TEST REPORT

APPLICANT	:	Gemstar Technology(Yangzhou) Co.Ltd
PRODUCT NAME	:	Thermostat
MODEL NAME	:	Carrier Entry Level and ICP Thermostat 2024
TRADE NAME	:	N/A
BRAND NAME	:	N/A
STANDARD(S)	:	IEEE Std 149-2021
RECEIPT DATE	:	2023-08-16
TEST DATE	:	2023-08-16
ISSUE DATE	:	2023-08-18

Edited by: Fang Jinshan(Rapporteur)

Approved by: Chi Shide(Supervisor)

MORLAB
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DIRECTORY

Change History		
Version	Date	Reason for change
1.0	2023-08-18	First edition

1.Technical Information

Note: Provide by Applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Gemstar Technology(Yangzhou) Co.Ltd
Applicant Address:	Room 606, Guofa building, #3110 Renmin Road, Suzhou,Jiangsu Province, China
Manufacturer:	N/A
Manufacturer Address:	N/A

1.2. Equipment Under Test (EUT) Description

Wireless Type	N/A
Frequency	2400MHz-2500MHz
IMEI	N/A
Sample No.	1#&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(°C):	10 - 30

2.3. Measurement Uncertainty

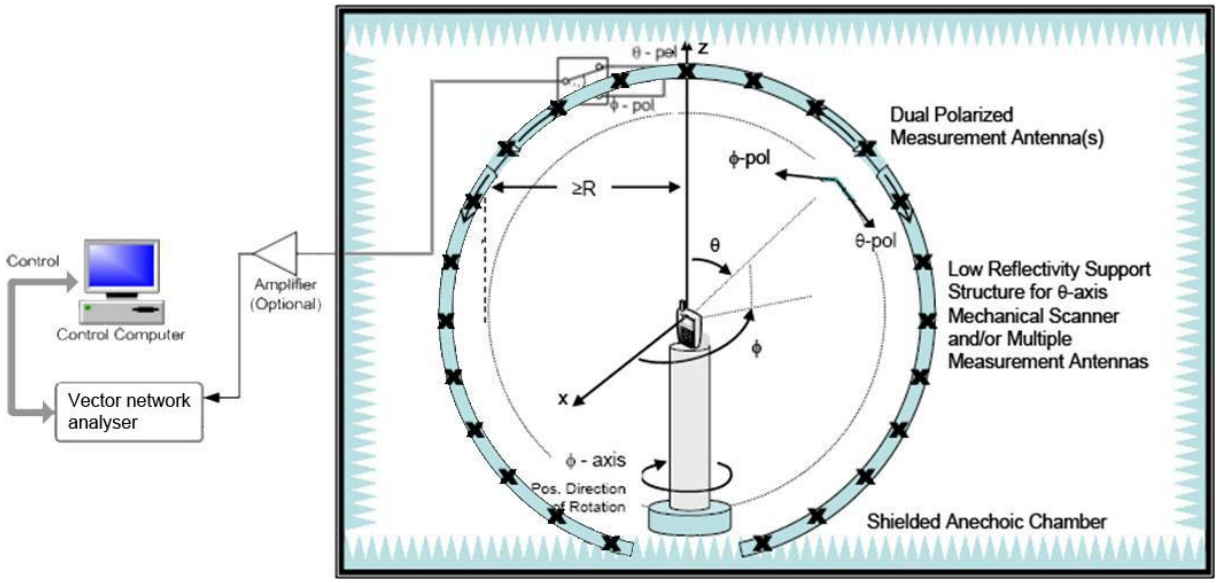
The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO. When the test result is a critical value,we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.

2.4. Test Results lists

2.4.1. Gain and Efficiency

Frequency (MHz)	Gain(dBi)		Efficiency(%)		Efficiency(dB)	
	1#	2#	1#	2#	1#	2#
2400	1.82	1.53	70.60	73.24	-1.51	-1.35
2405	1.84	1.54	72.32	74.80	-1.41	-1.26
2410	1.76	1.49	70.46	72.81	-1.52	-1.38
2415	1.70	1.45	68.92	71.14	-1.62	-1.48
2420	1.70	1.41	69.98	72.04	-1.55	-1.42
2425	1.68	1.42	68.53	70.37	-1.64	-1.53
2430	1.62	1.40	68.21	69.82	-1.66	-1.56
2435	1.67	1.43	68.10	69.74	-1.67	-1.57
2440	1.79	1.55	69.12	70.51	-1.60	-1.52
2445	1.82	1.53	69.25	70.51	-1.60	-1.52
2450	1.84	1.61	67.94	69.27	-1.68	-1.59
2455	1.90	1.64	68.63	69.88	-1.63	-1.56
2460	1.88	1.63	68.11	69.24	-1.67	-1.60
2465	1.82	1.59	66.10	67.28	-1.80	-1.72
2470	1.76	1.53	65.94	67.18	-1.81	-1.73
2475	1.68	1.45	65.58	66.63	-1.83	-1.76
2480	1.60	1.34	64.14	65.20	-1.93	-1.86
2485	1.52	1.29	63.80	64.82	-1.95	-1.88
2490	1.47	1.21	63.64	64.56	-1.96	-1.90
2495	1.55	1.20	64.09	64.91	-1.93	-1.88
2500	1.53	1.20	64.19	64.97	-1.93	-1.87

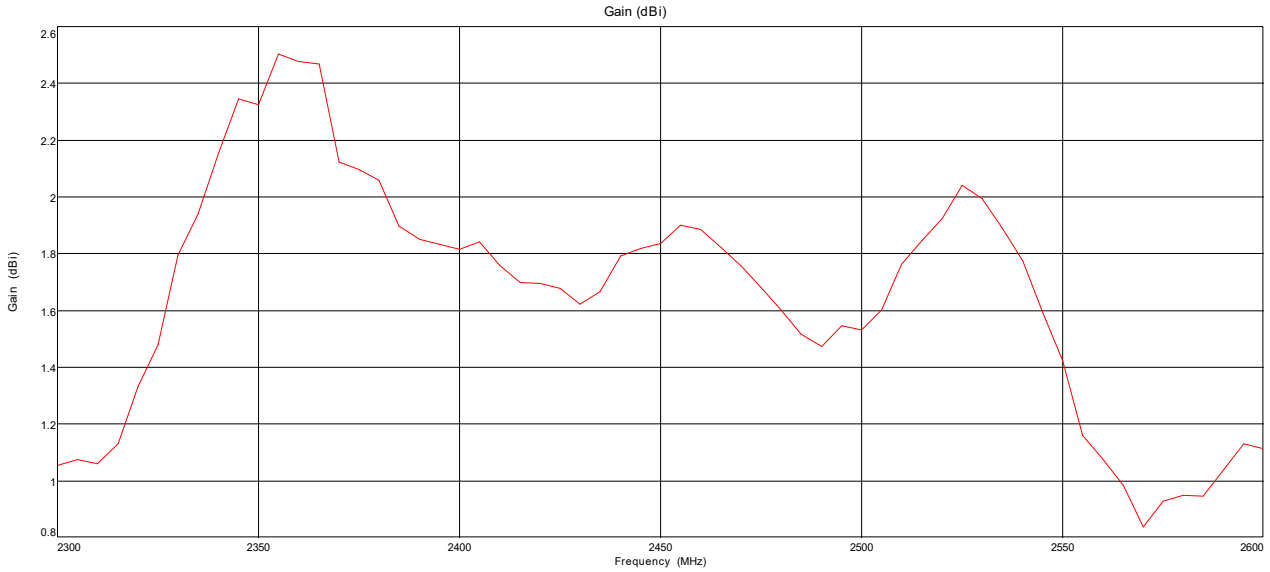
Annex A Test Setup Photos



Annex B Figures

1. 2D Radiation Pattern

Gain



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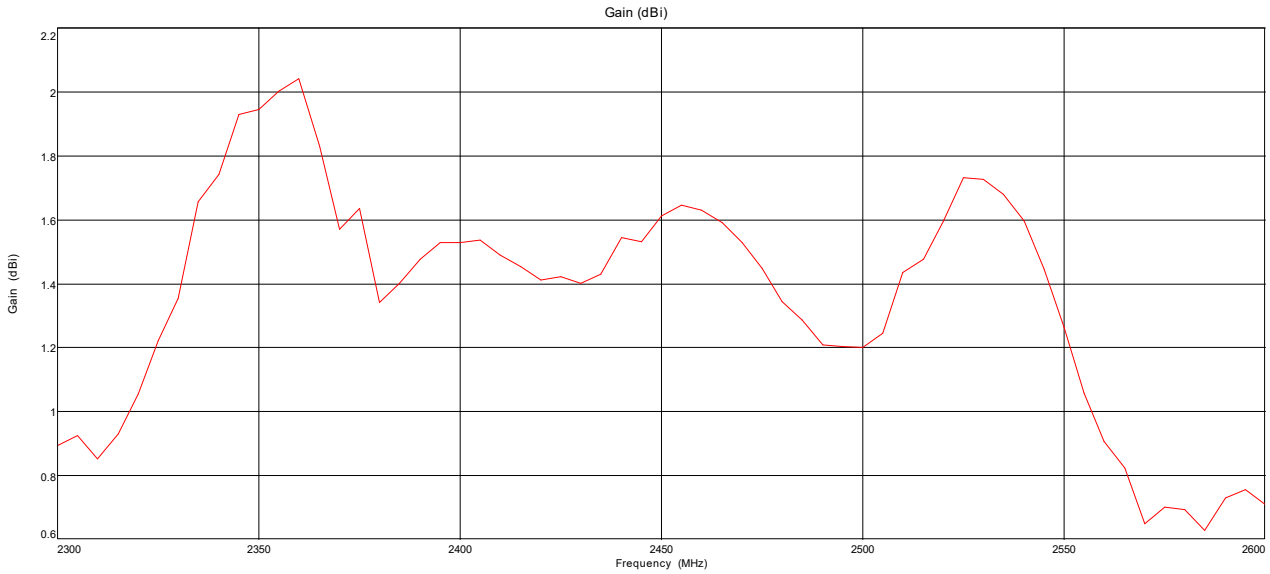
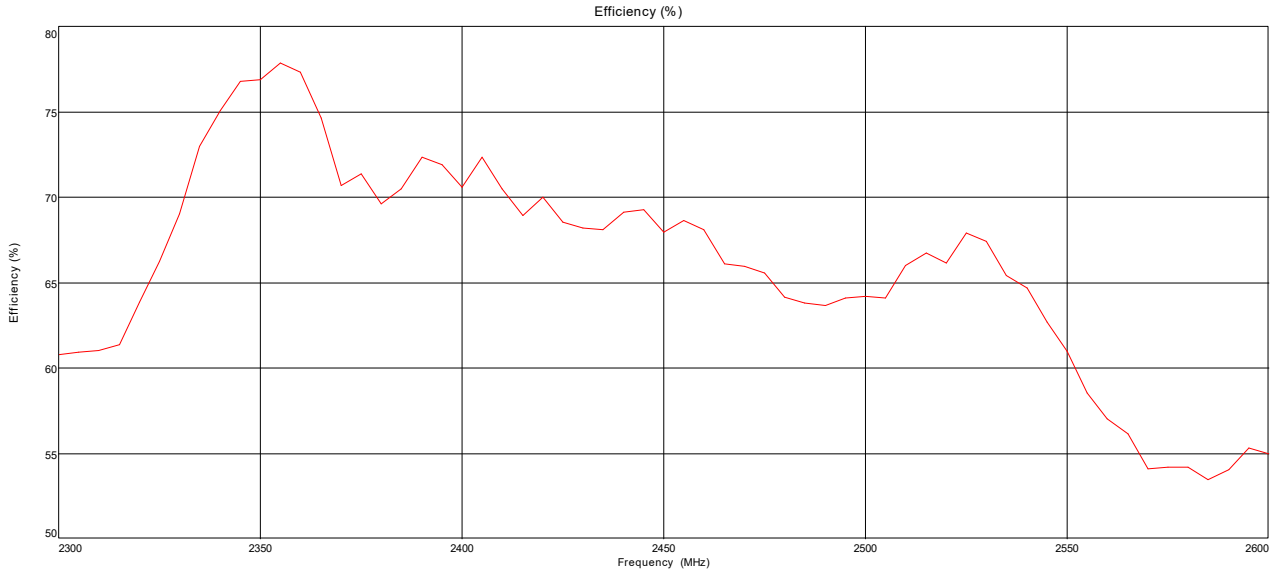


2#

Efficiency



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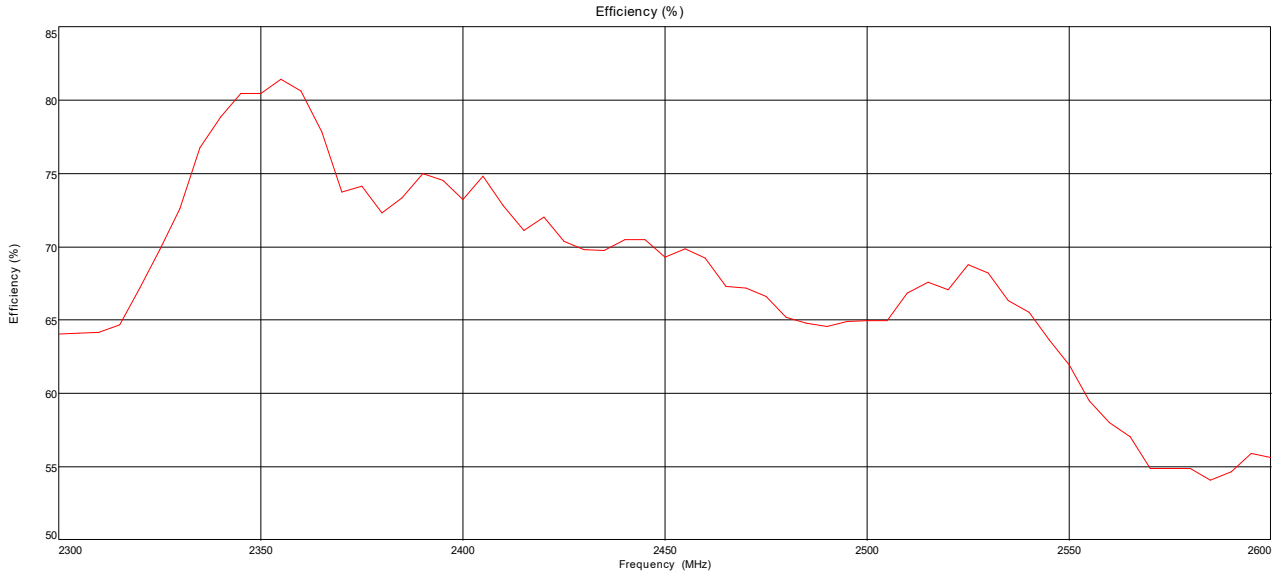

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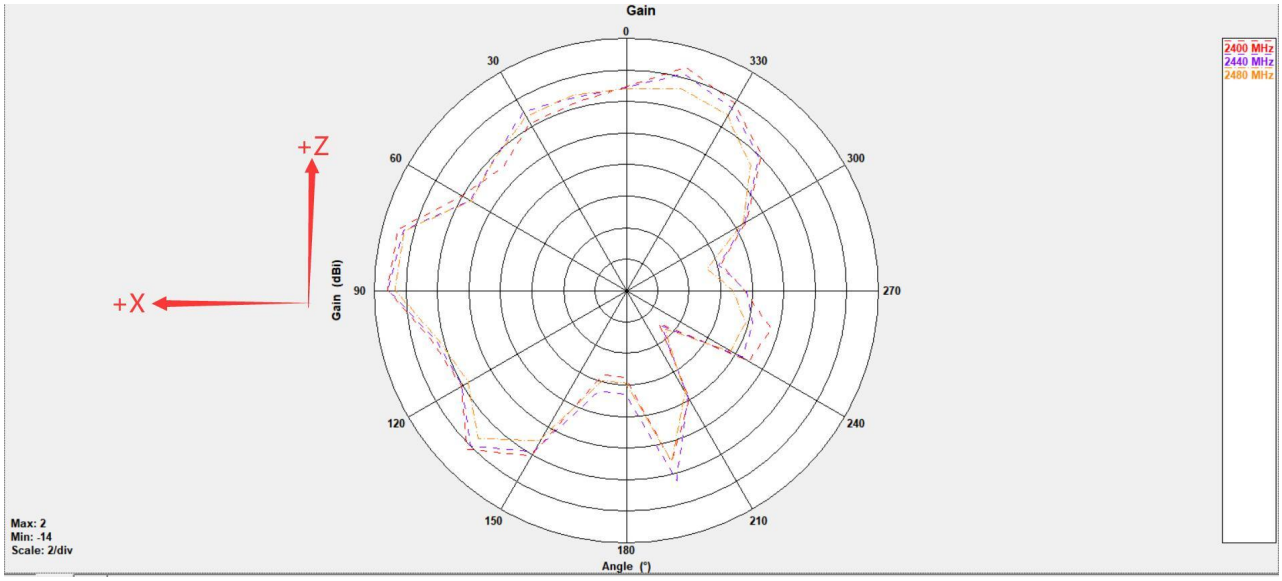
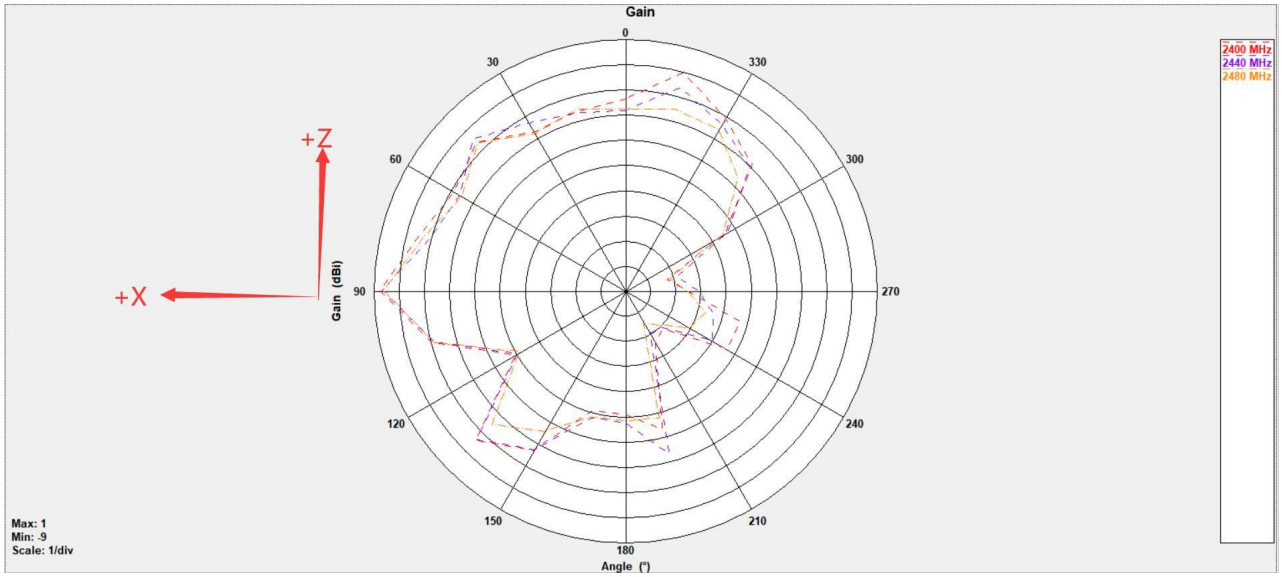
Phi=0°

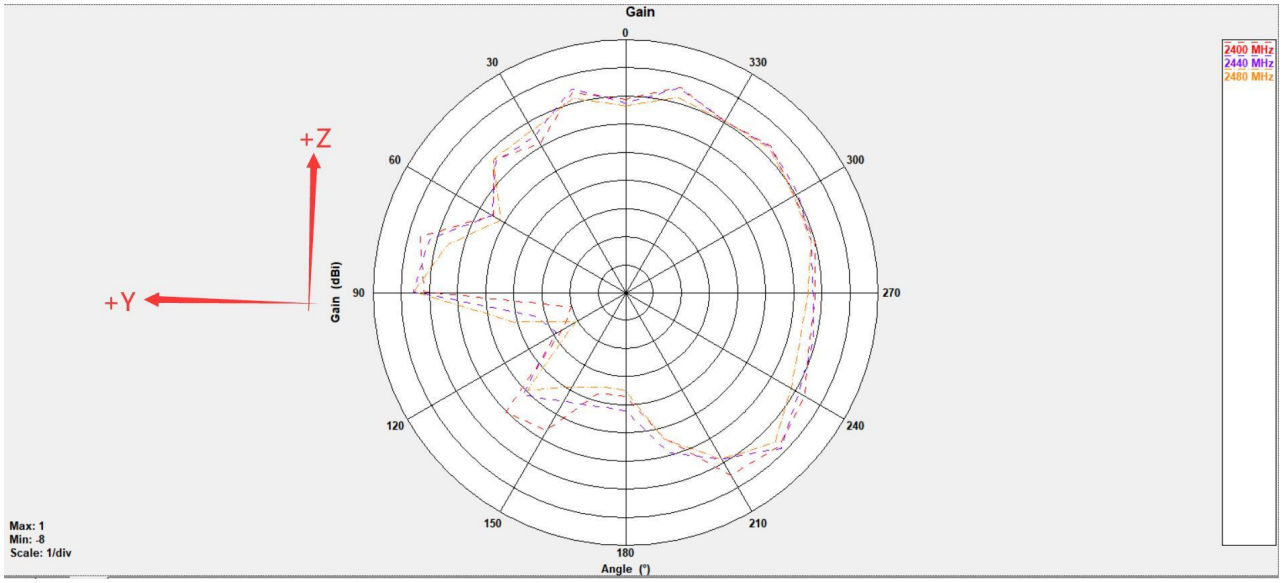

Gain
0
30
330
60
300
90
270
120
240
150
210
180
Angle (°)
+Z
+X
Gain (dBi)
2400 MHz
2440 MHz
2480 MHz
Max: 2
Min: -14
Scale: 2/div

1#

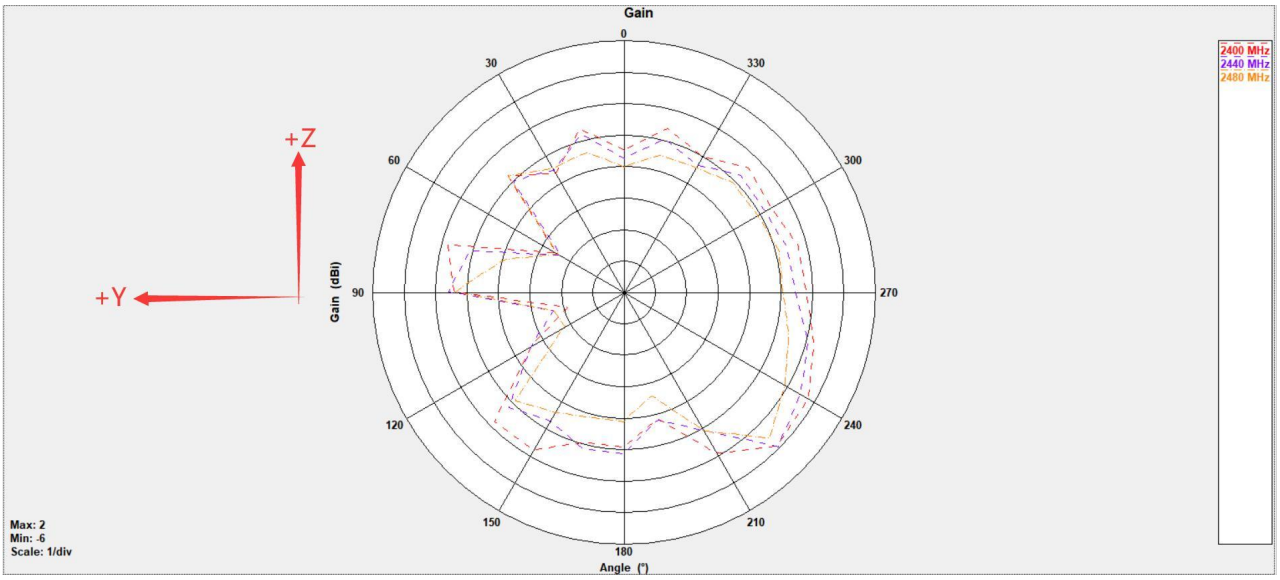

Gain
0
30
330
60
300
90
270
120
240
150
210
180
Angle (°)
+Z
+X
Gain (dBi)
2400 MHz
2440 MHz
2480 MHz
Max: 1
Min: -9
Scale: 1/div

2#

Phi=90°

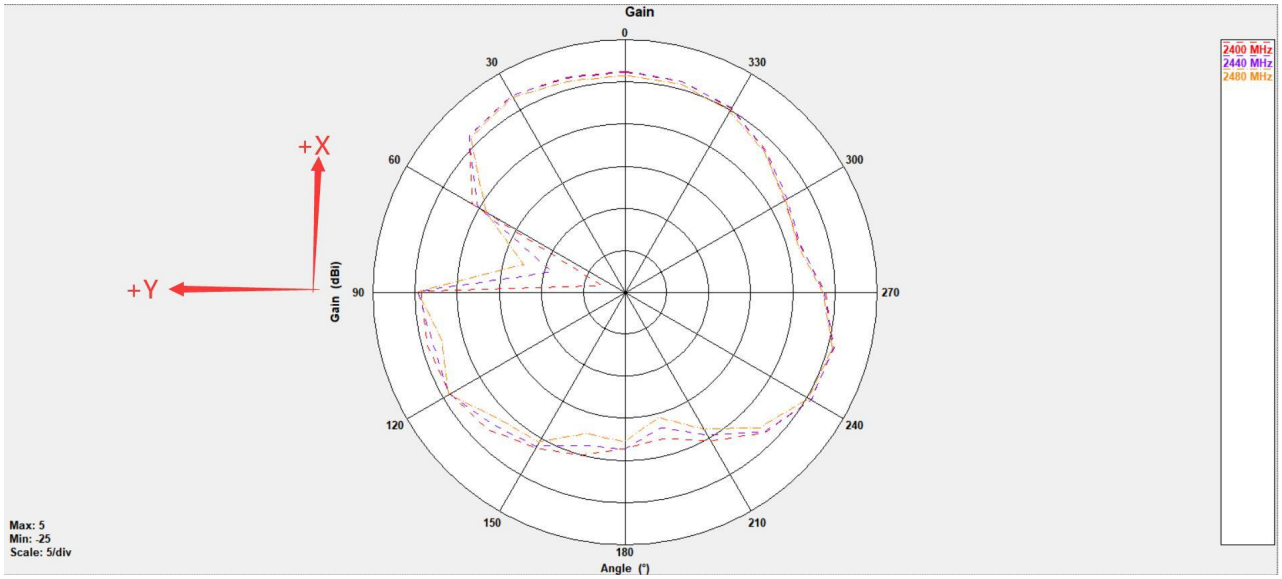

Gain
0
30
330
60
300
90
270
120
240
150
210
180
Angle (°)
Gain (dBi)
+Z
+Y
2400 MHz
2440 MHz
2480 MHz
Max: 1
Min: -8
Scale: 1/div

1#

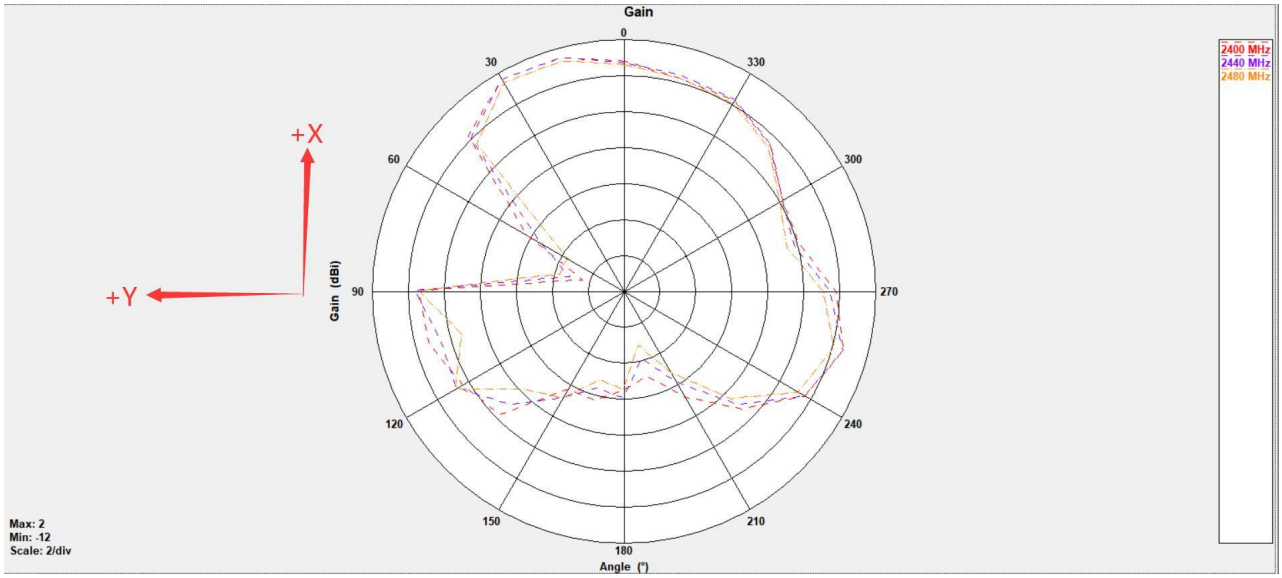

Gain
0
30
330
60
300
90
270
120
240
150
210
180
Angle (°)
Gain (dBi)
+Z
+Y
2400 MHz
2440 MHz
2480 MHz
Max: 2
Min: -6
Scale: 1/div

2#

Theta=90°

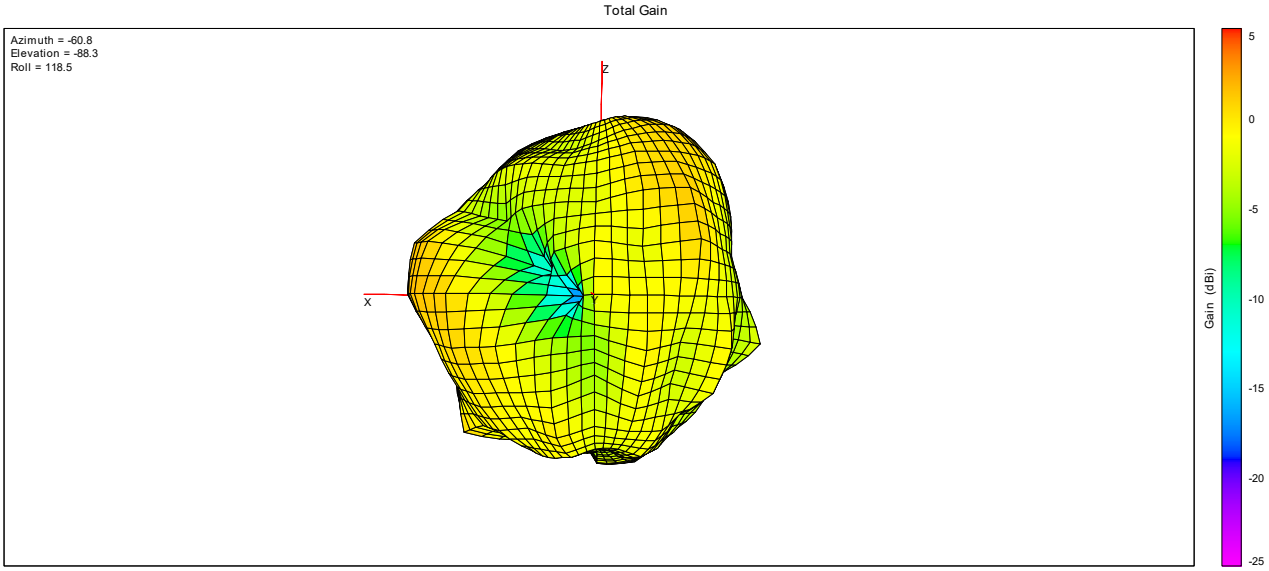

Gain
0
30
330
60
300
90
270
120
240
150
210
180
Angle (°)
Gain (dBi)
+X
+Y
2400 MHz
2440 MHz
2480 MHz
Max: 5
Min: -25
Scale: 5/div

1#

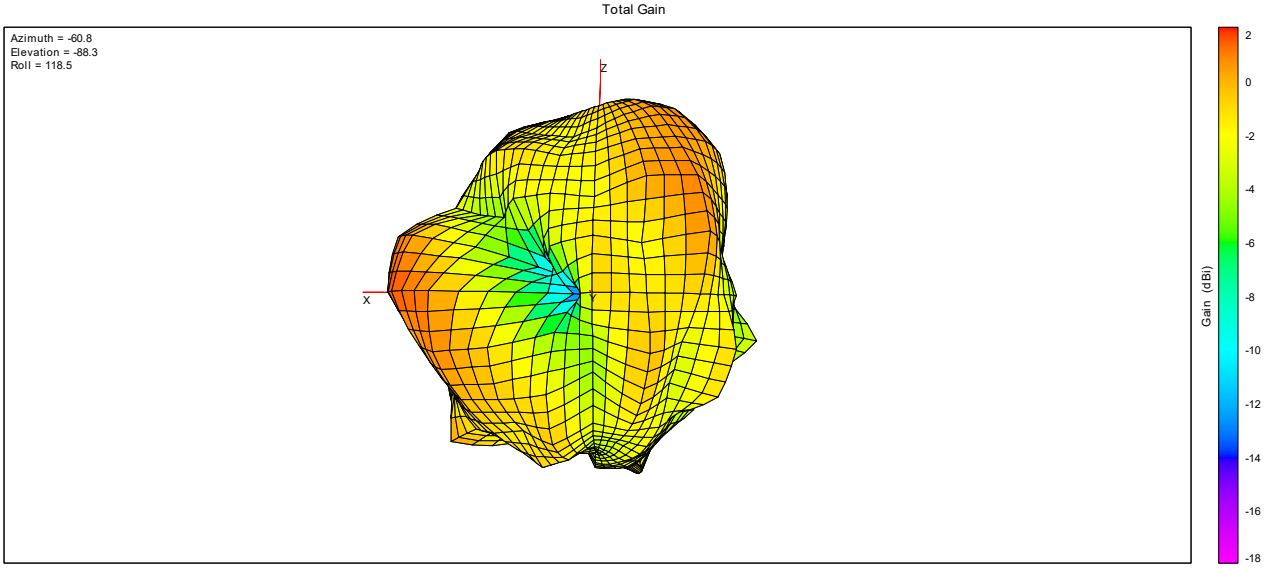

Gain
0
30
330
60
300
90
270
120
240
150
210
180
Angle (°)
Gain (dBi)
+X
+Y
2400 MHz
2440 MHz
2480 MHz
Max: 2
Min: -12
Scale: 2/div

2#

2. 3D Radiation Pattern



2400MHz_1#



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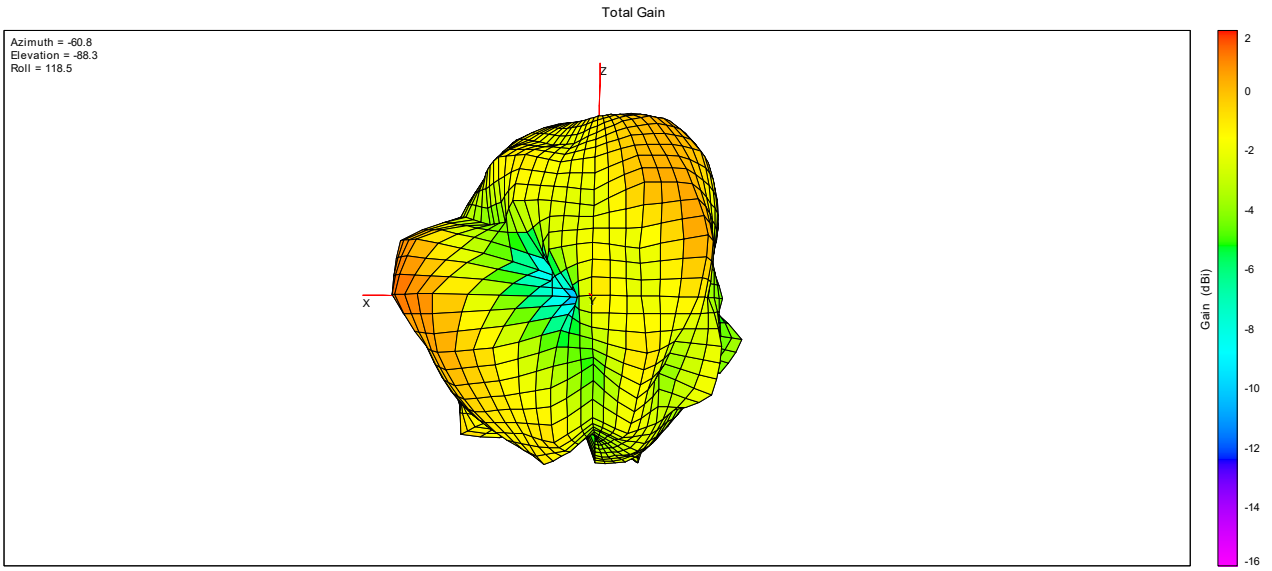
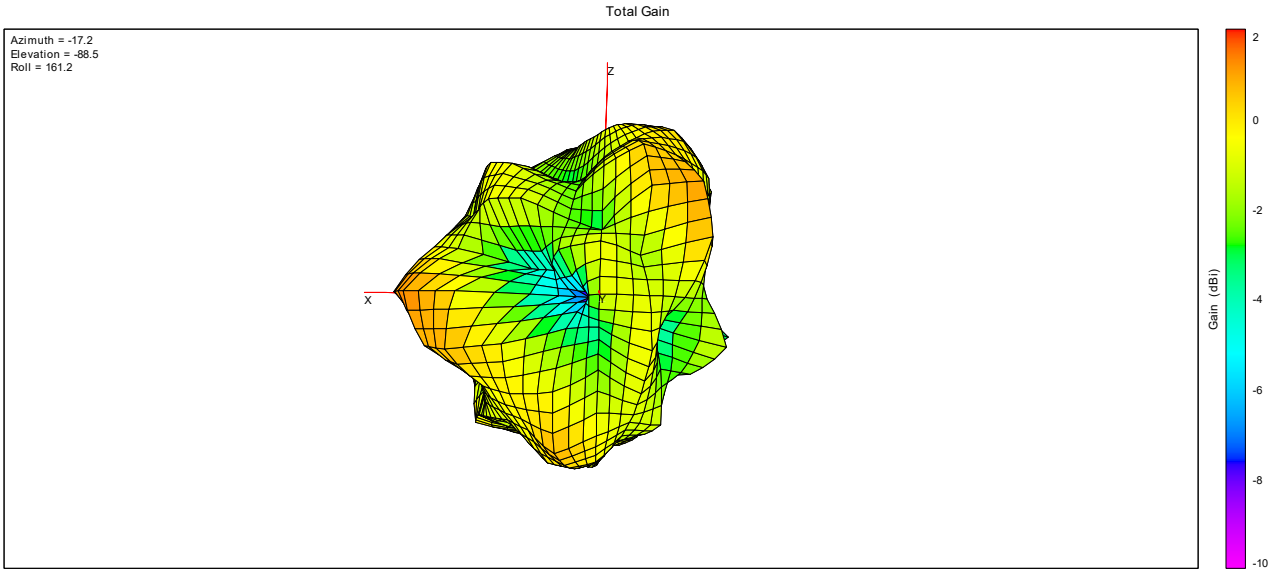


2480MHz_1#



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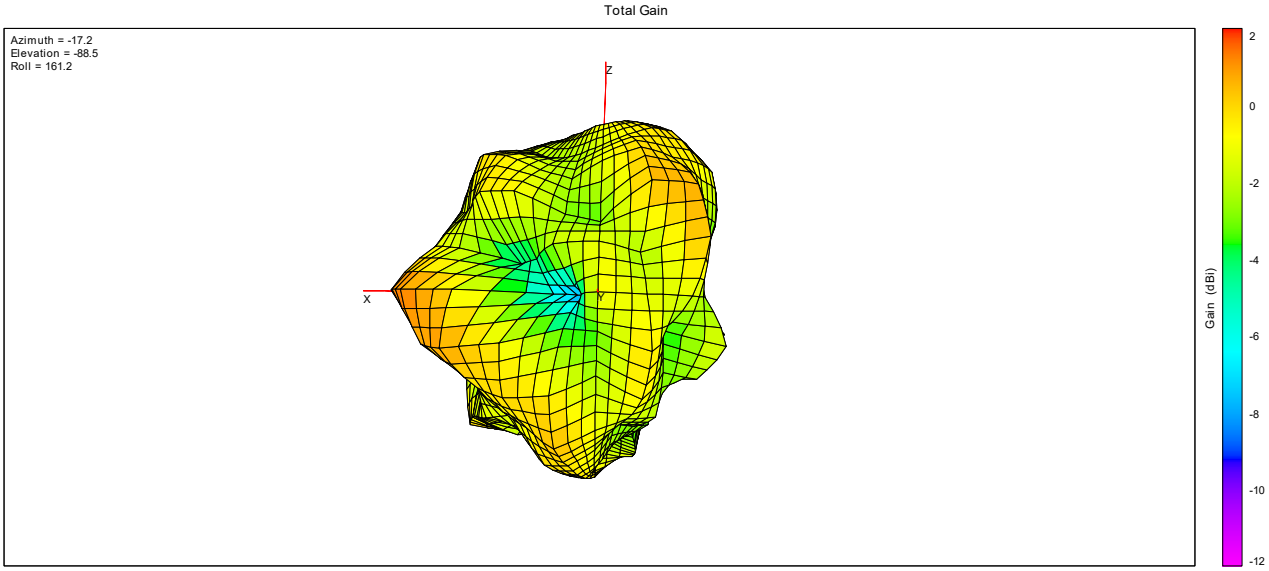
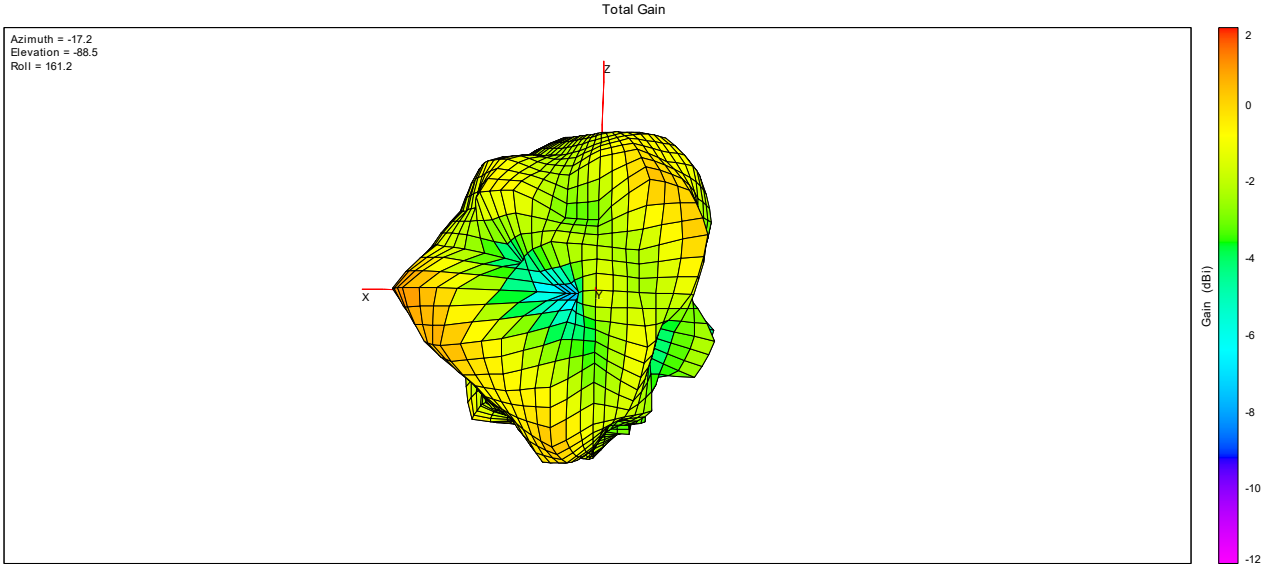


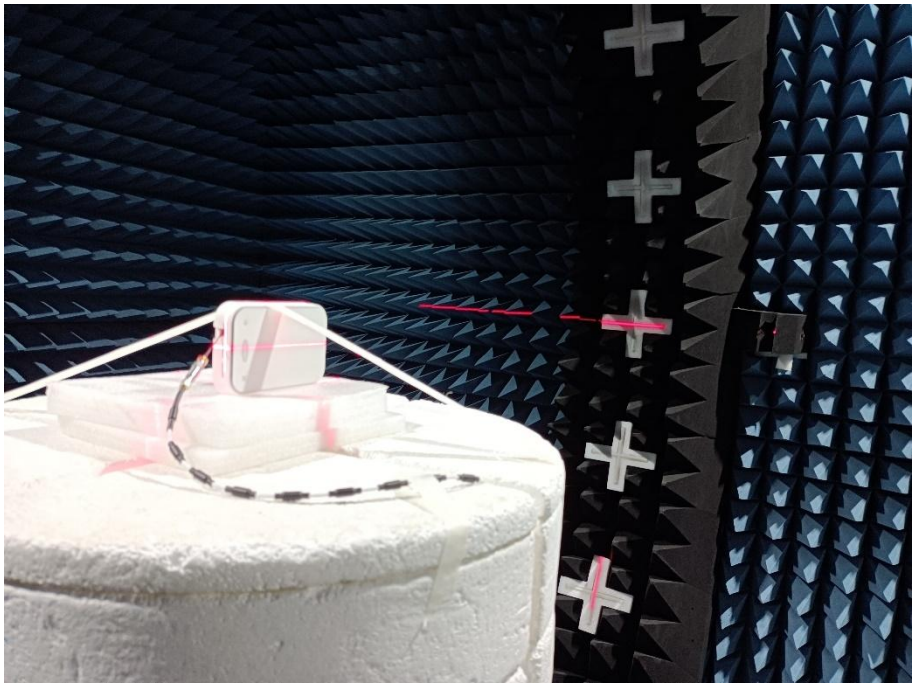
2440MHz_2#

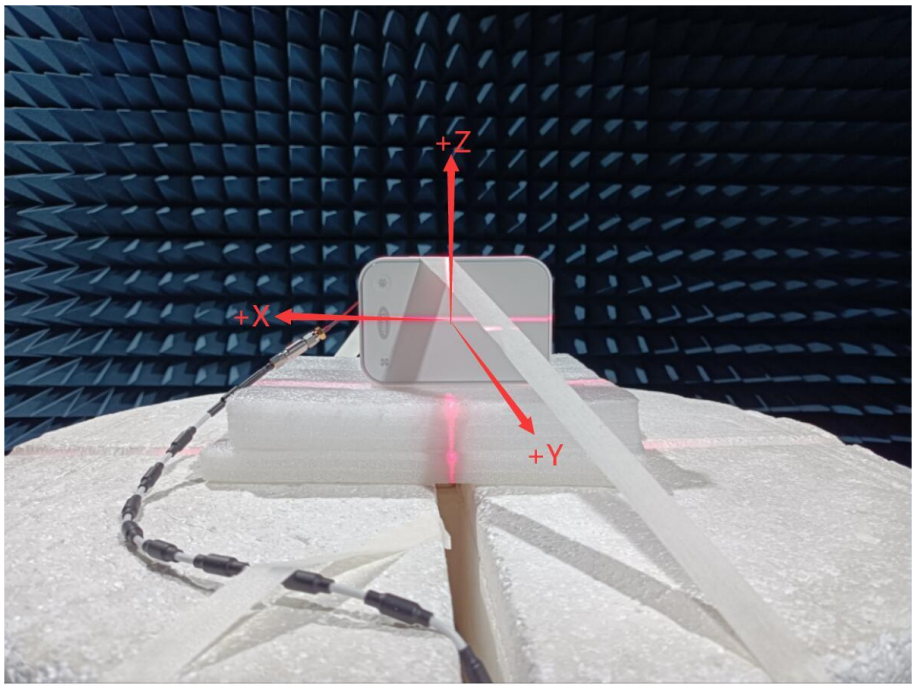


2480MHz_2#

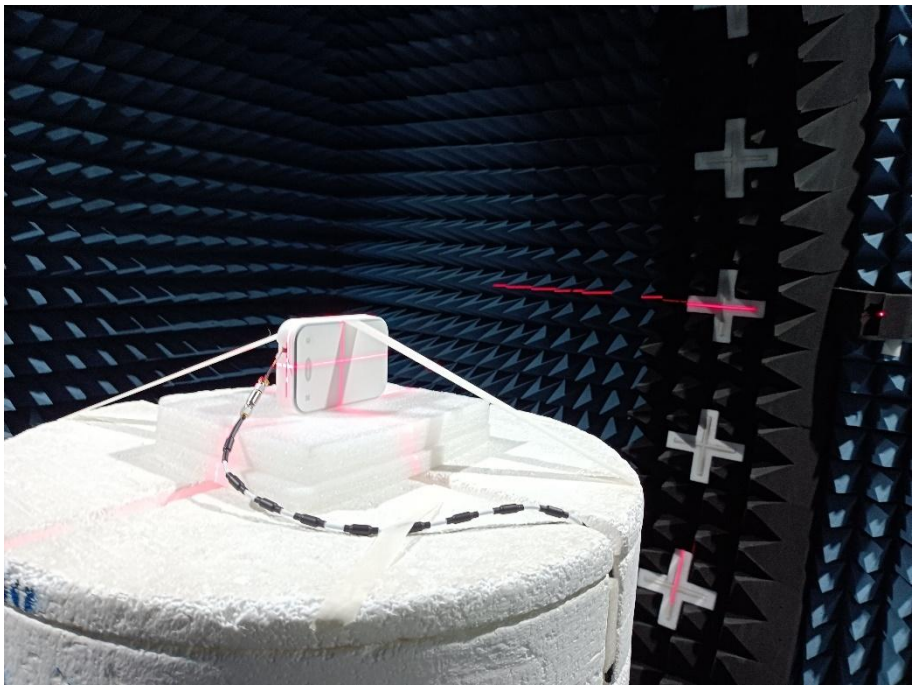
Annex C EUT Photos

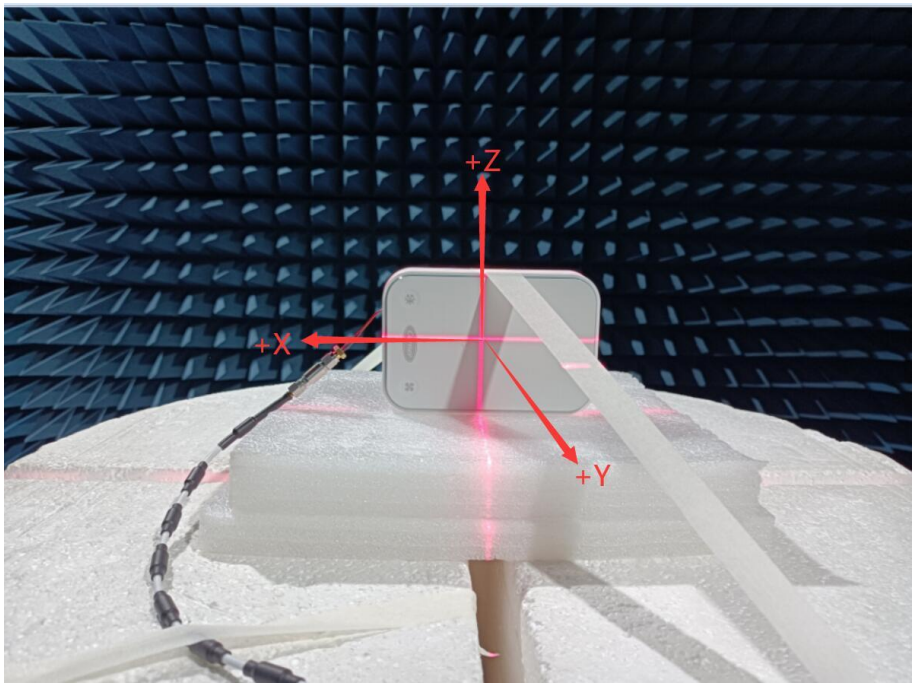
1. Test environment





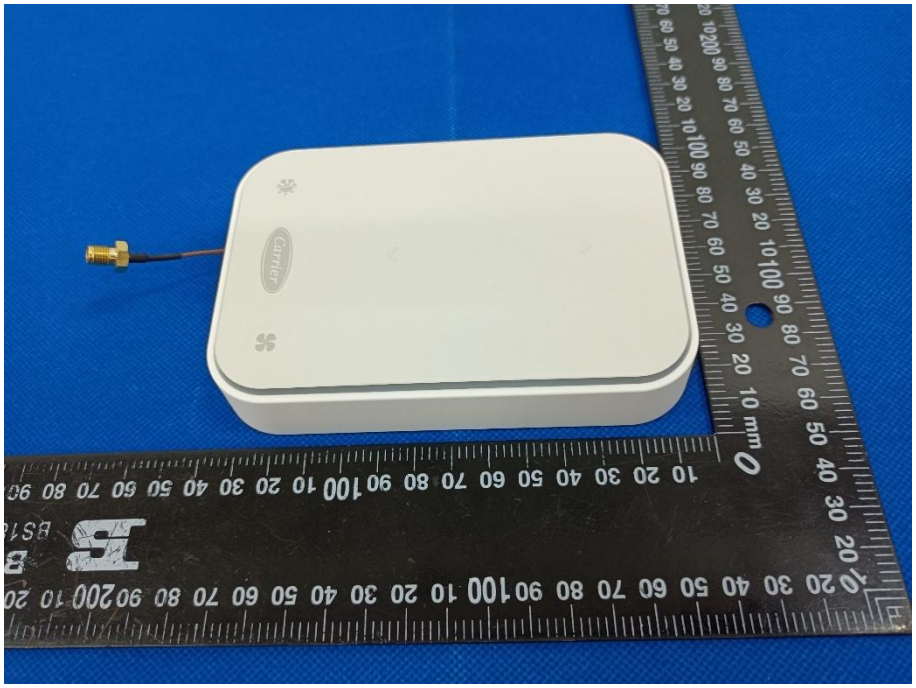
1#

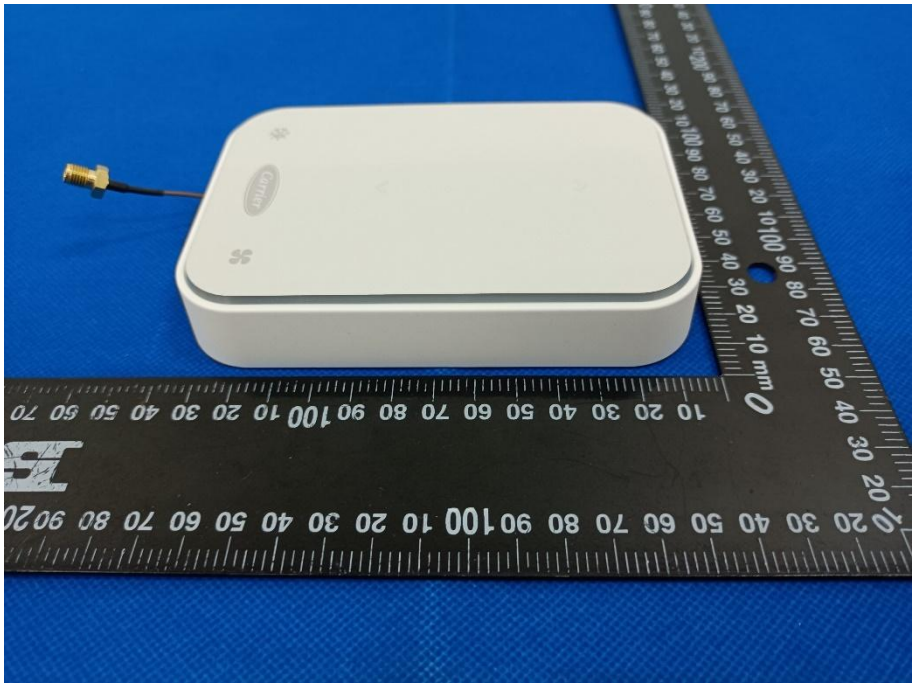


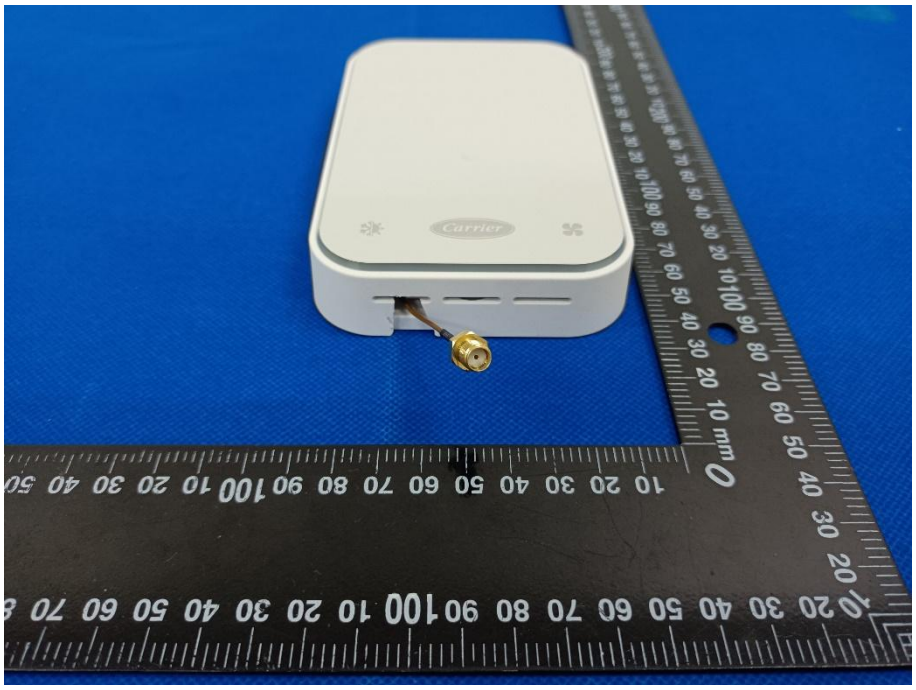


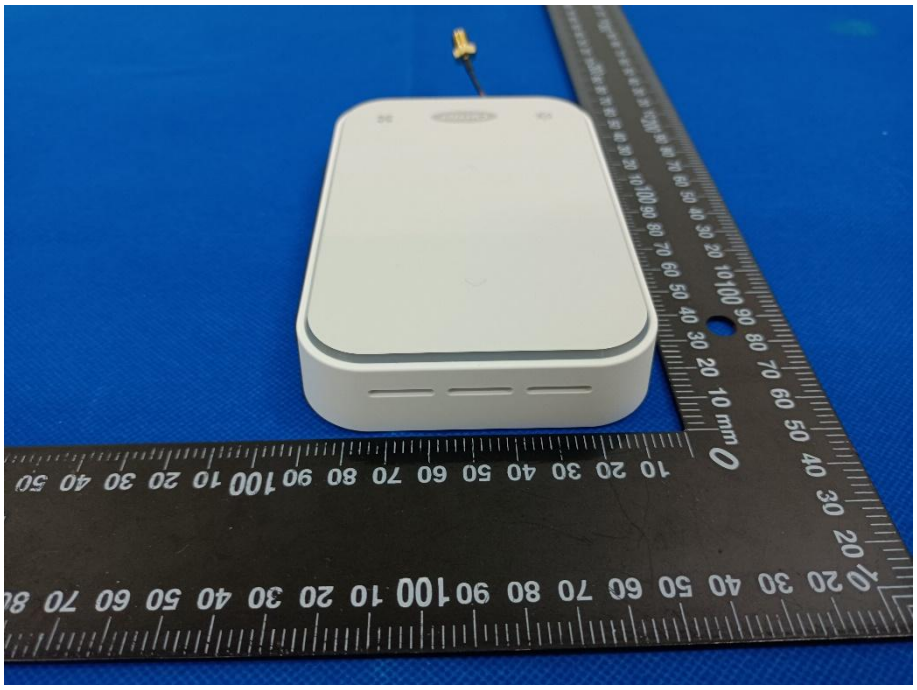
2#

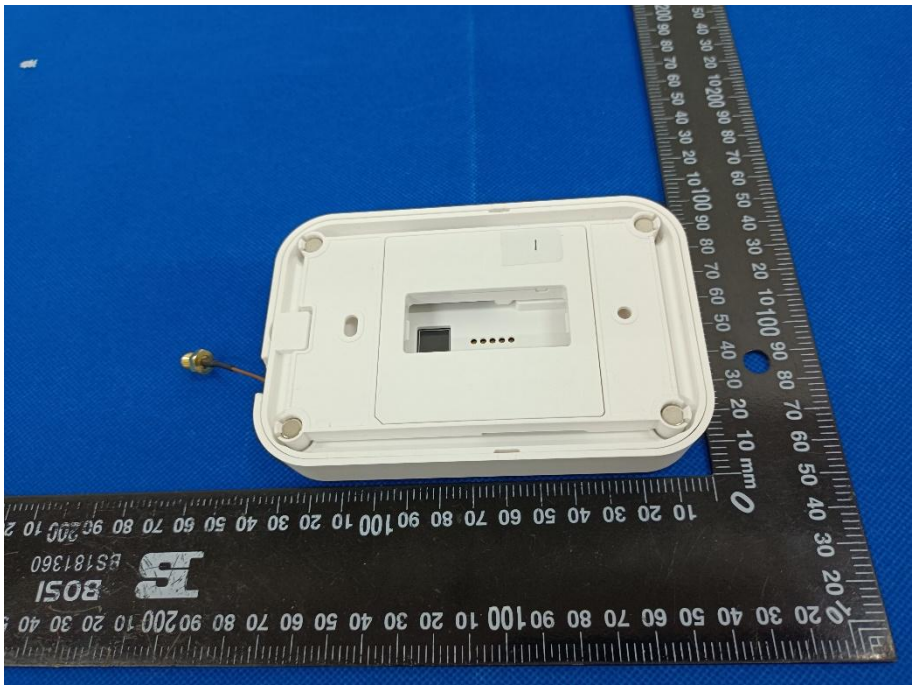
2. EUT

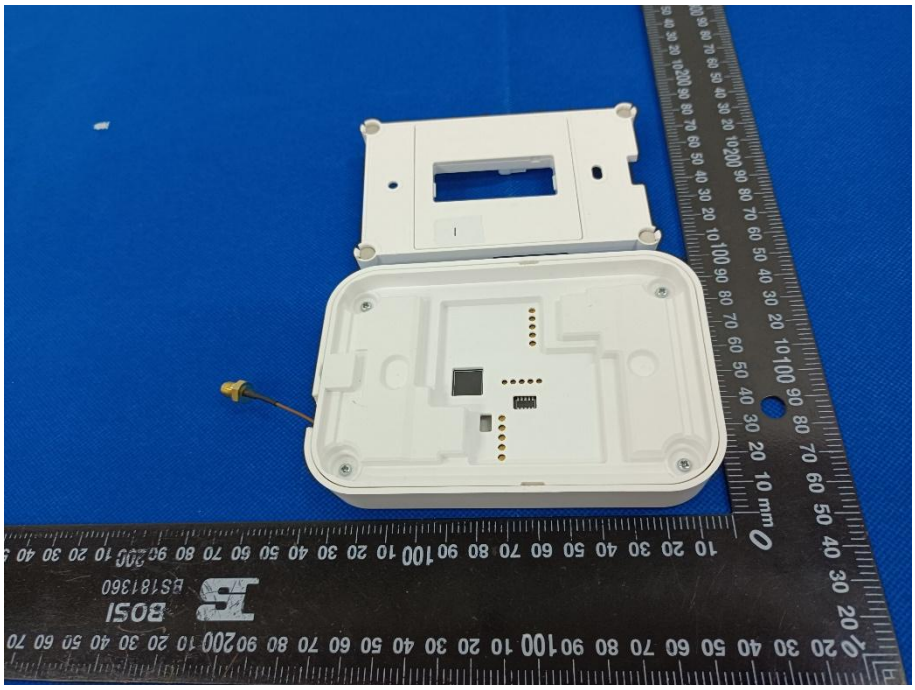


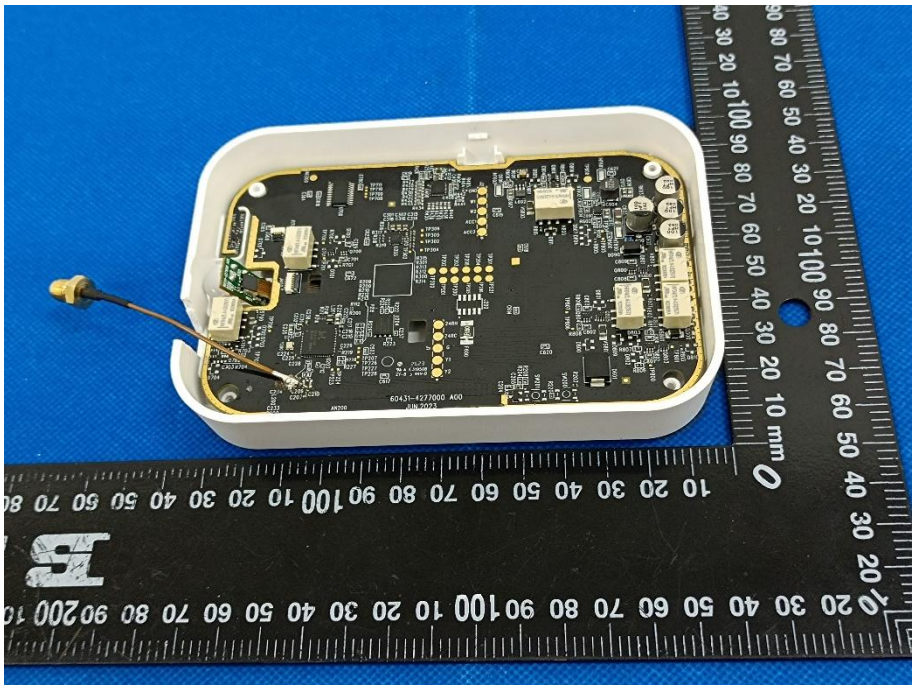


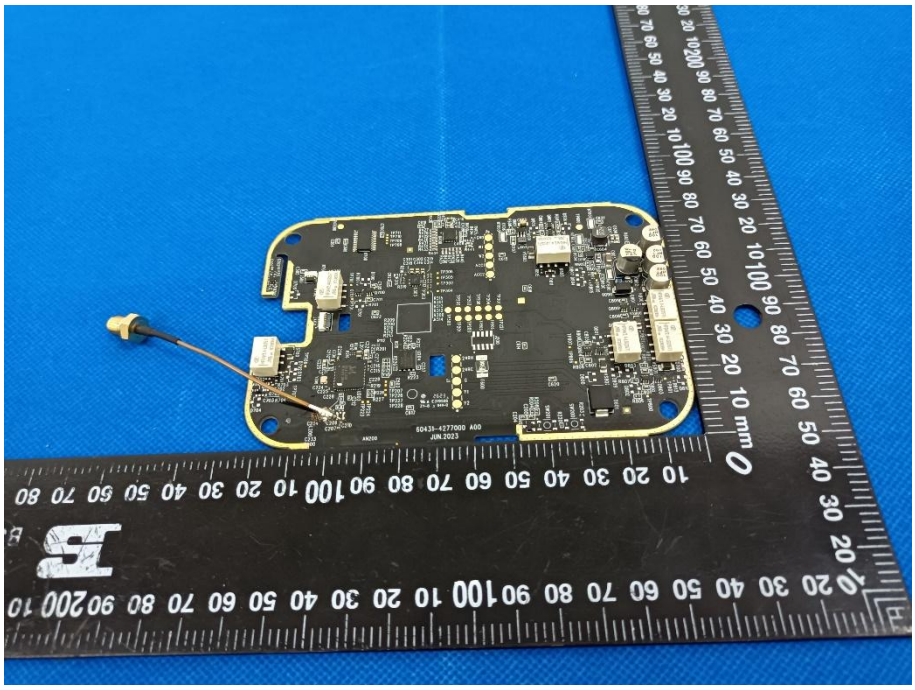


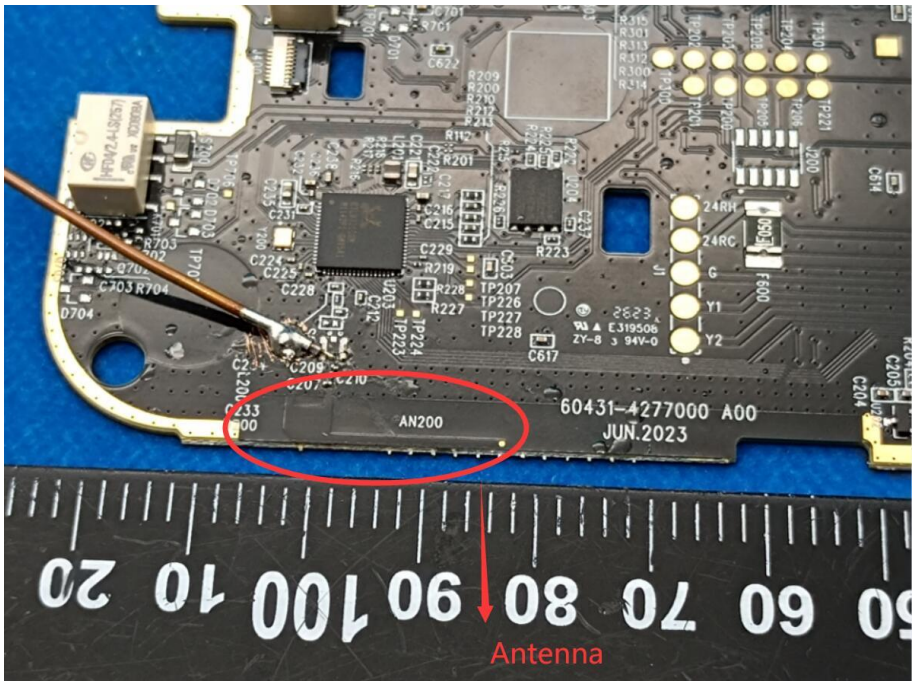












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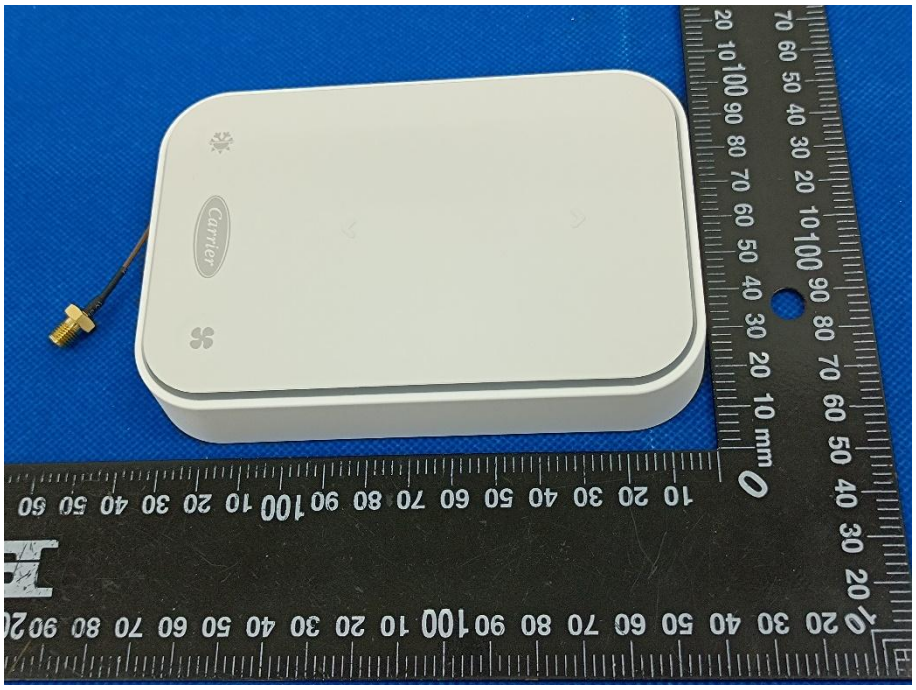
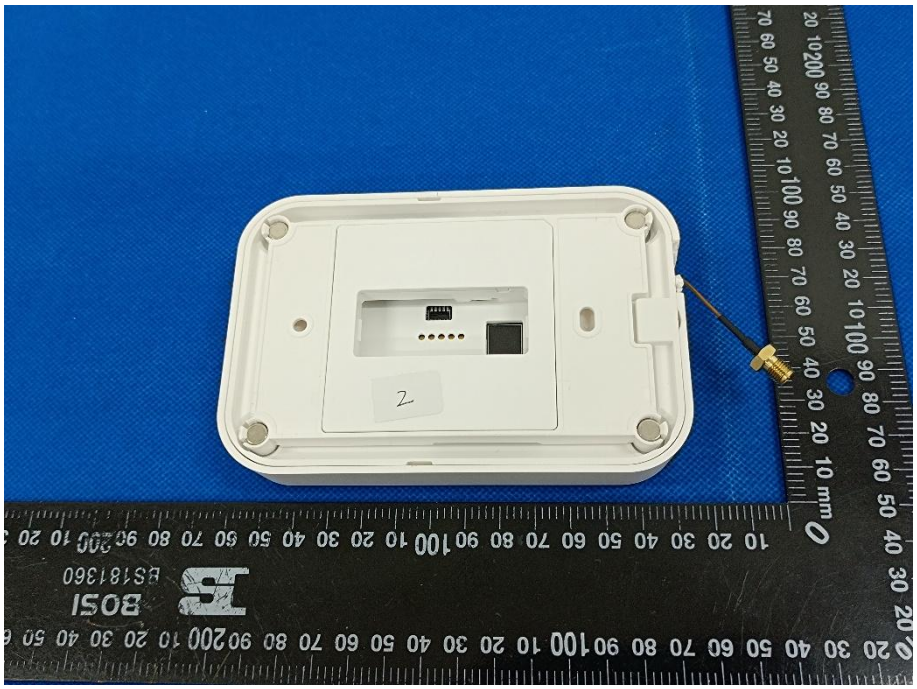
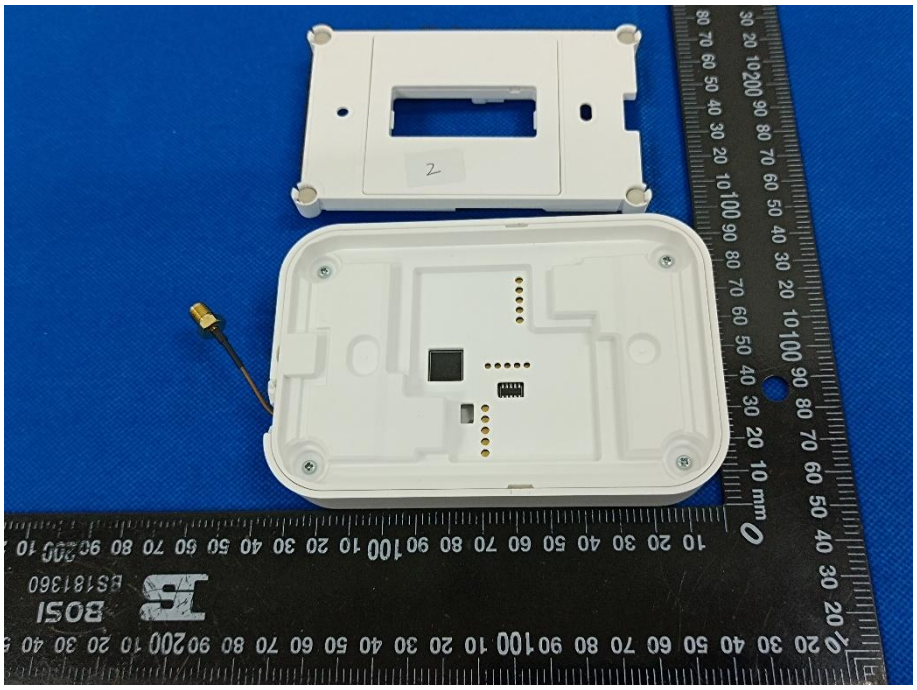
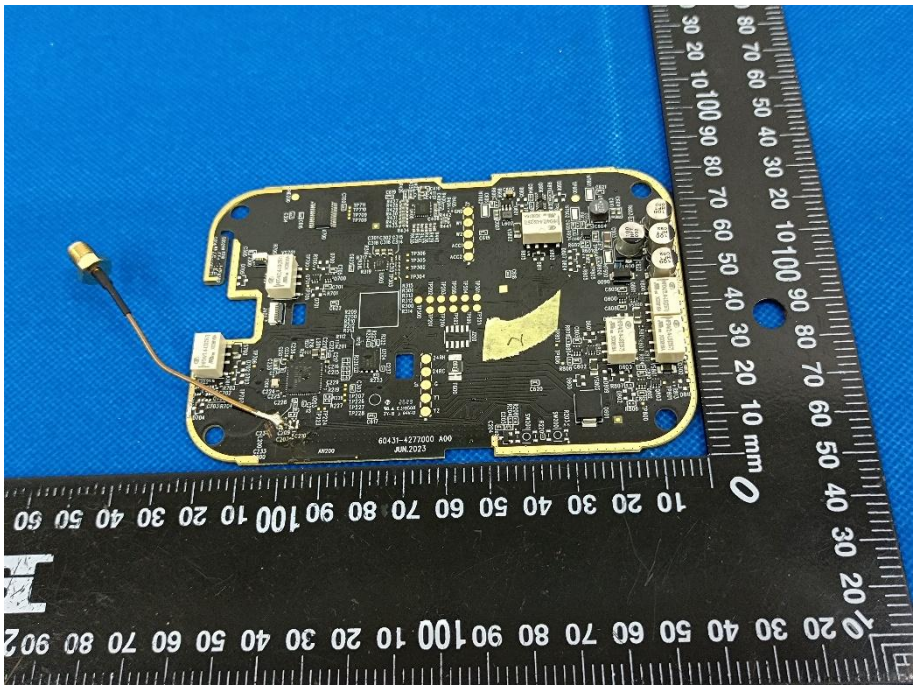

Carrier

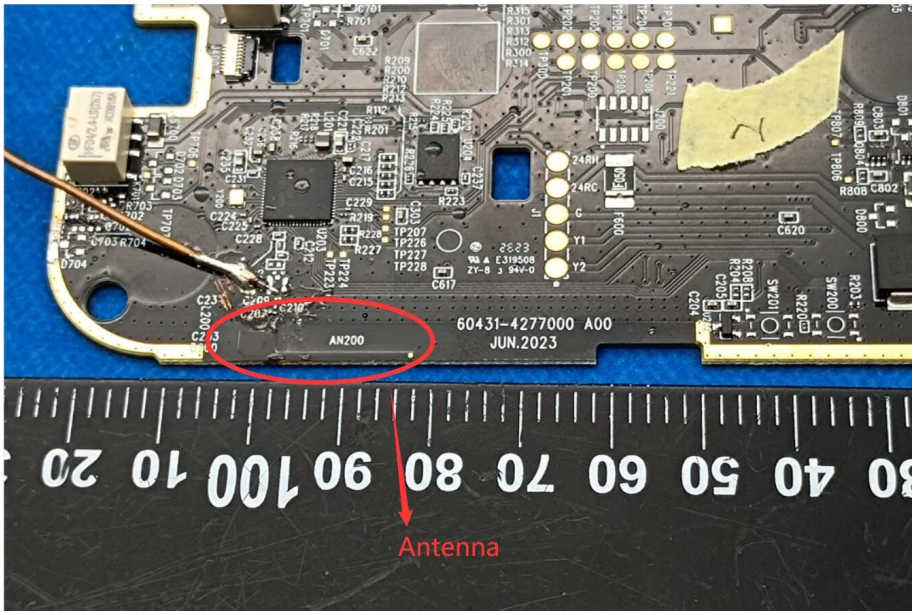

Carrier


Carrier









2#

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,Block 67, 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,Block 67, 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