



TEST REPORT

APPLICANT : Gemstar Technology(Yangzhou) Co.Ltd

PRODUCT NAME : Sensor

MODEL NAME : Ecolink Zigbee Door Window Sensor

TRADE NAME : N/A

BRAND NAME : N/A

STANDARD(S) : IEEE Std 149-2021

RECEIPT DATE : 2023-02-15

TEST DATE : 2023-02-16

ISSUE DATE : 2023-02-21

Edited by: Fang Jinshan
Fang Jinshan(Rapporteur)

Approved by: Chi Shide
Chi Shide(Supervisor)

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DIRECTORY

- 1. Technical Information3
- 1.1. Applicant and Manufacturer Information3
- 1.2. Equipment Under Test (EUT) Description3
- 2. Test Results 4
- 2.1. Applied Reference Documents4
- 2.2. Test Conditions 4
- 2.3. Measurement Uncertainty 4
- 2.4. Test Results lists5
- Annex A Test Setup Photos6
- Annex B Figures7
- 1. 2D Radiation Pattern 7
- 2. 3D Radiation Pattern 12
- Annex C EUT Photos 15
- Annex D General Information25
- 1.1 Identification of the Responsible Testing Laboratory25
- 1.2 Identification of the Responsible Testing Location25
- 1.3 Test Equipments Utilized 25

Change History		
Version	Date	Reason for change
1.0	2023-02-21	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	Zigbee
Frequency	2405MHz-2480MHz
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:	+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	

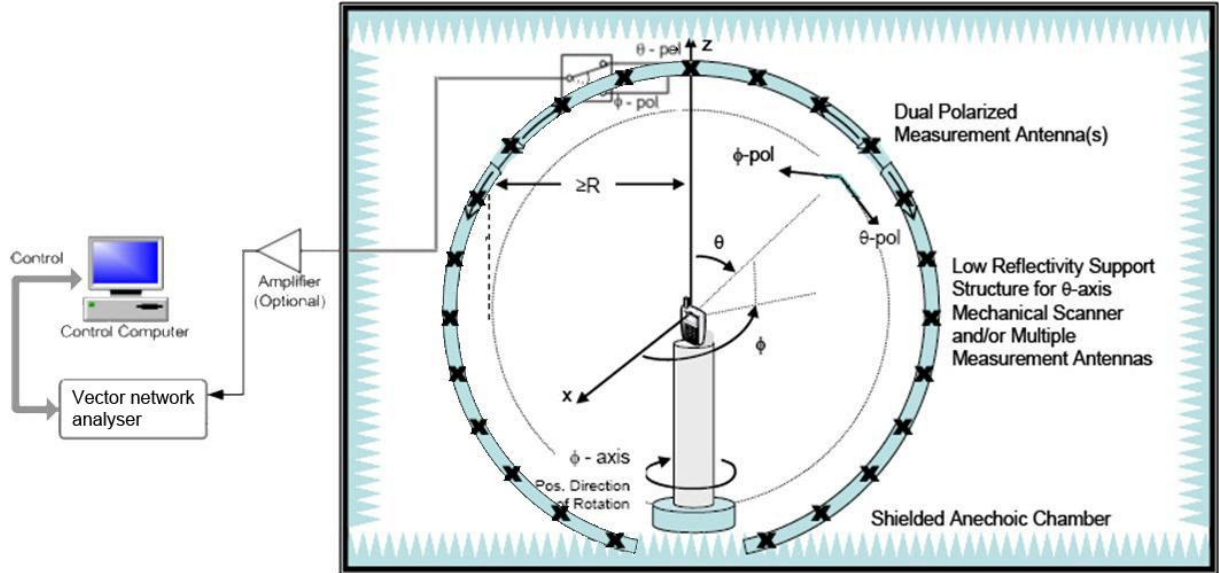


2.4. Test Results lists

2.4.1. Gain and Efficiency

Frequency (MHz)	Gain(dBi)		Efficiency(%)		Efficiency(dB)	
	1#	2#	1#	2#	1#	2#
2400	0.27	0.37	41.58	43.10	-3.81	-3.66
2405	0.28	0.41	41.38	43.17	-3.83	-3.65
2410	0.06	0.22	40.03	42.08	-3.98	-3.76
2420	-0.20	0.02	38.18	40.71	-4.18	-3.90
2430	-0.44	-0.19	36.24	39.03	-4.41	-4.09
2440	-0.51	-0.24	35.87	38.84	-4.45	-4.11
2450	-0.56	-0.23	35.68	38.65	-4.48	-4.13
2460	-0.65	-0.40	34.90	37.68	-4.57	-4.24
2470	-0.80	-0.61	33.47	35.92	-4.75	-4.45
2480	-1.15	-1.08	31.84	33.76	-4.97	-4.72
2490	-1.47	-1.46	30.62	32.00	-5.14	-4.95
2500	-1.63	-1.66	30.57	31.55	-5.15	-5.01

Annex A Test Setup Photos

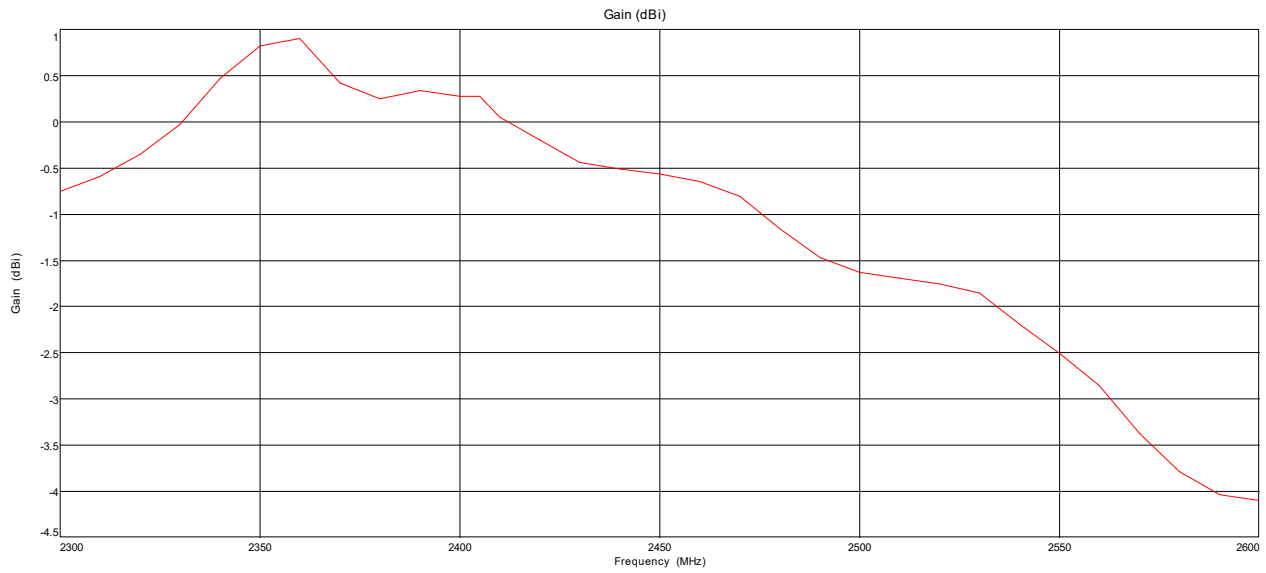




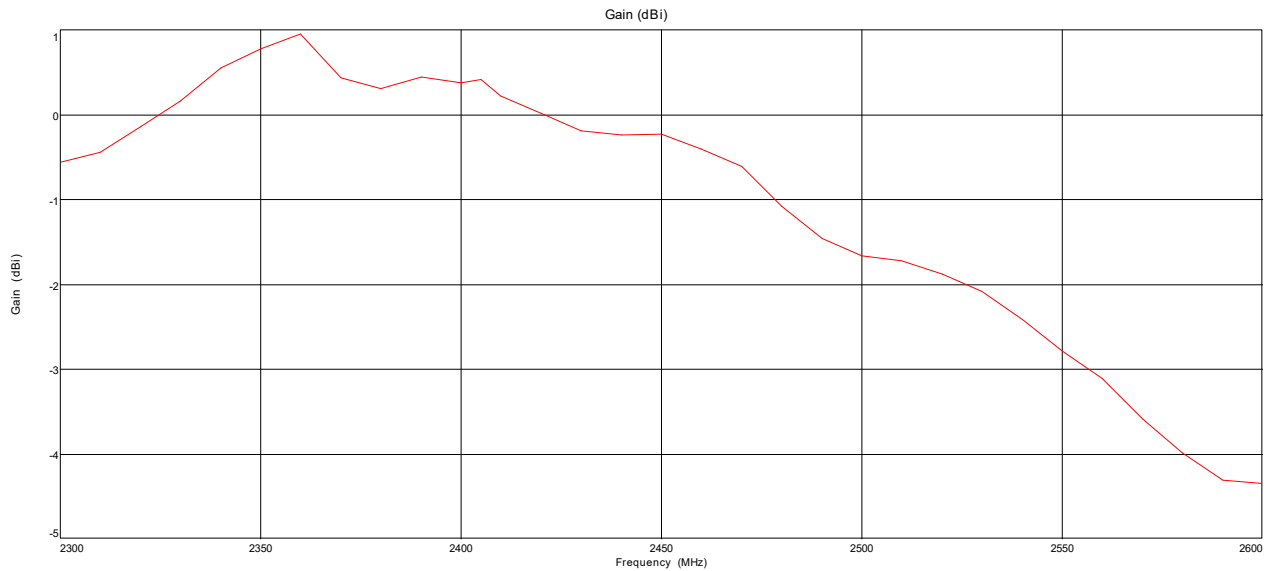
Annex B Figures

1. 2D Radiation Pattern

Gain



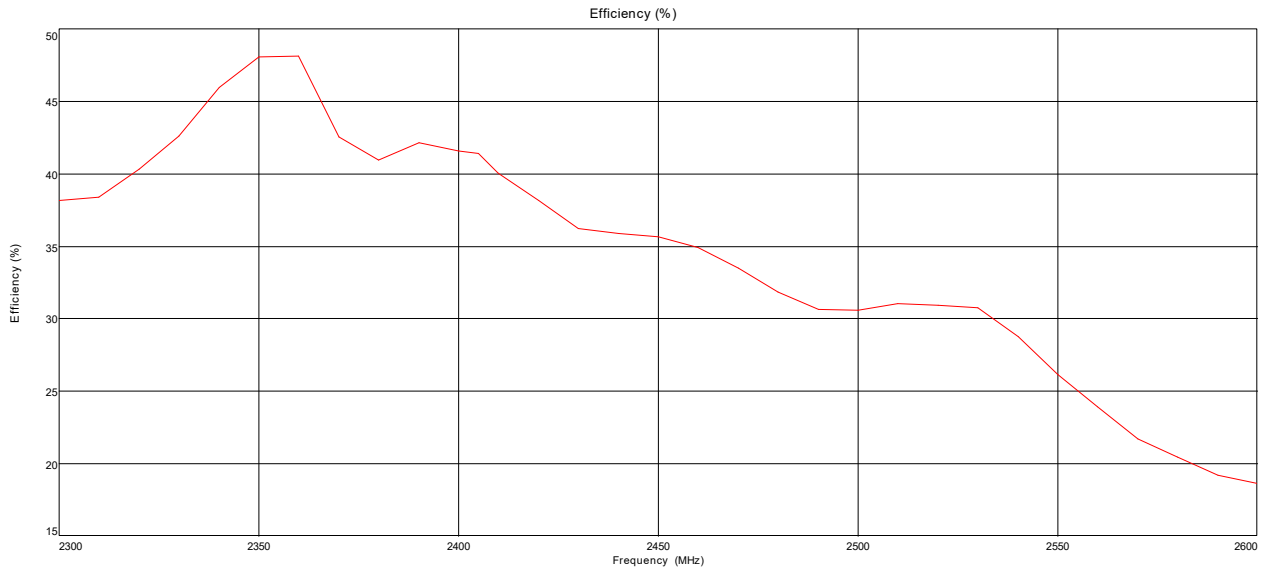
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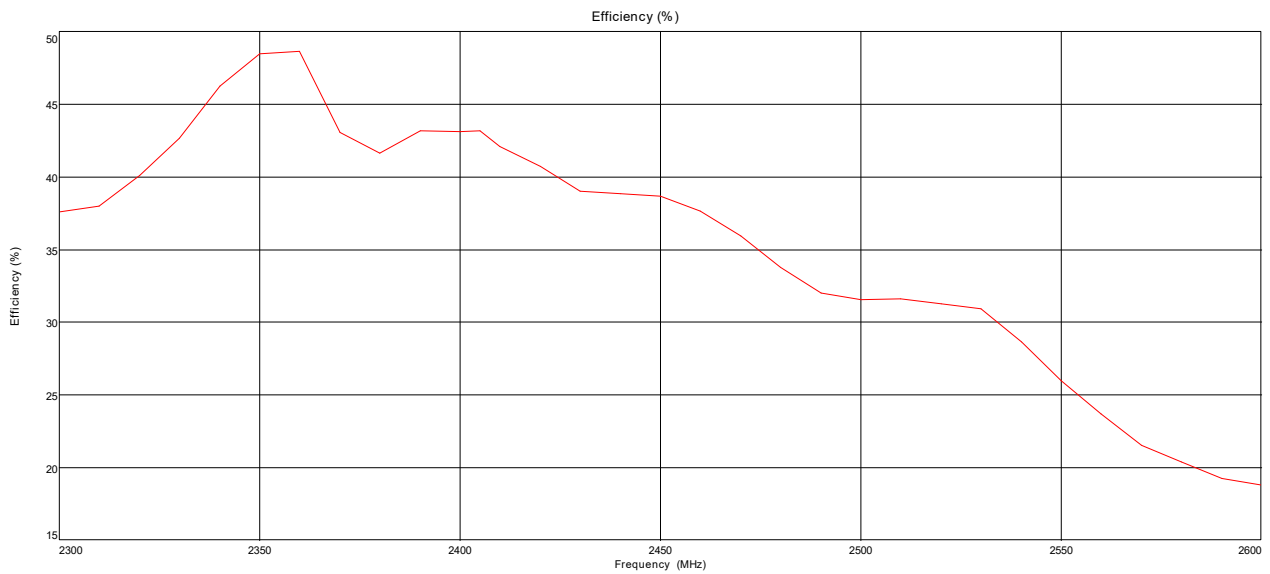
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Efficiency

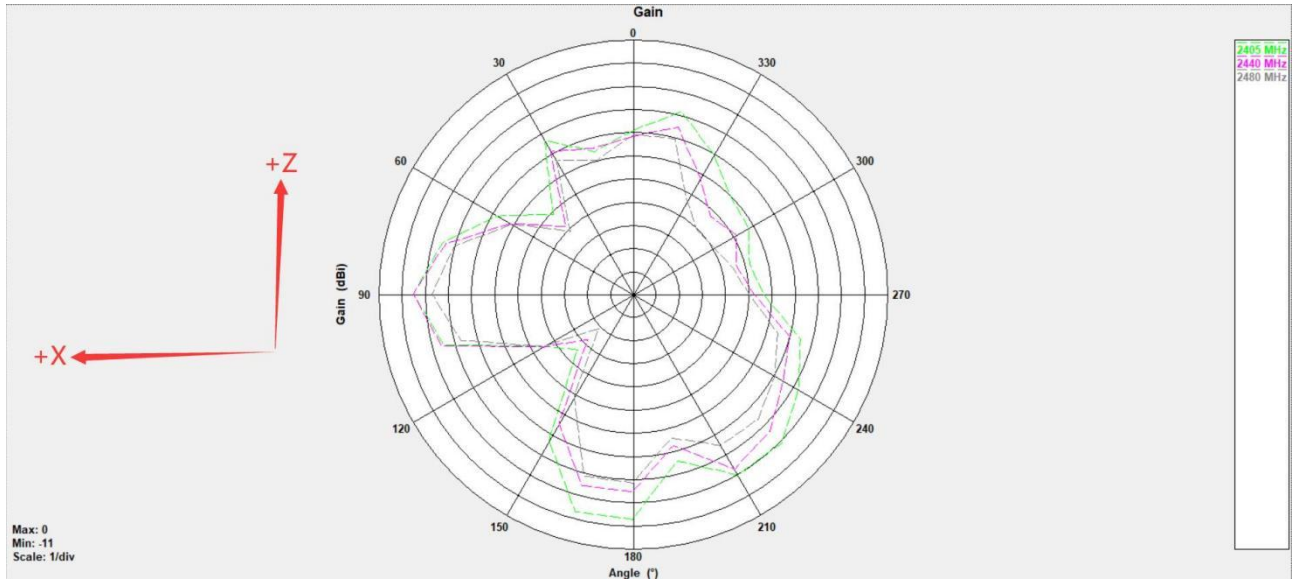


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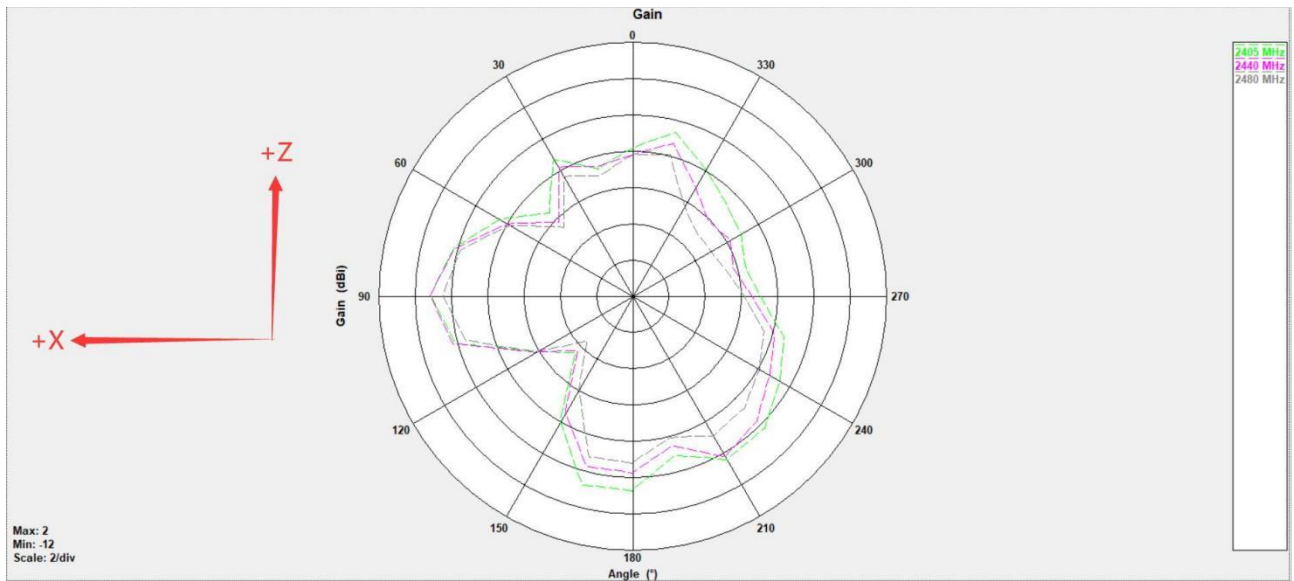


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Phi=0°

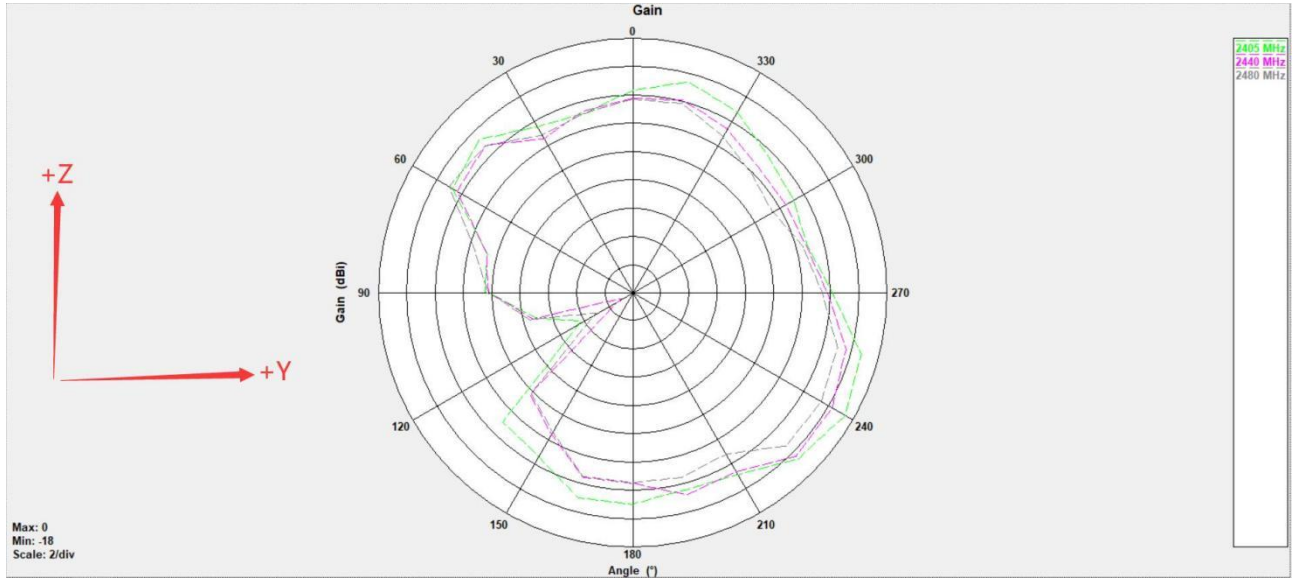


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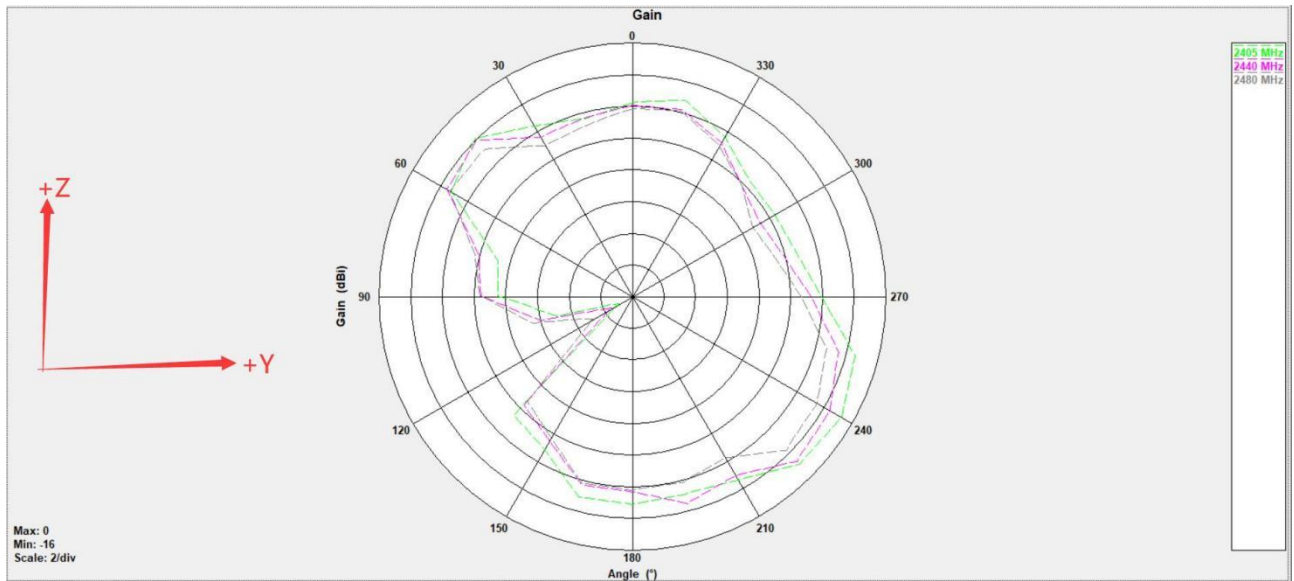


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Phi=90°

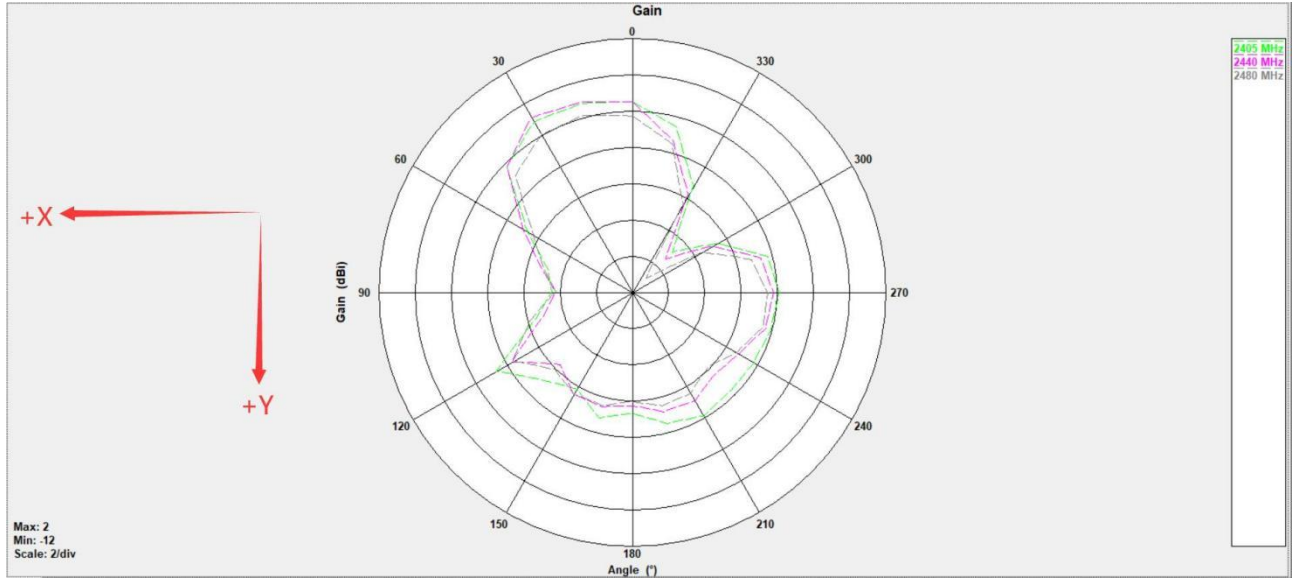


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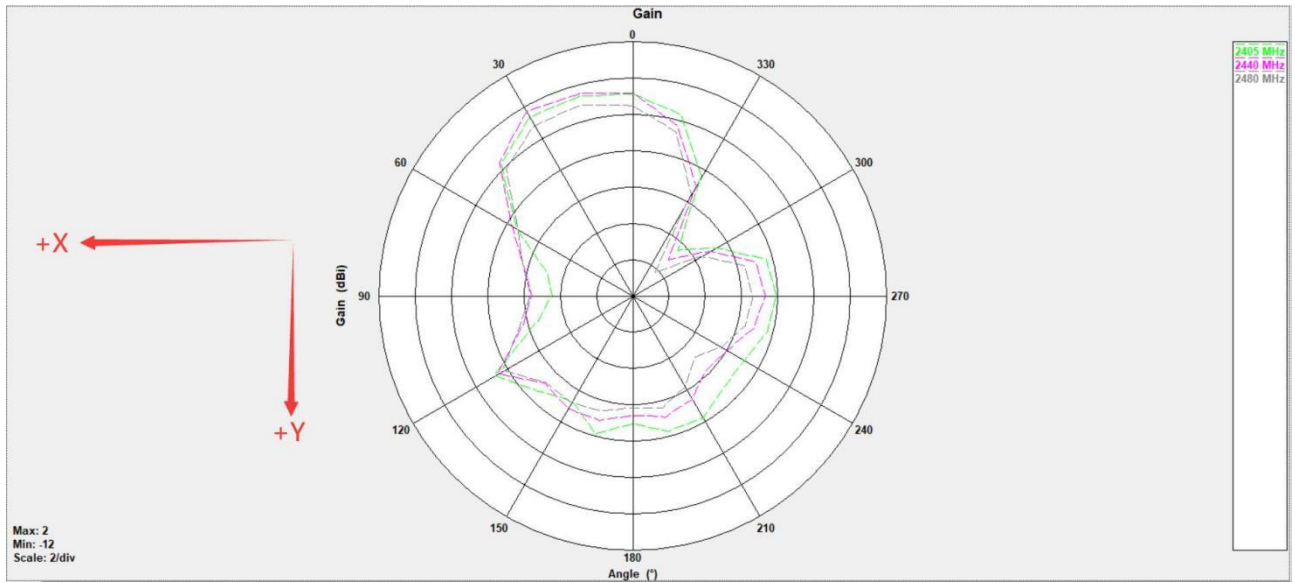


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Theta=90°

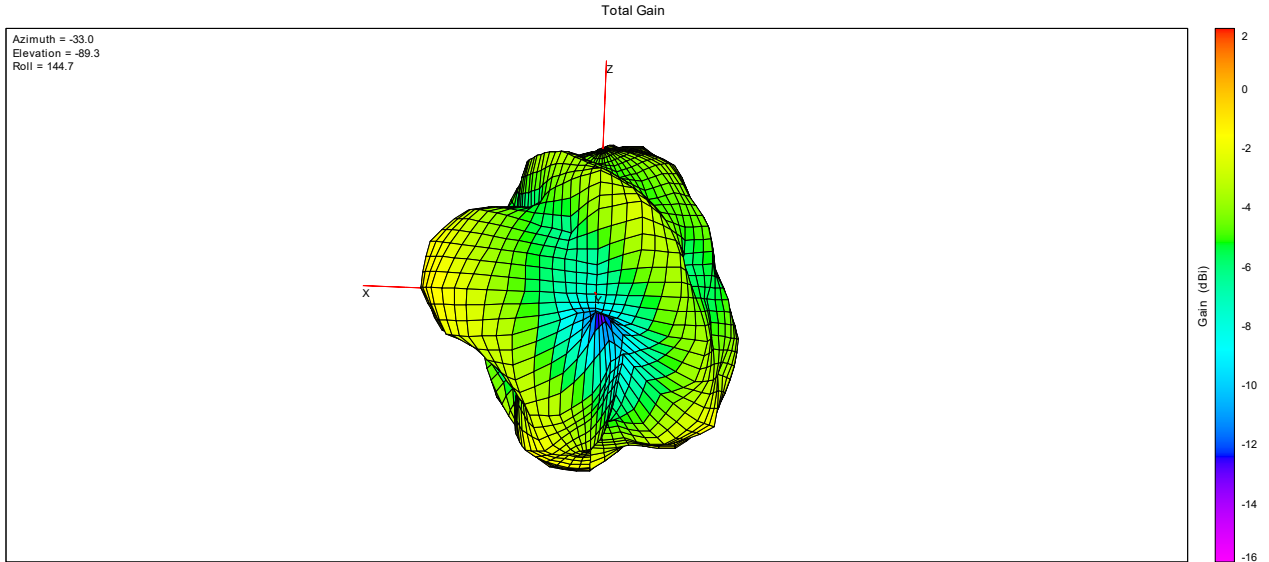


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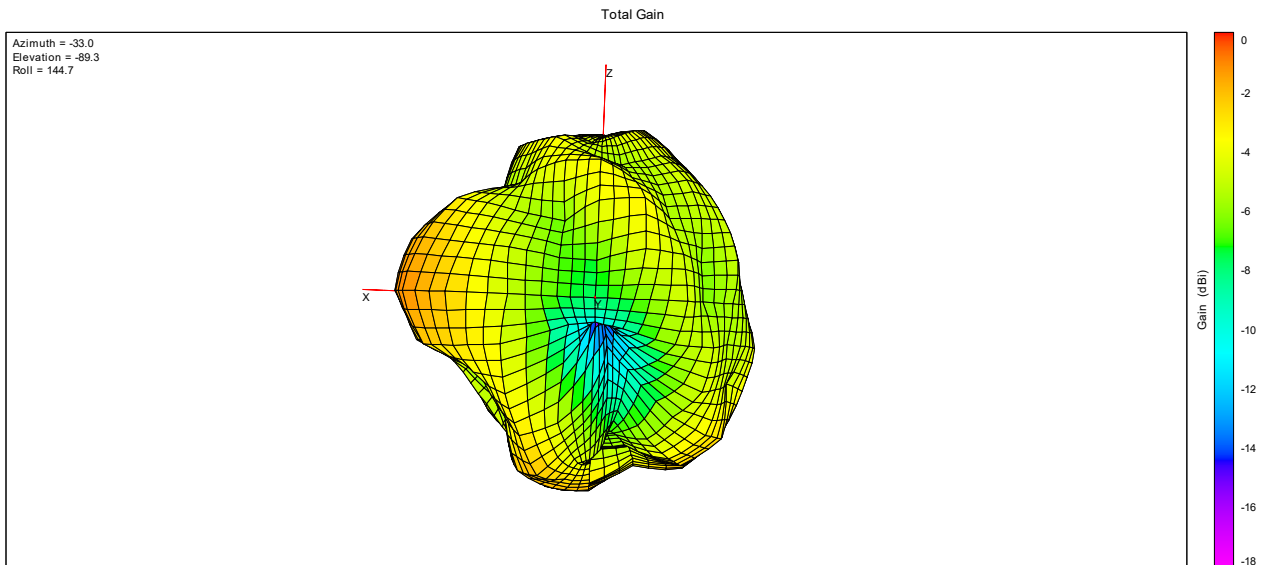


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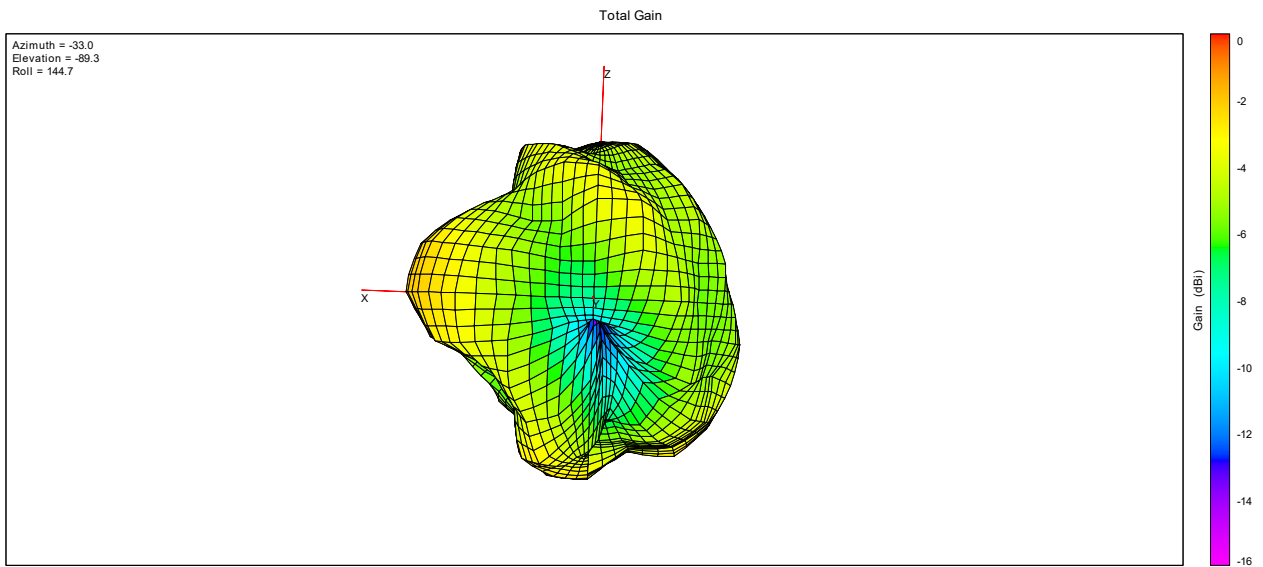
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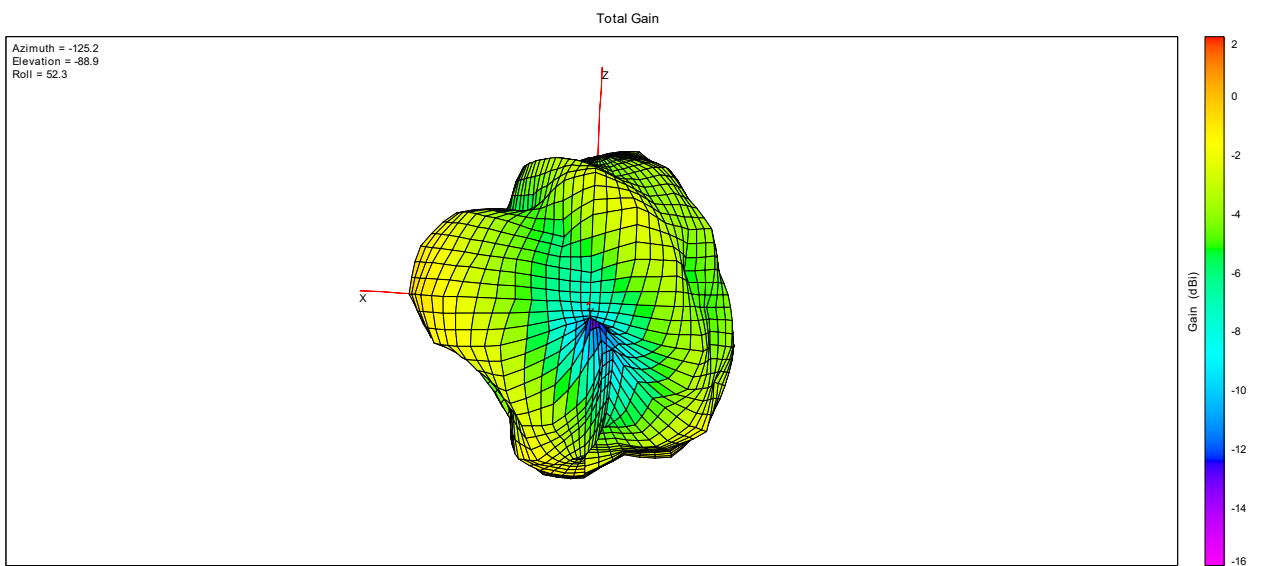
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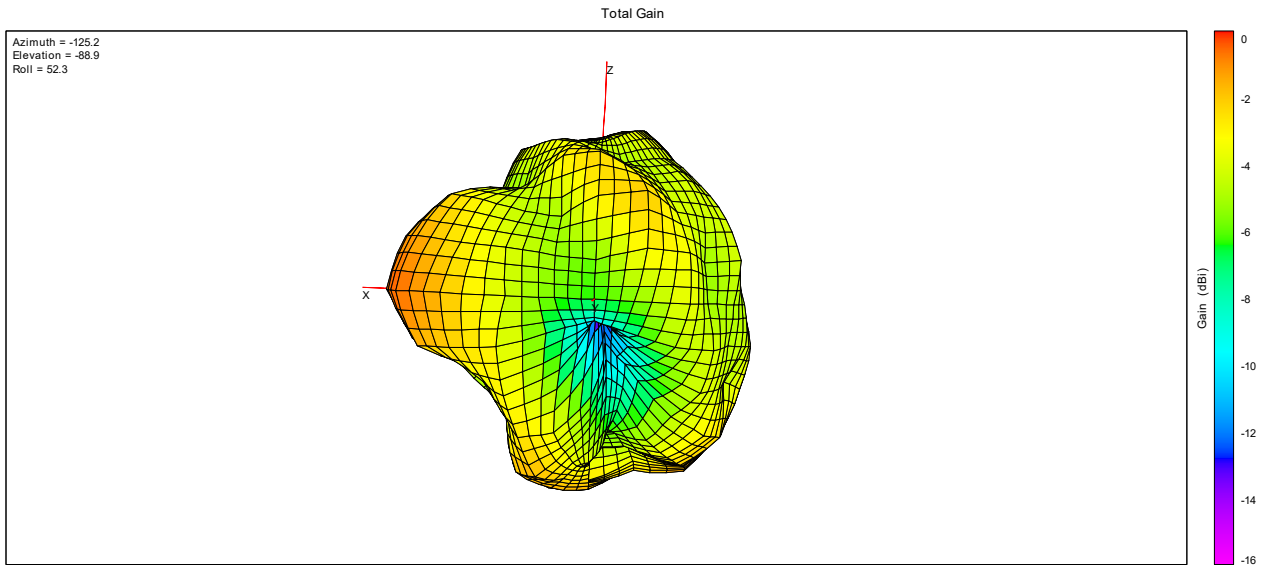
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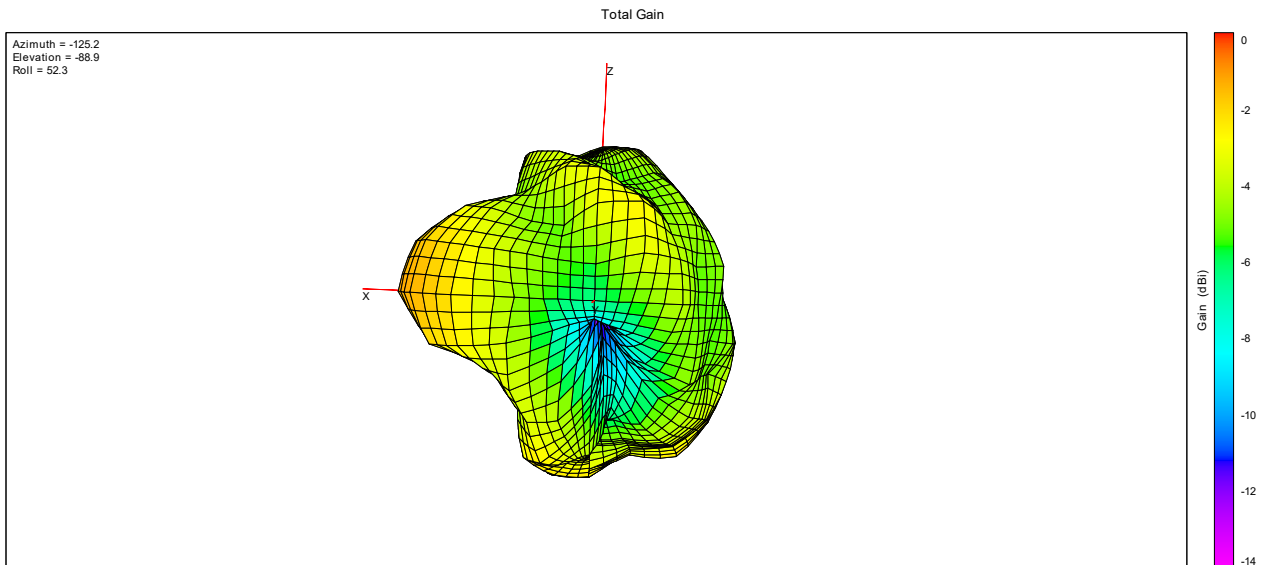
2480MHz_1#



2405MHz_2#



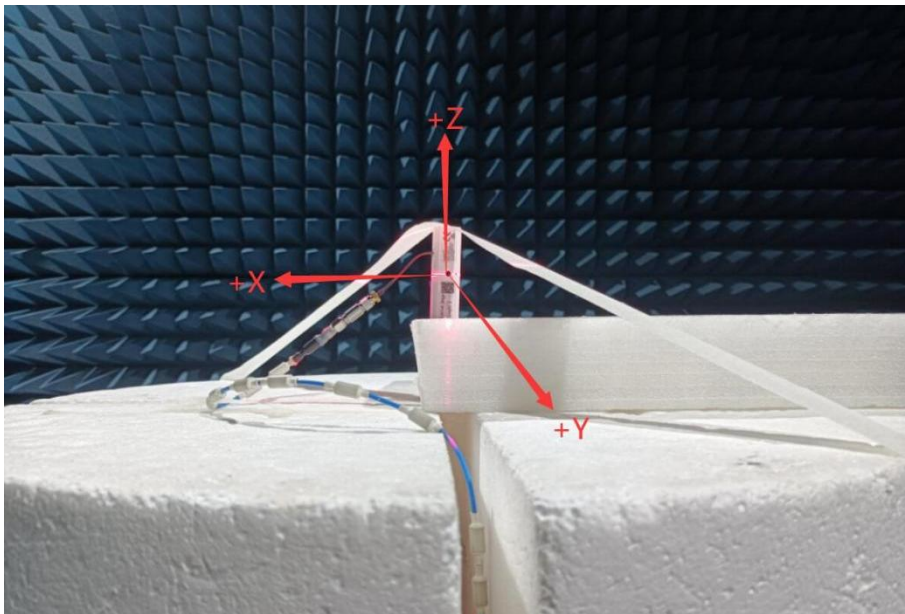
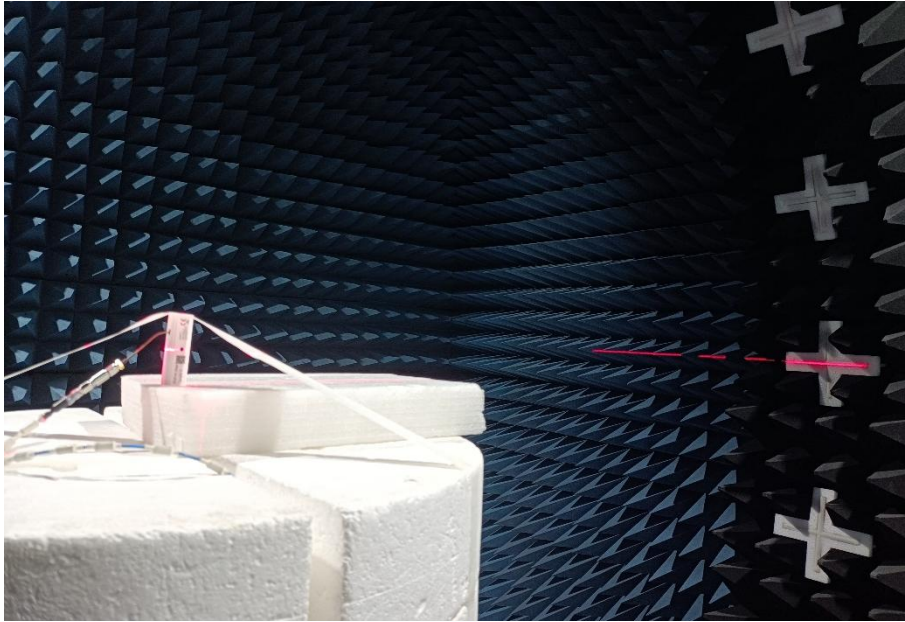
2440MHz_2#



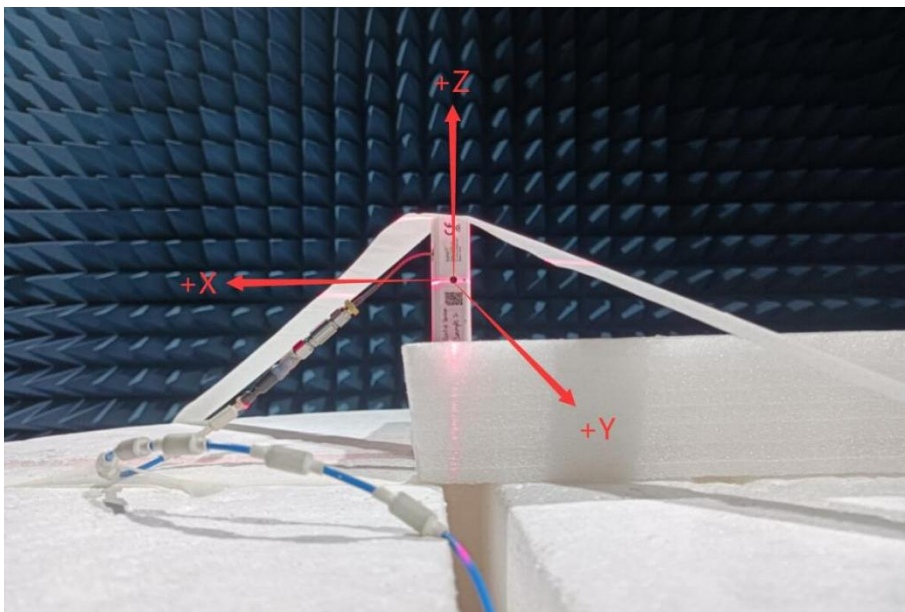
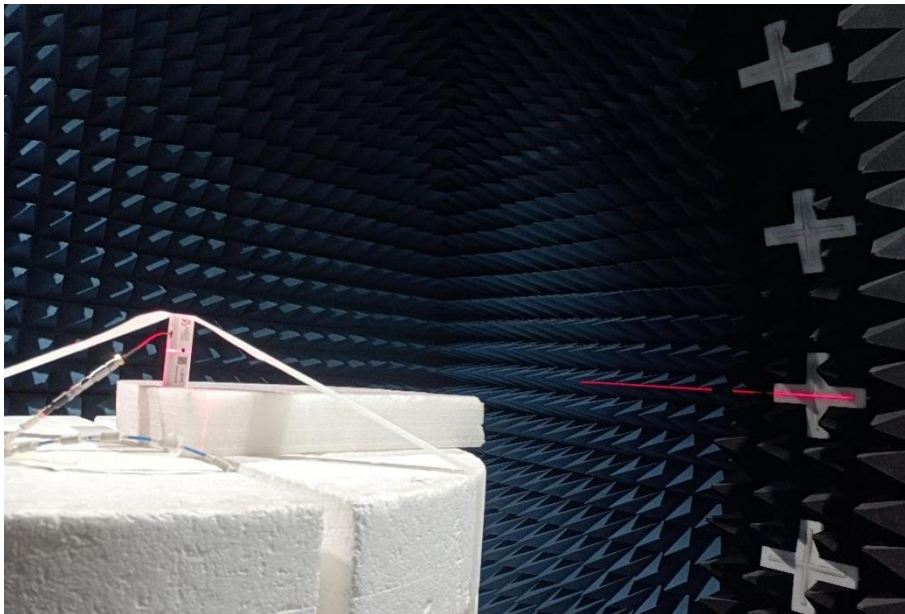
2480MHz_2#

Annex C EUT Photos

1. Test environment

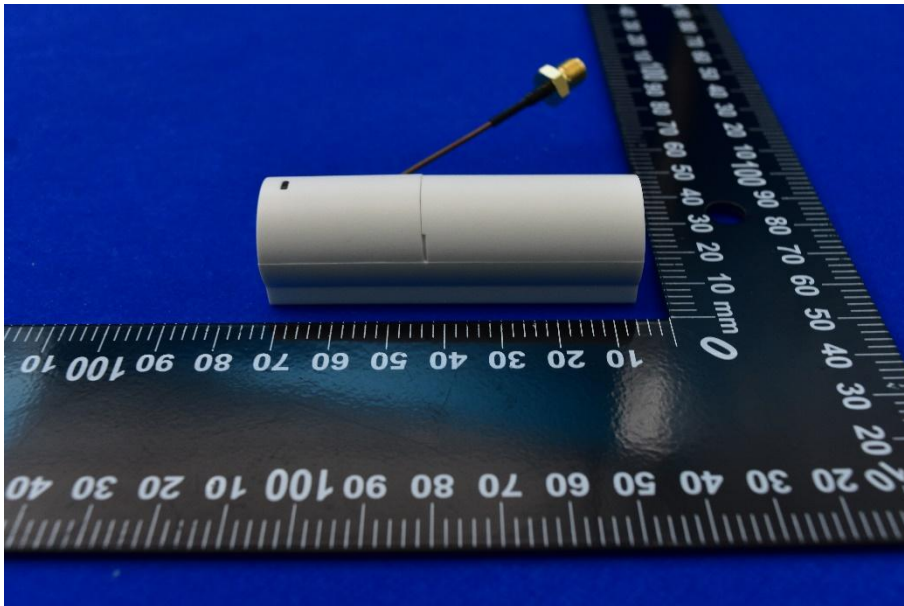
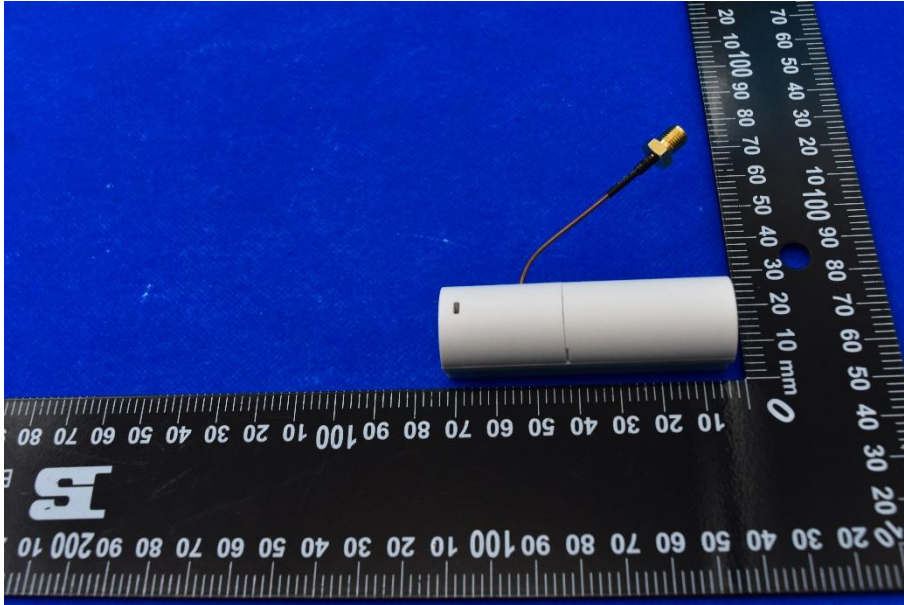


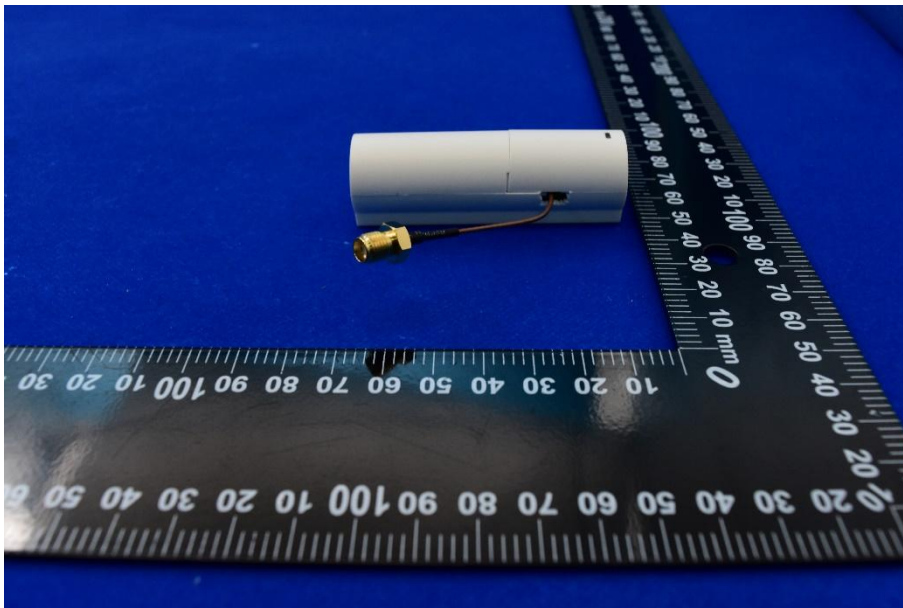
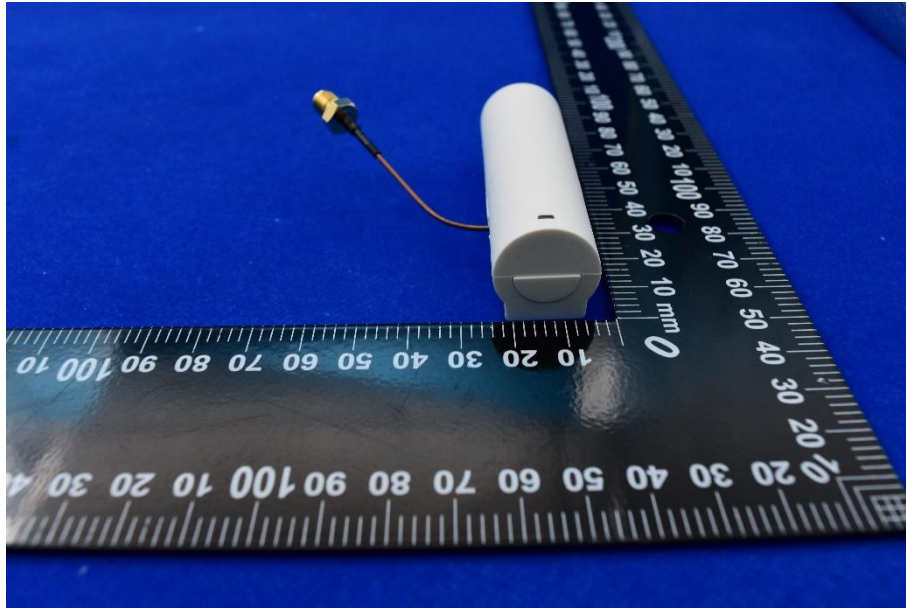
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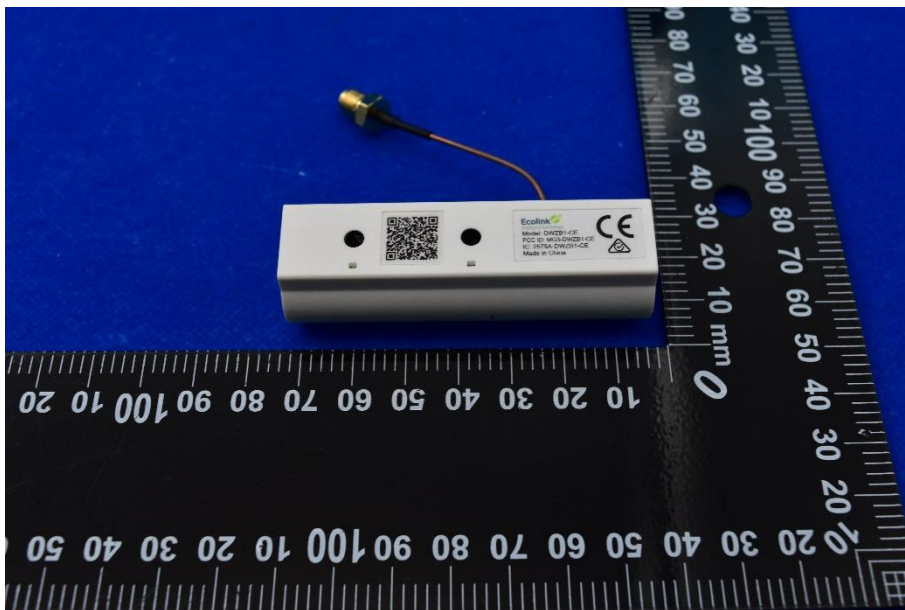
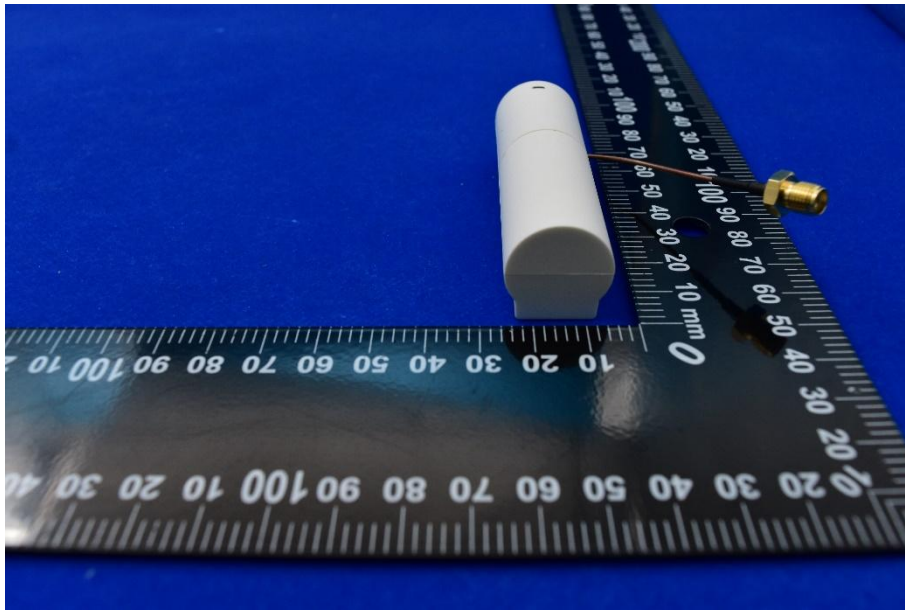


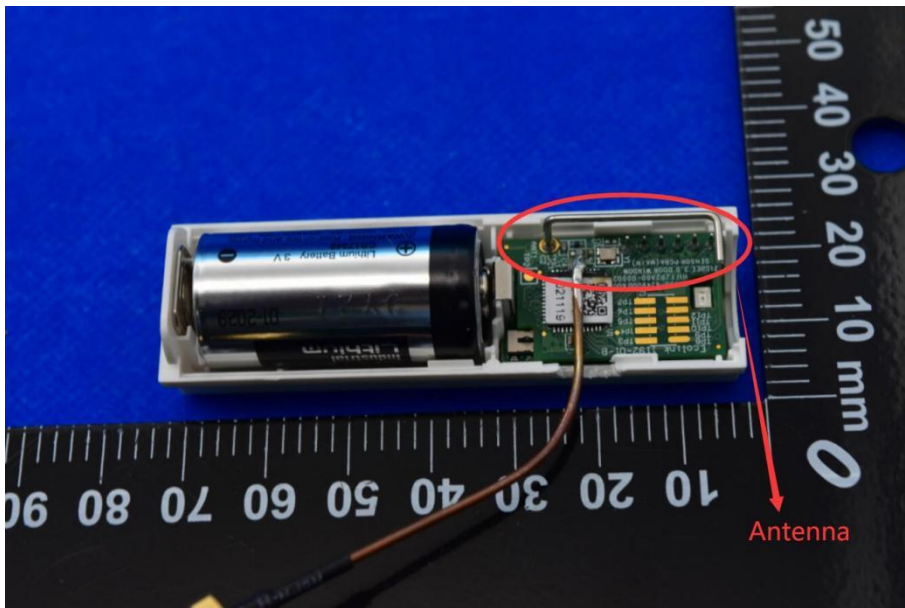
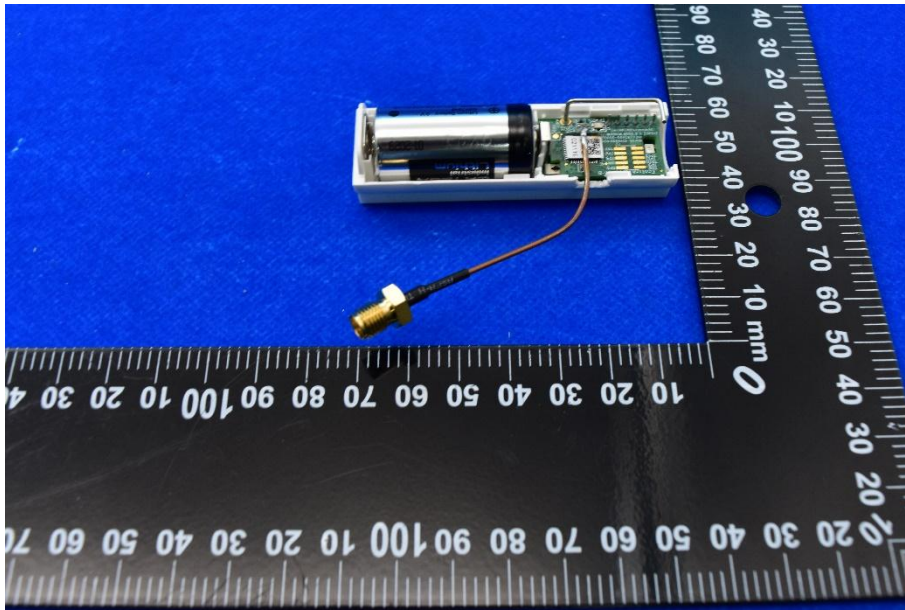
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2. EUT

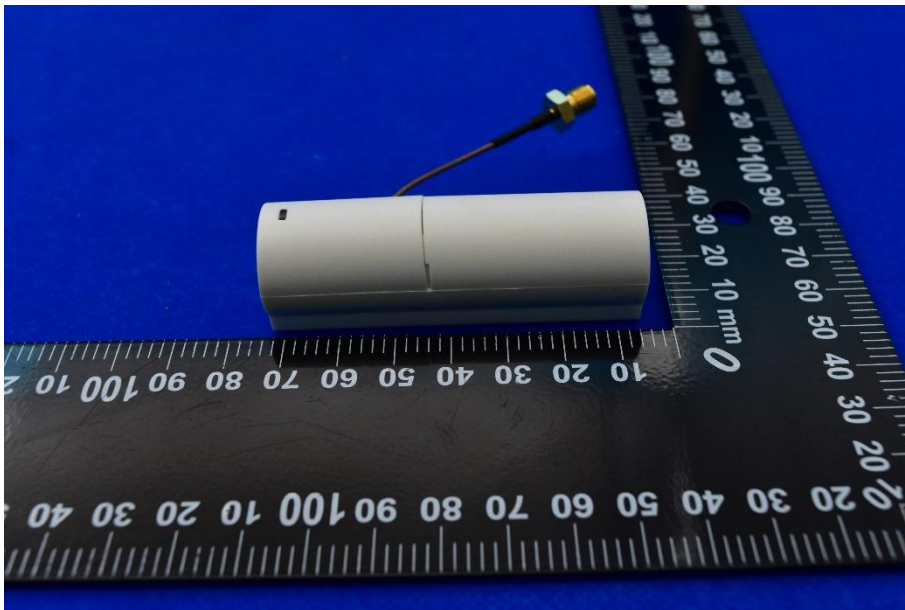
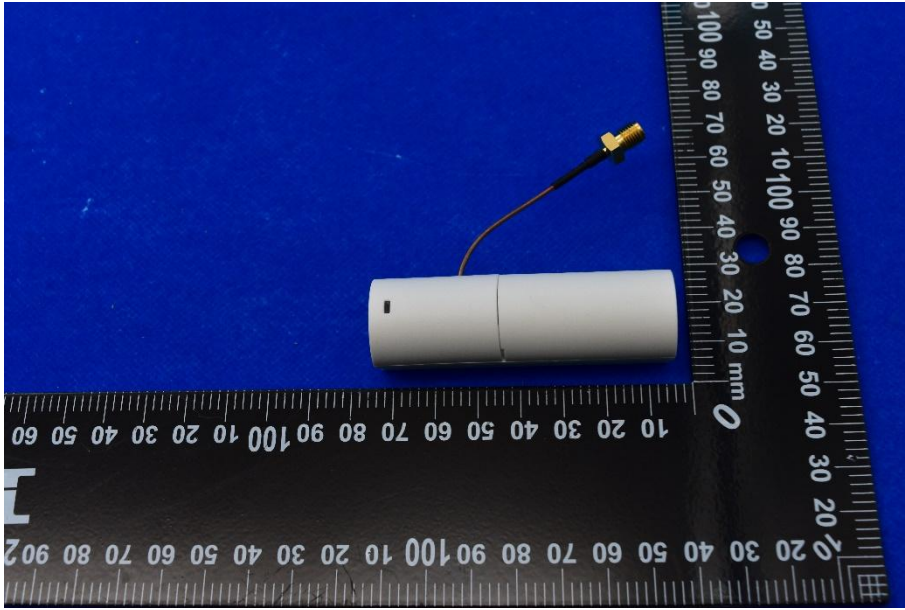


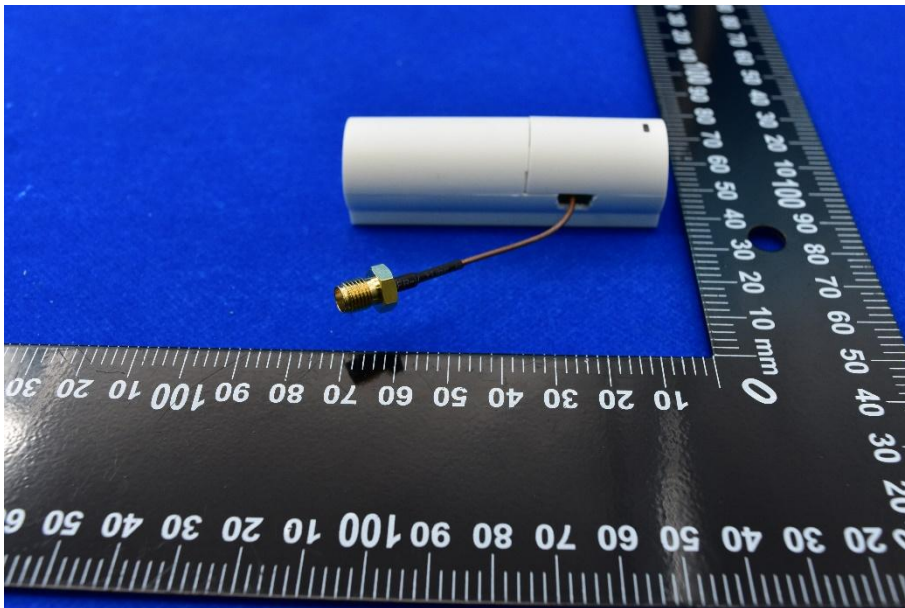
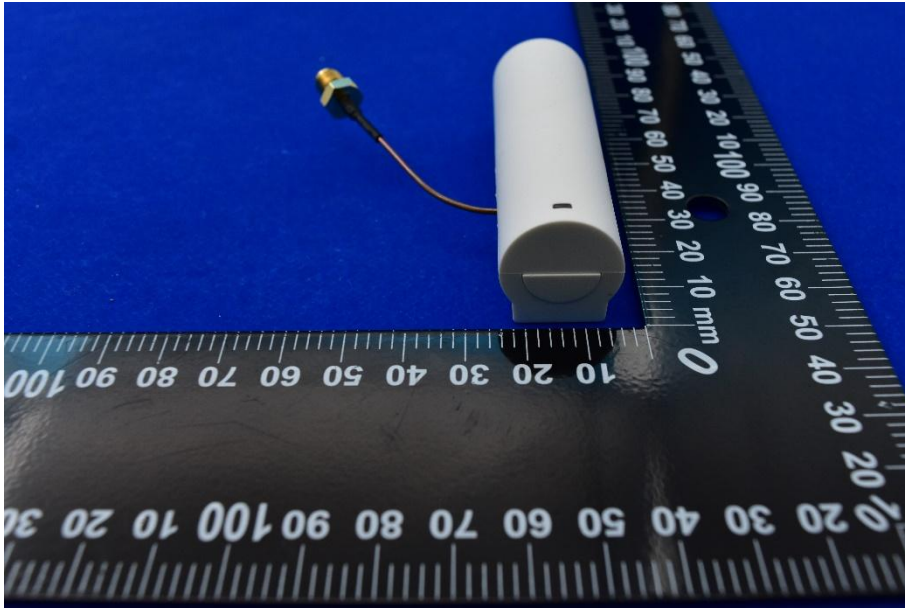


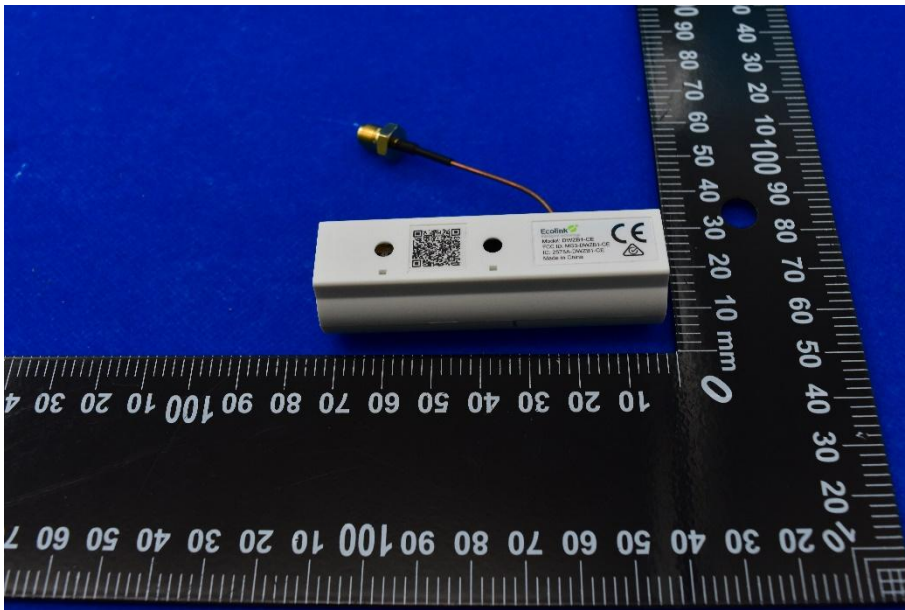
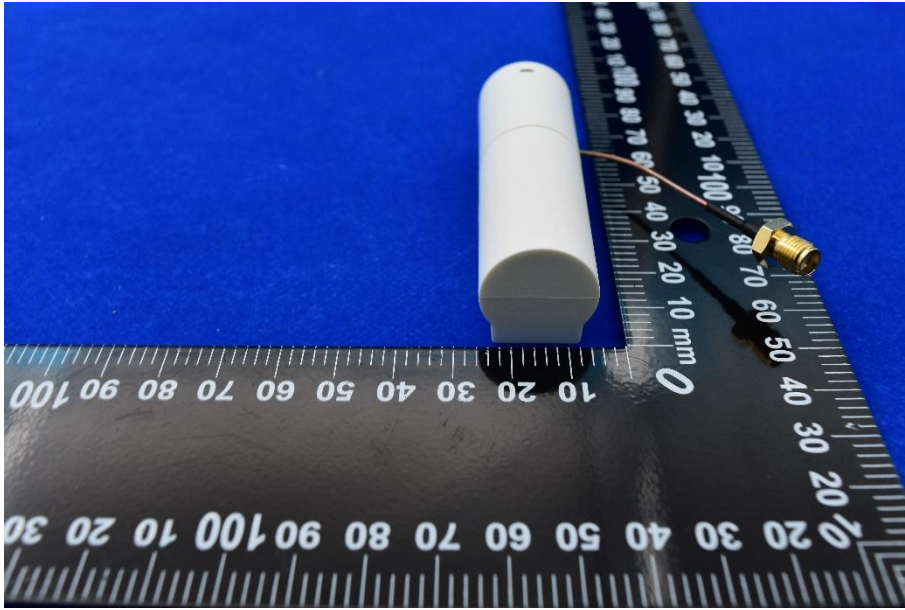


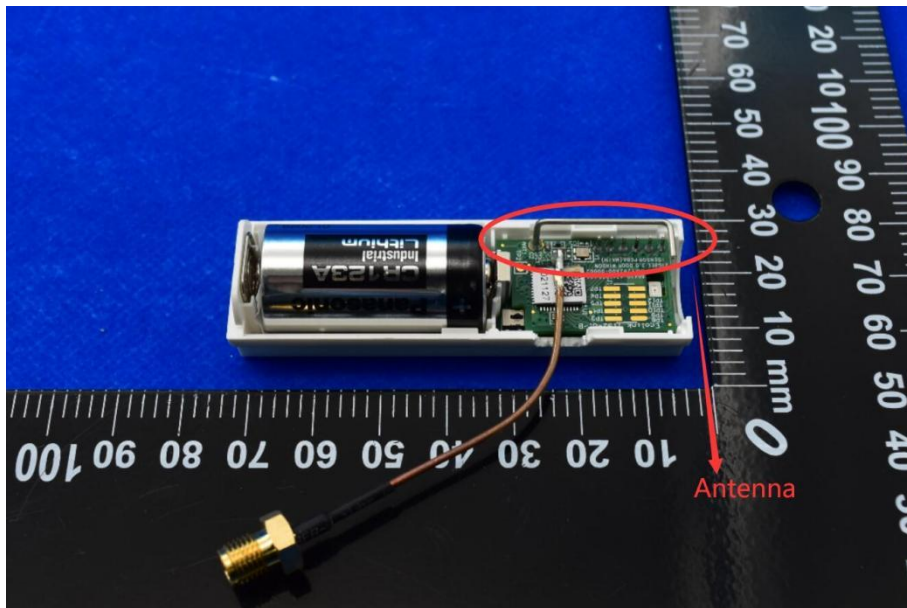
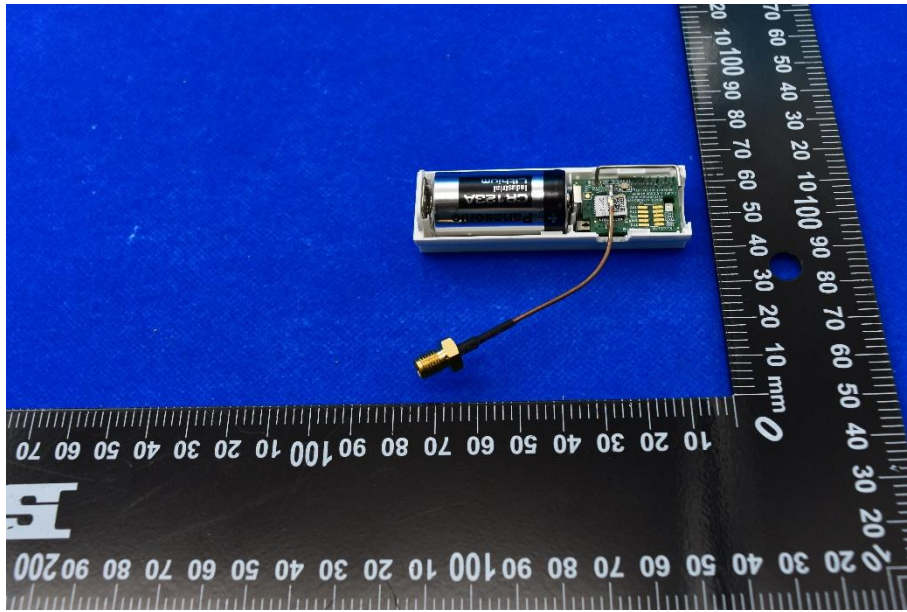


1#









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.	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 —————