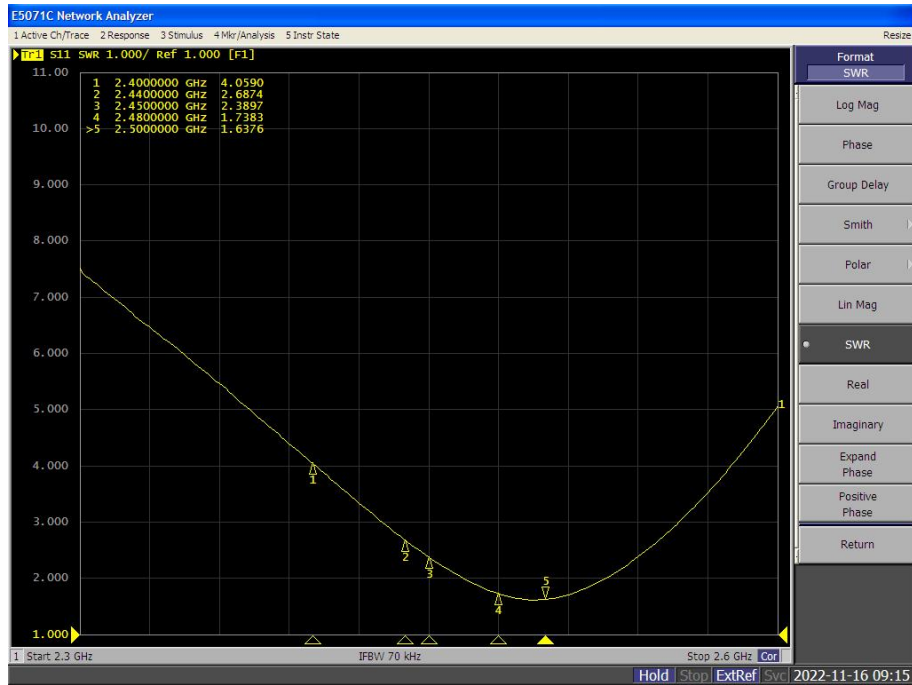
2440MHz



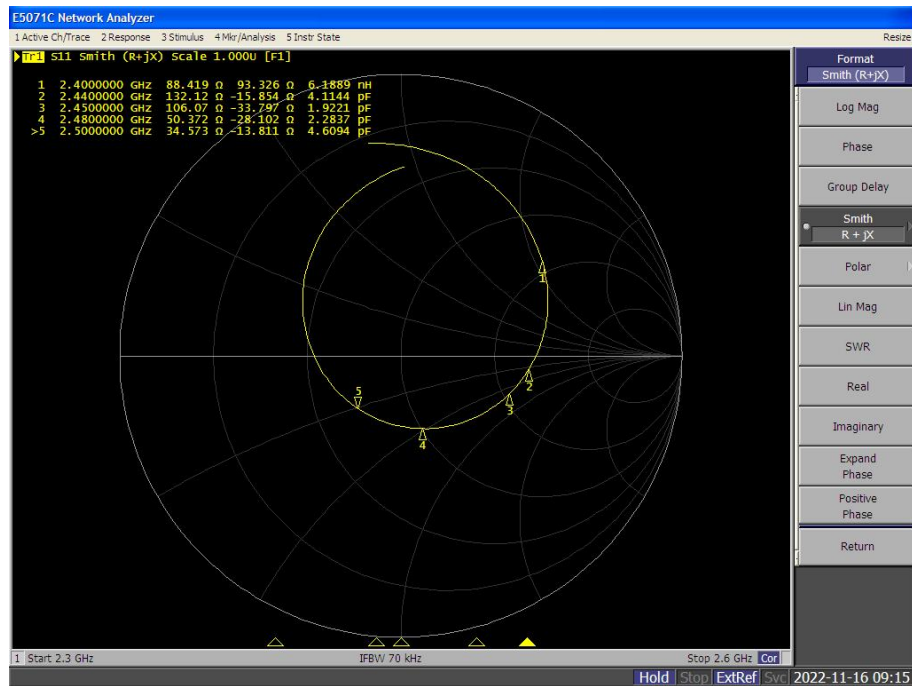
2480MHz



3. VSWR



4. Impedance



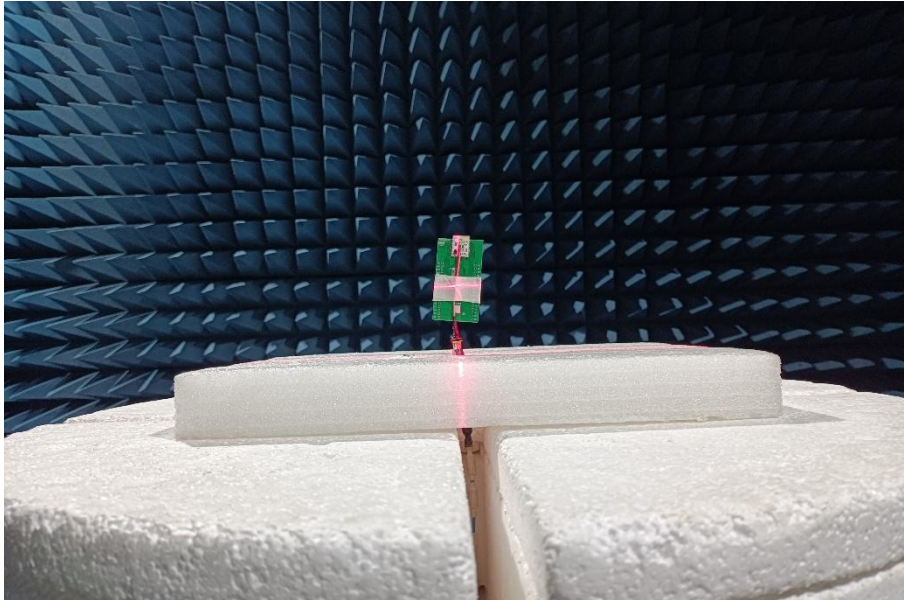


5. Return Loss

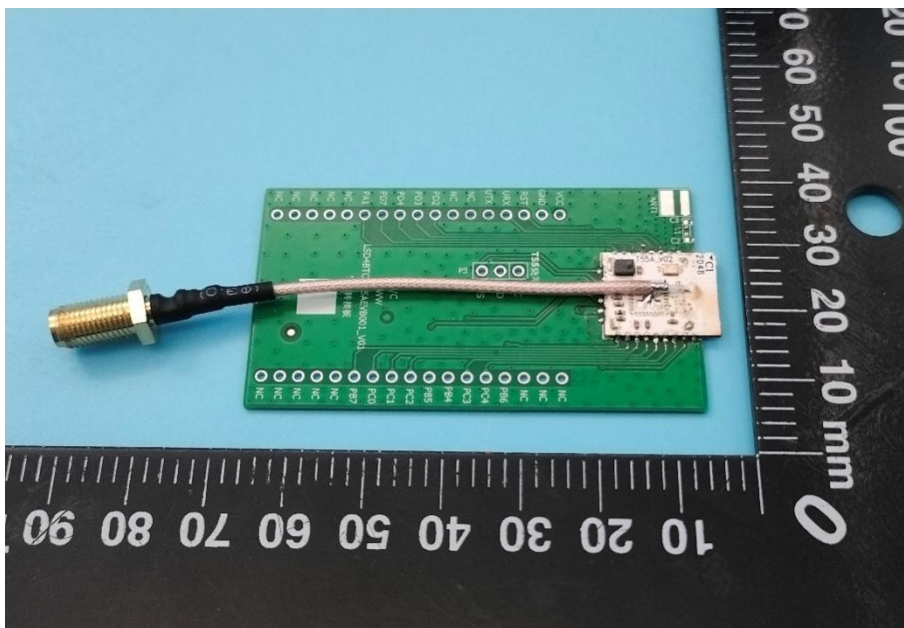


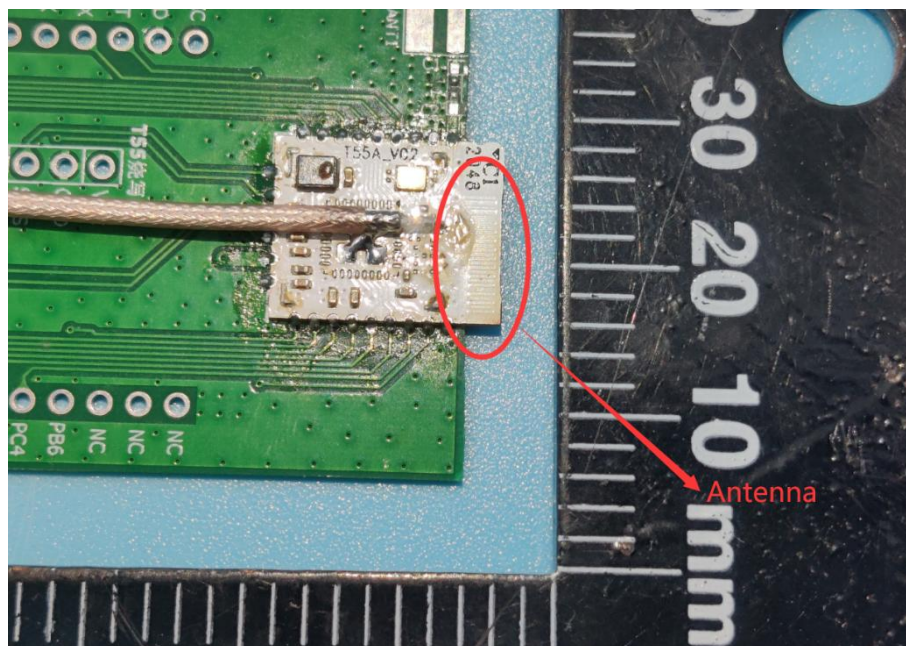
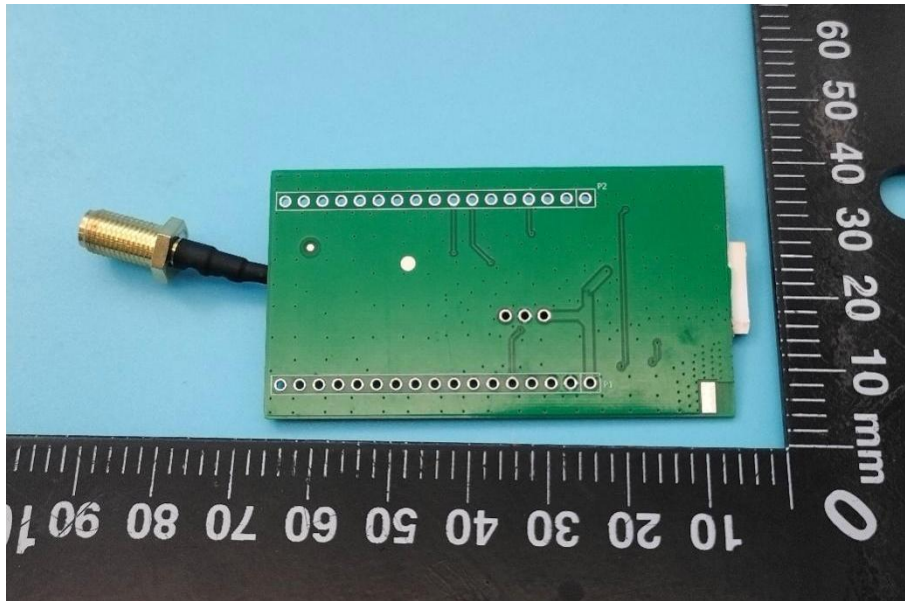
Annex C Photographs

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:	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	Manufa cturer	Cal.Date	Cal.Due Date
1	Network Analyzer	MY46110140	E5071C	Agilent	2022.07.04	2023.07.03
2	OTA Chamber	TJ2235-Q17 93	AMS-8923-1 50	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 —————

Antenna type: PCB Antenna

