



中国认可
国际互认
检测
TESTING
CNAS L3572

REPORT No.: SZ24090279E02

TEST REPORT

APPLICANT : Dalian GOLDEN Hualu DIGITAL Technology Co., Ltd.

PRODUCT NAME : WIFI Module

MODEL NAME : WF4321

TRADE NAME : N/A

BRAND NAME : N/A

STANDARD(S) : IEEE Std 149-2021

RECEIPT DATE : 2024-09-24

TEST DATE : 2024-09-24

ISSUE DATE : 2024-10-14



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MORLAB

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Change History		
Version	Date	Reason for change
1.0	2024-10-14	First edition



1. Technical Information

Note: Provide by Applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Dalian GOLDEN Hualu DIGITAL Technology Co., Ltd.
Applicant Address:	No.1, Hua Road, High-Tech Zone, Dalian, China
Manufacturer:	N/A
Manufacturer Address:	N/A

1.2. Equipment Under Test (EUT) Description

Wireless Type	WiFi
Frequency	2400MHz-2500MHz 5150MHz-5850MHz
IMEI	N/A
Sample No.	20#



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.

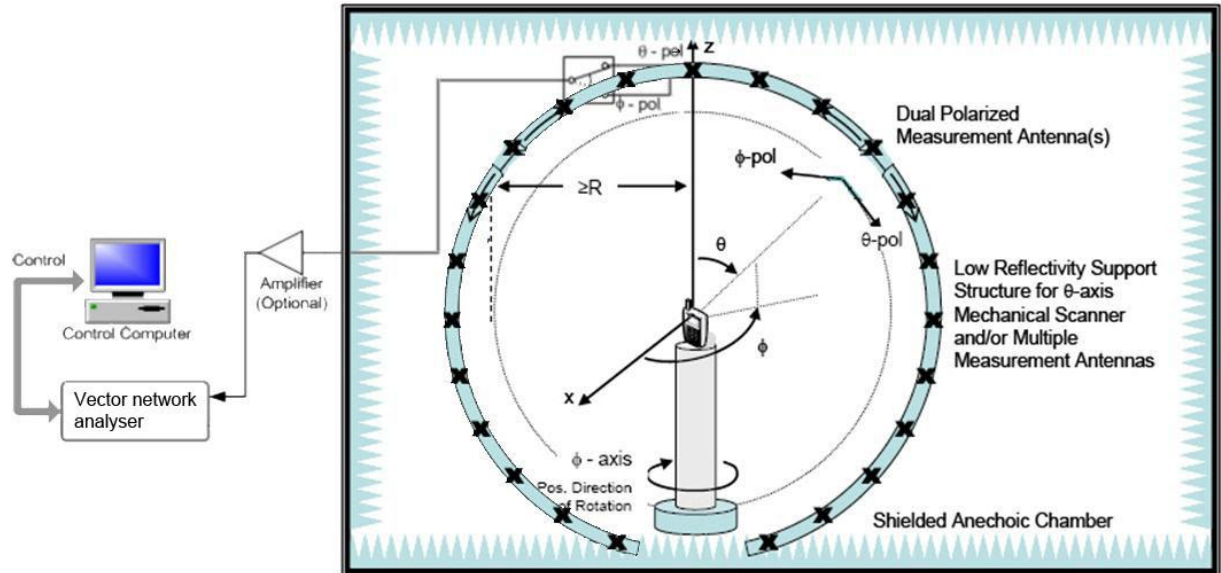


2.4. Test Results lists

2.4.1. Gain and Efficiency

20#						
Frequency (MHz)	Gain(dBi)		Efficiency(%)		Efficiency(dB)	
	Left	Right	Left	Right	Left	Right
2400	2.59	2.30	69.61	67.29	-1.57	-1.72
2410	2.47	2.13	68.47	66.16	-1.64	-1.79
2420	2.20	1.80	65.70	63.33	-1.82	-1.98
2430	1.94	1.52	64.27	61.88	-1.92	-2.08
2440	1.93	1.39	64.69	62.18	-1.89	-2.06
2450	1.87	1.36	65.29	62.72	-1.85	-2.03
2460	1.83	1.36	66.25	63.66	-1.79	-1.96
2470	1.70	1.21	65.12	62.48	-1.86	-2.04
2480	1.67	1.15	64.88	61.94	-1.88	-2.08
2490	1.66	1.11	63.80	60.68	-1.95	-2.17
2500	1.81	1.20	64.08	60.92	-1.93	-2.15
5150	4.82	2.57	64.10	62.44	-1.93	-2.05
5200	4.79	2.69	66.04	61.92	-1.80	-2.08
5250	4.91	2.99	72.55	67.14	-1.39	-1.73
5300	4.83	2.48	71.48	64.23	-1.46	-1.92
5350	5.27	2.35	76.83	68.16	-1.14	-1.66
5400	5.22	2.37	75.16	65.70	-1.24	-1.82
5450	5.08	2.54	72.56	63.71	-1.39	-1.96
5500	5.69	3.00	78.61	69.51	-1.05	-1.58
5550	5.71	3.06	73.65	65.52	-1.33	-1.84
5600	5.68	3.46	74.81	68.53	-1.26	-1.64
5650	5.38	3.36	70.10	65.68	-1.54	-1.83
5700	5.19	3.61	72.59	70.29	-1.39	-1.53
5750	4.75	3.63	68.22	69.59	-1.66	-1.57
5800	4.25	3.54	64.66	69.75	-1.89	-1.56
5850	3.74	3.56	61.29	69.53	-2.13	-1.58

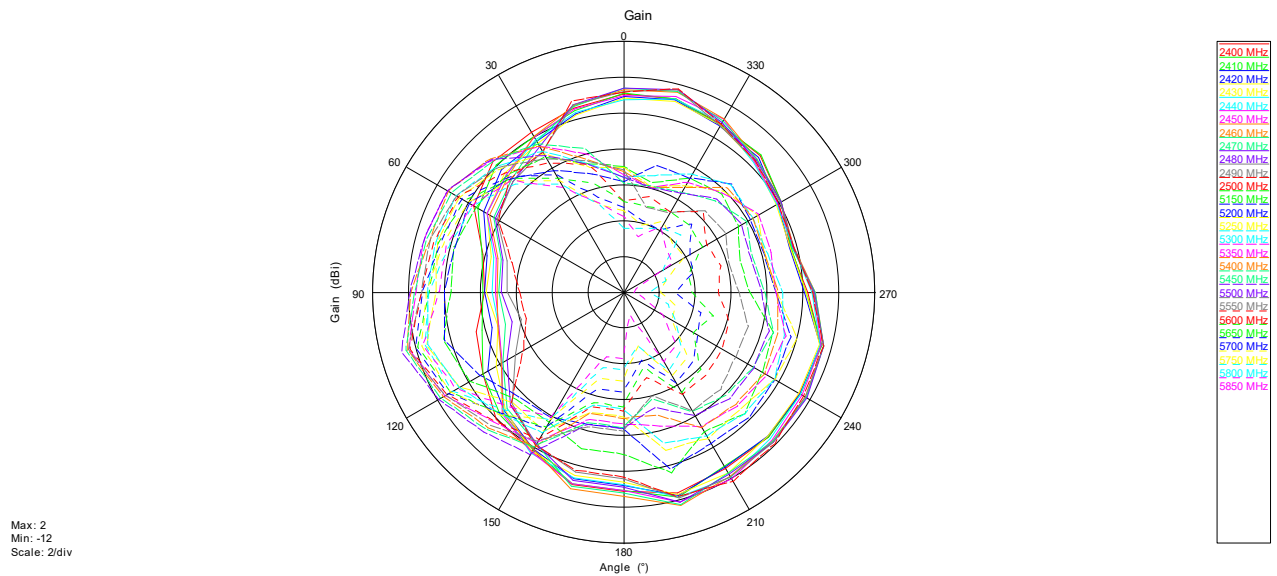
Annex A Test Setup Photos



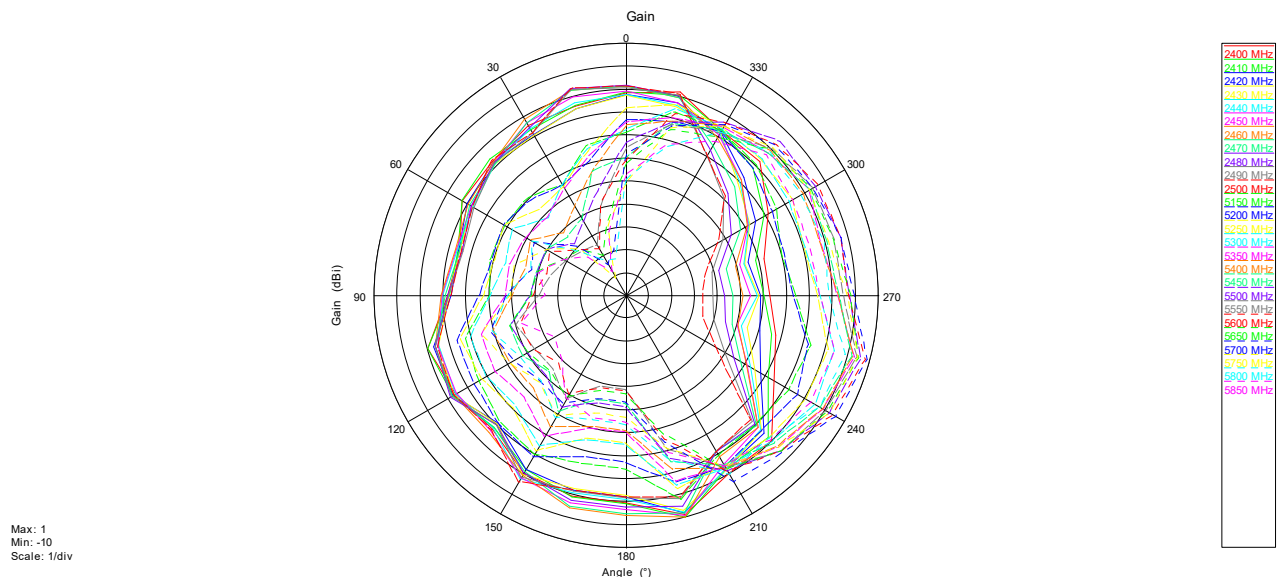
Annex B Figures

1. 2D Radiation Pattern

Phi=0°



20#_Left

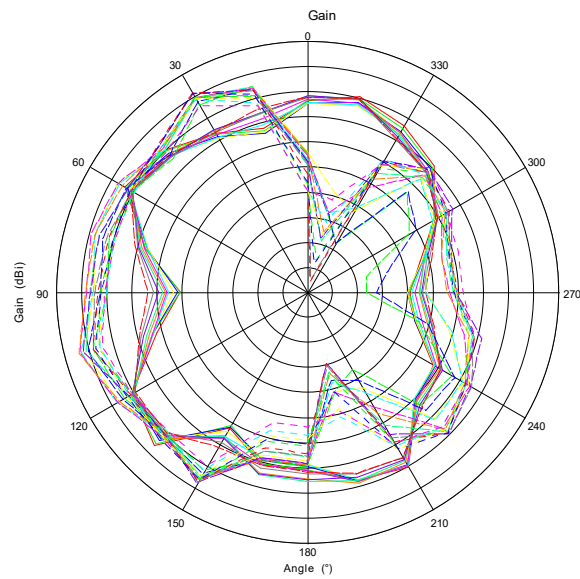


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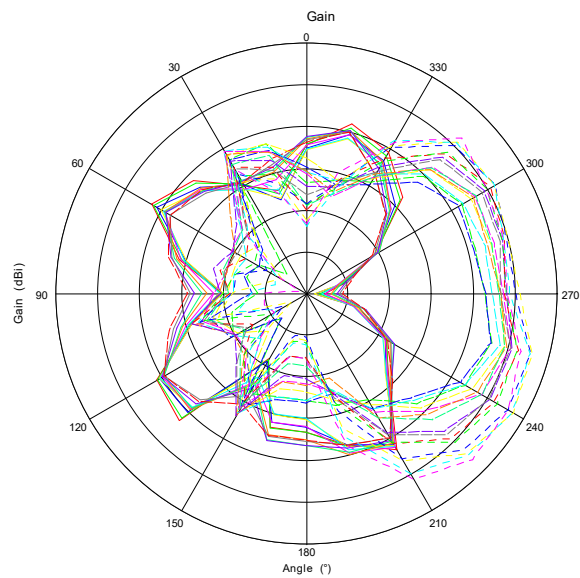


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Phi=90°



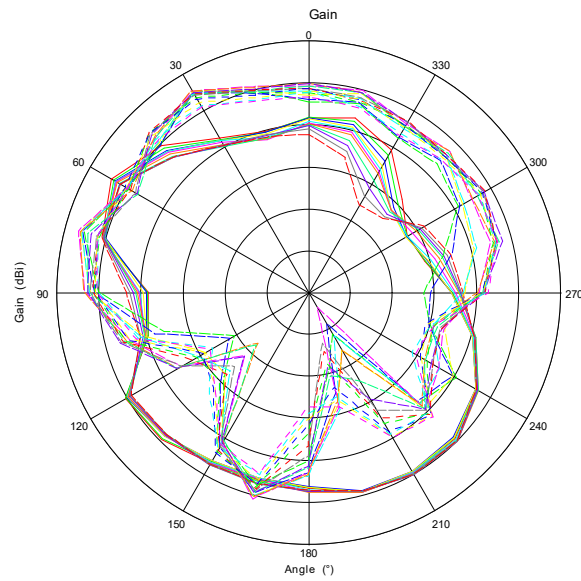
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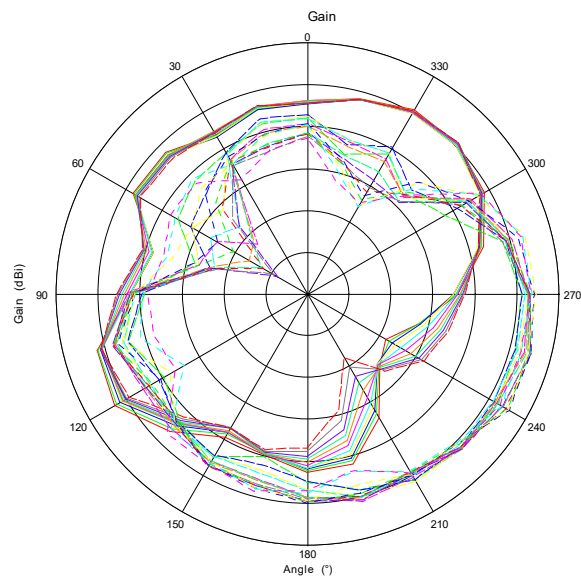
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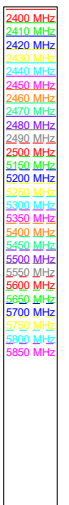
Theta=90°



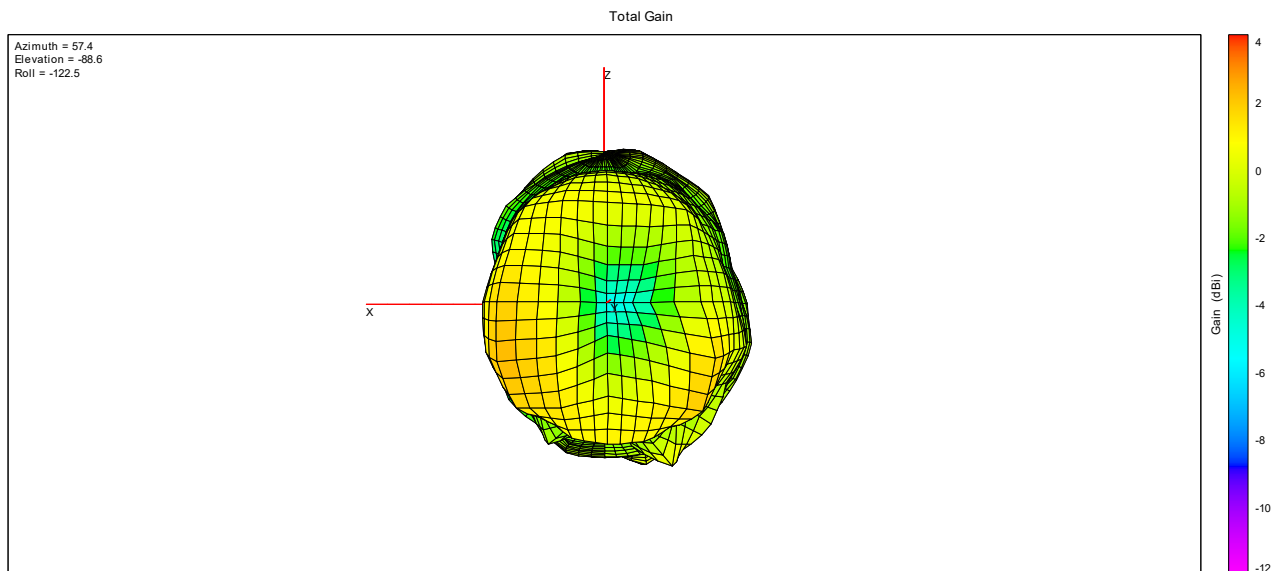
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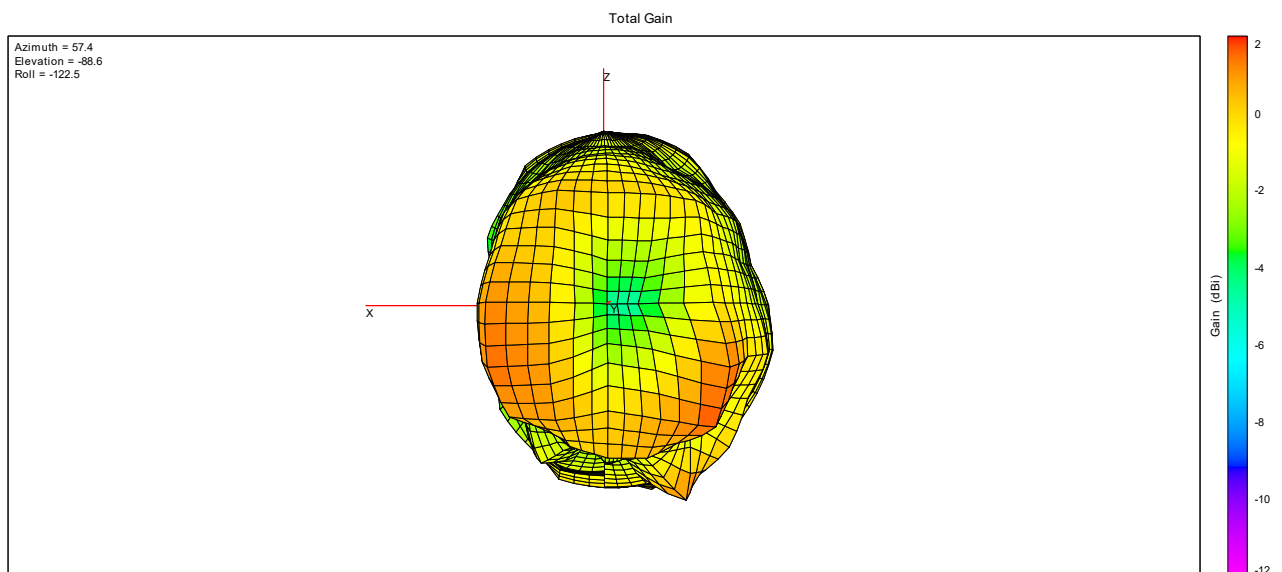
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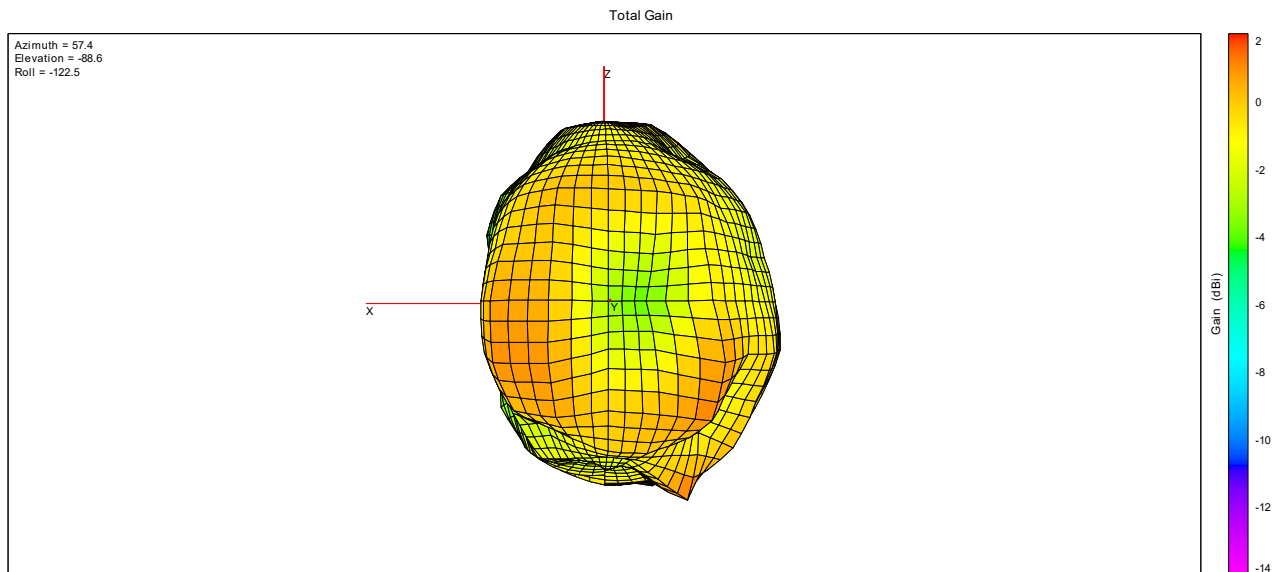
2. 3D Radiation Pattern



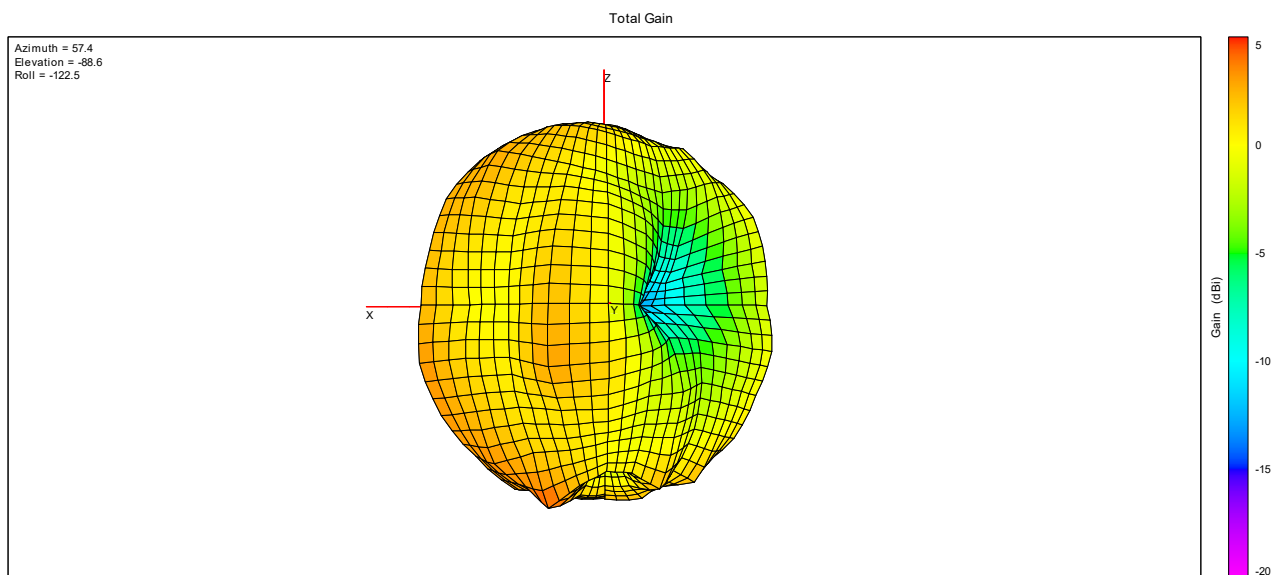
2400MHz_20#_Left



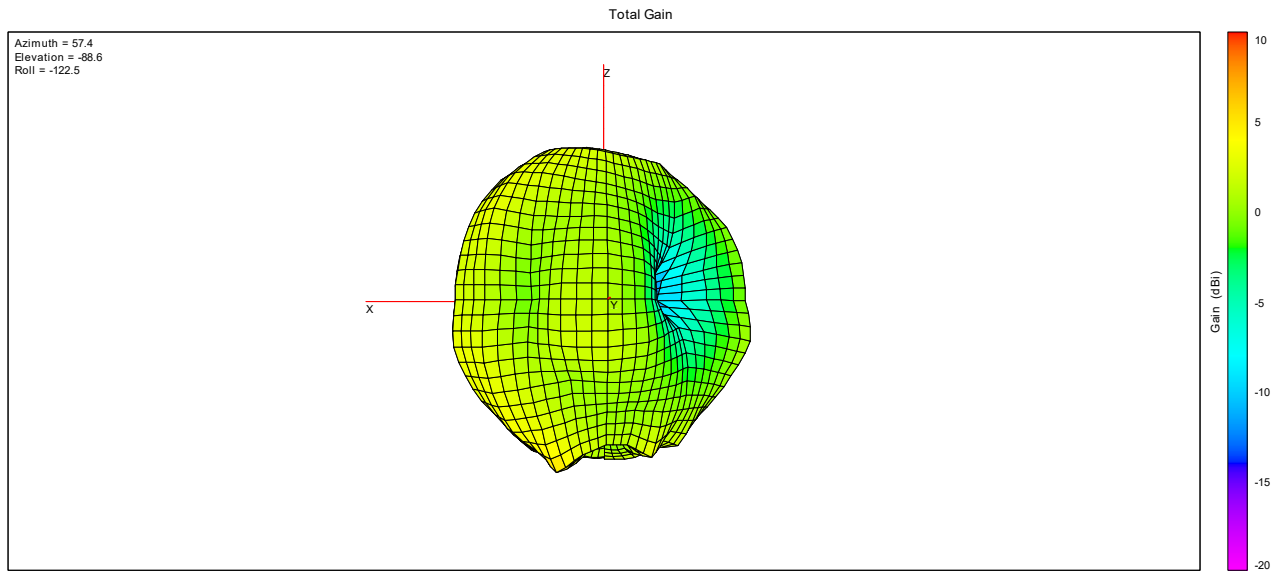
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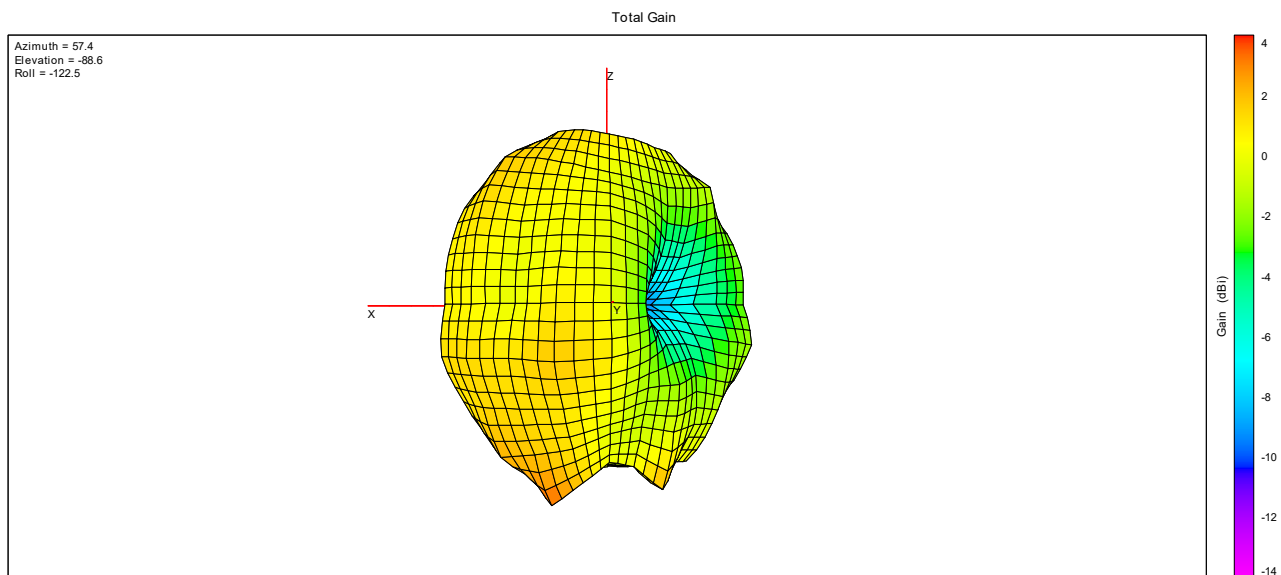
2500MHz_20#_Left



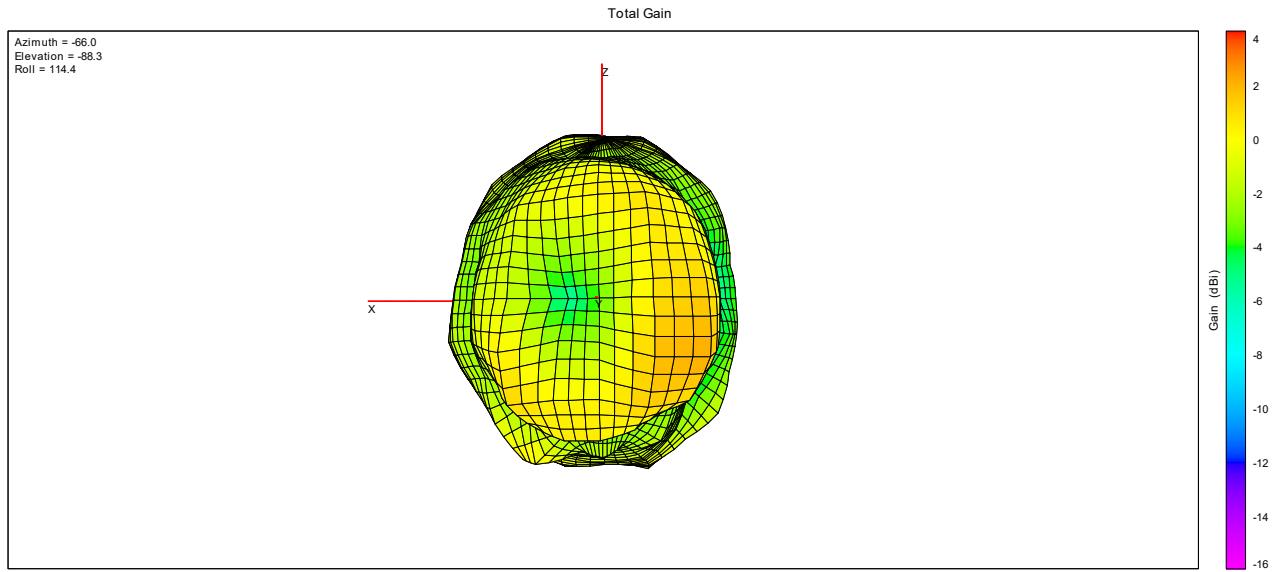
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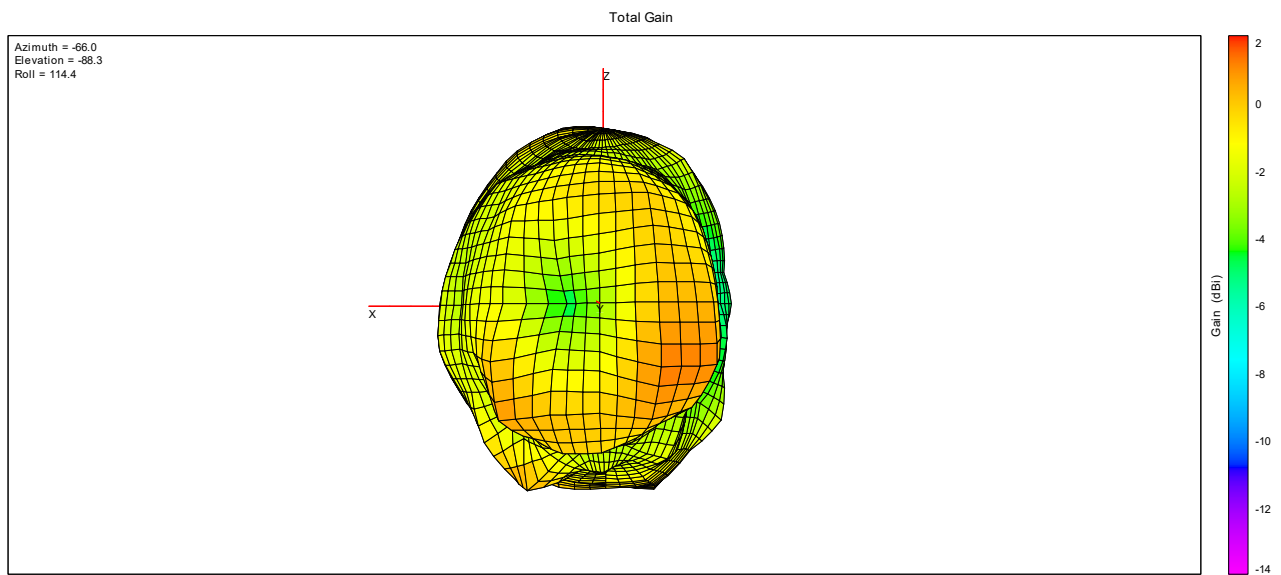
5500MHz_20#_Left



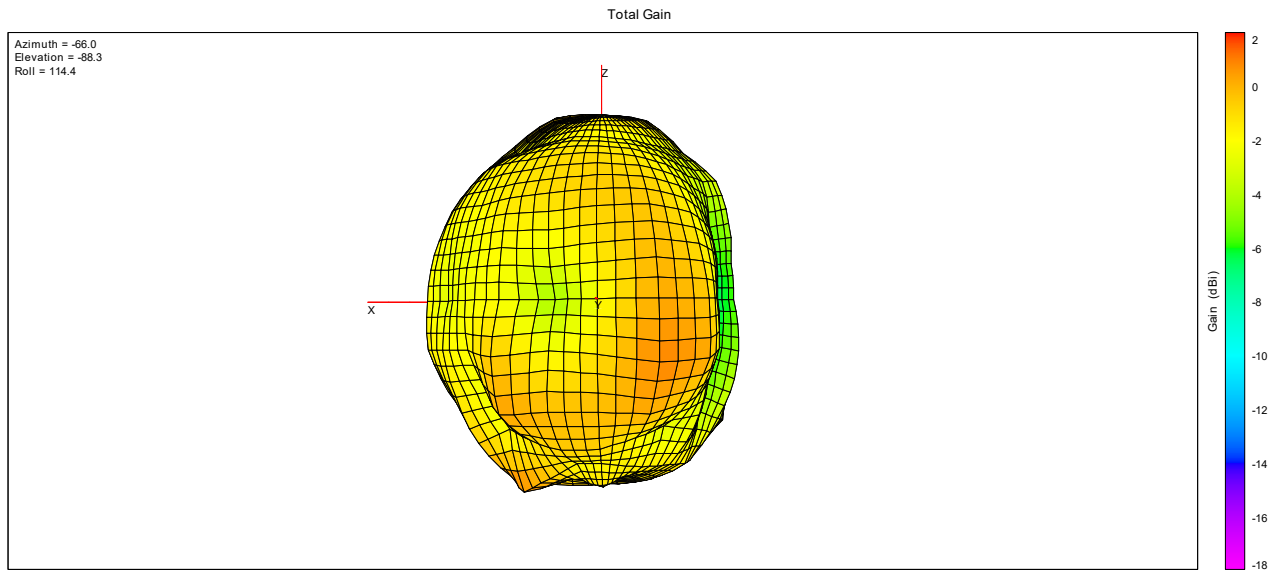
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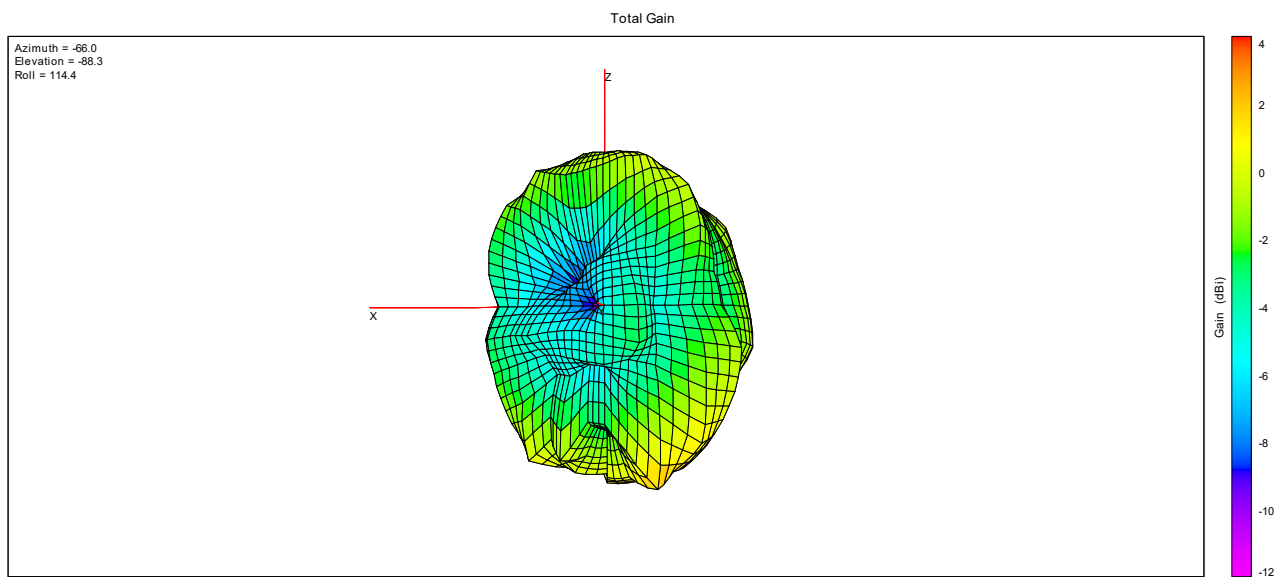
2400MHz_20#_Right



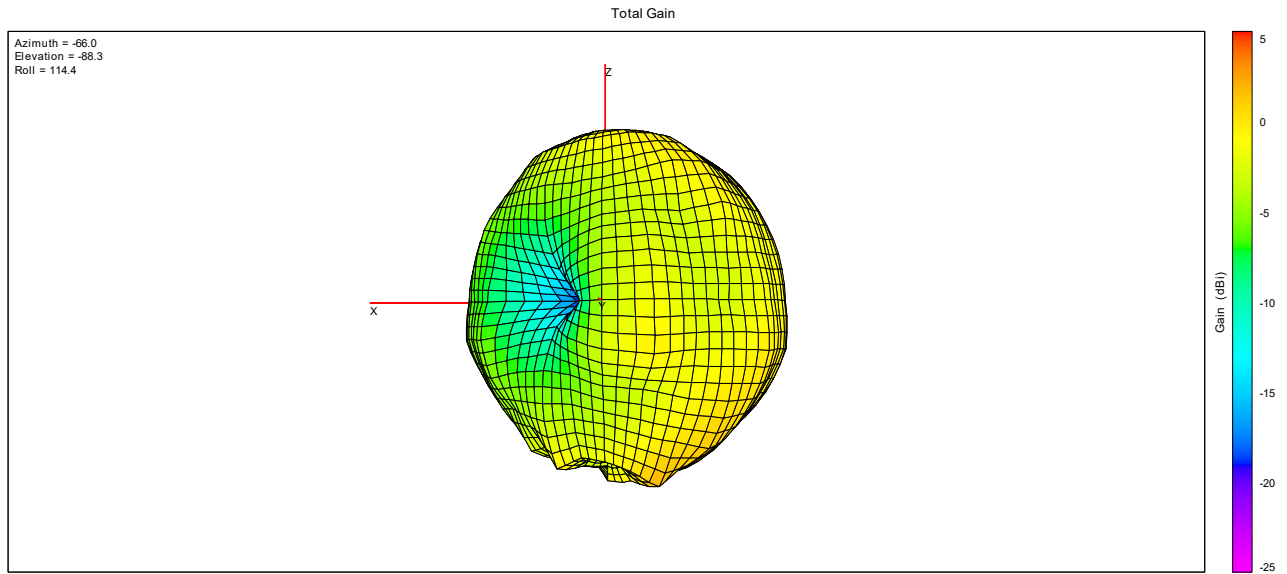
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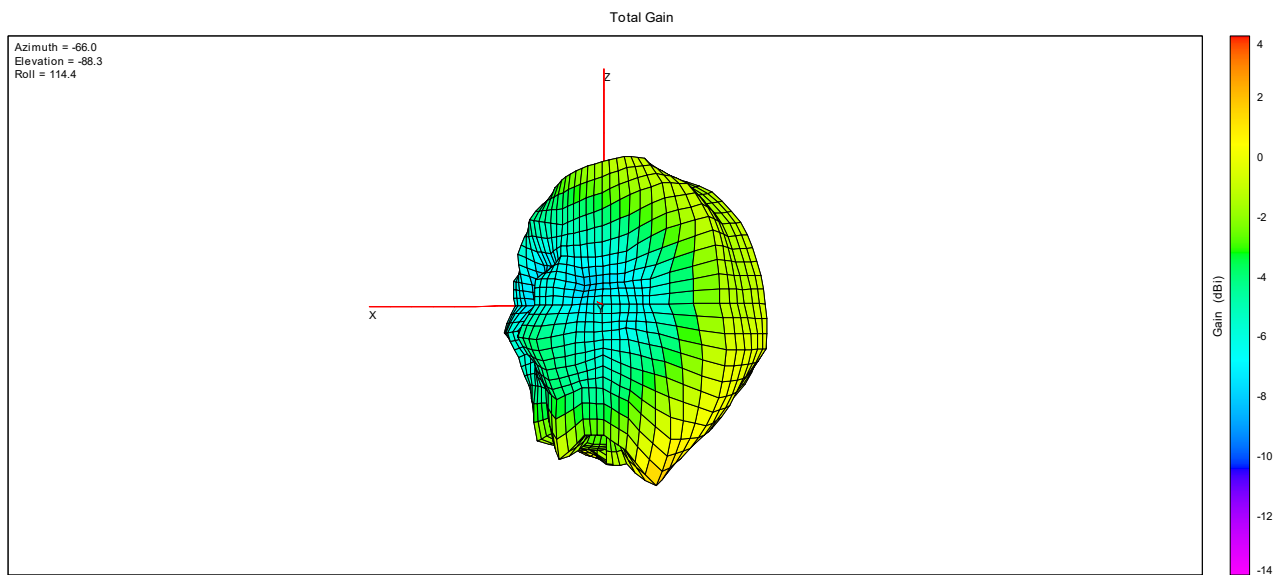
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5150MHz_20#_Right



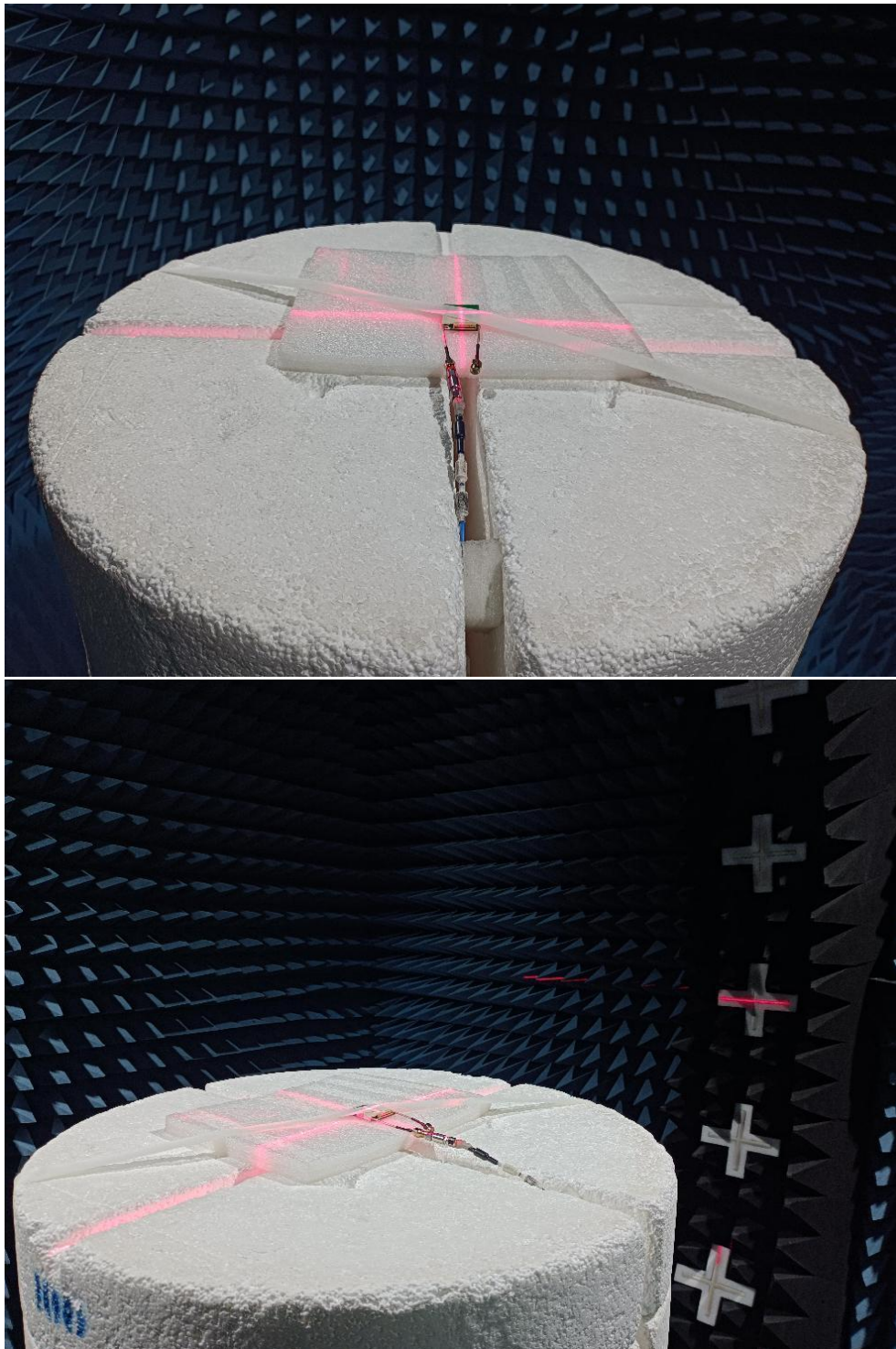
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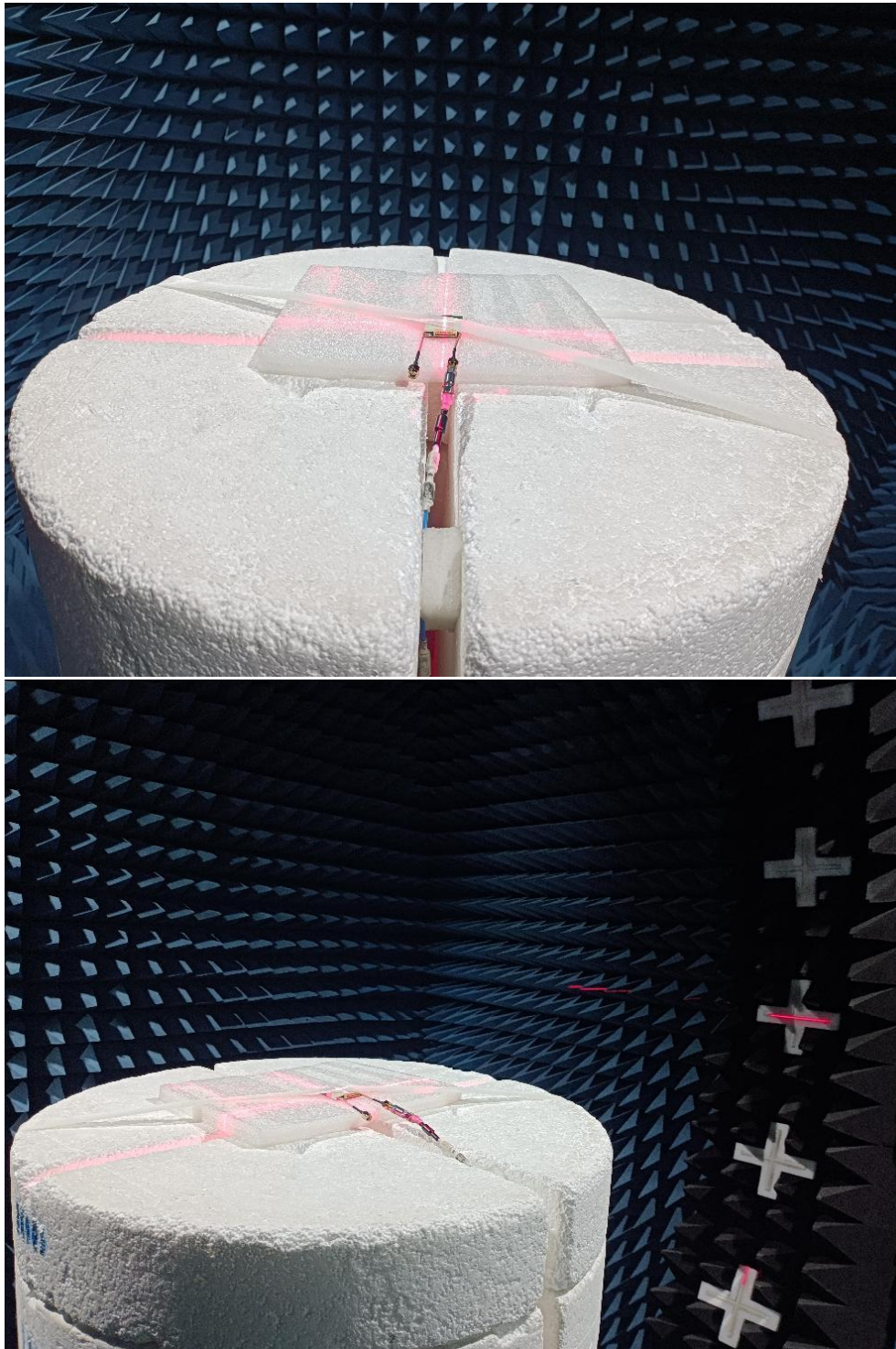
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Annex C EUT Photos

1. Test environment

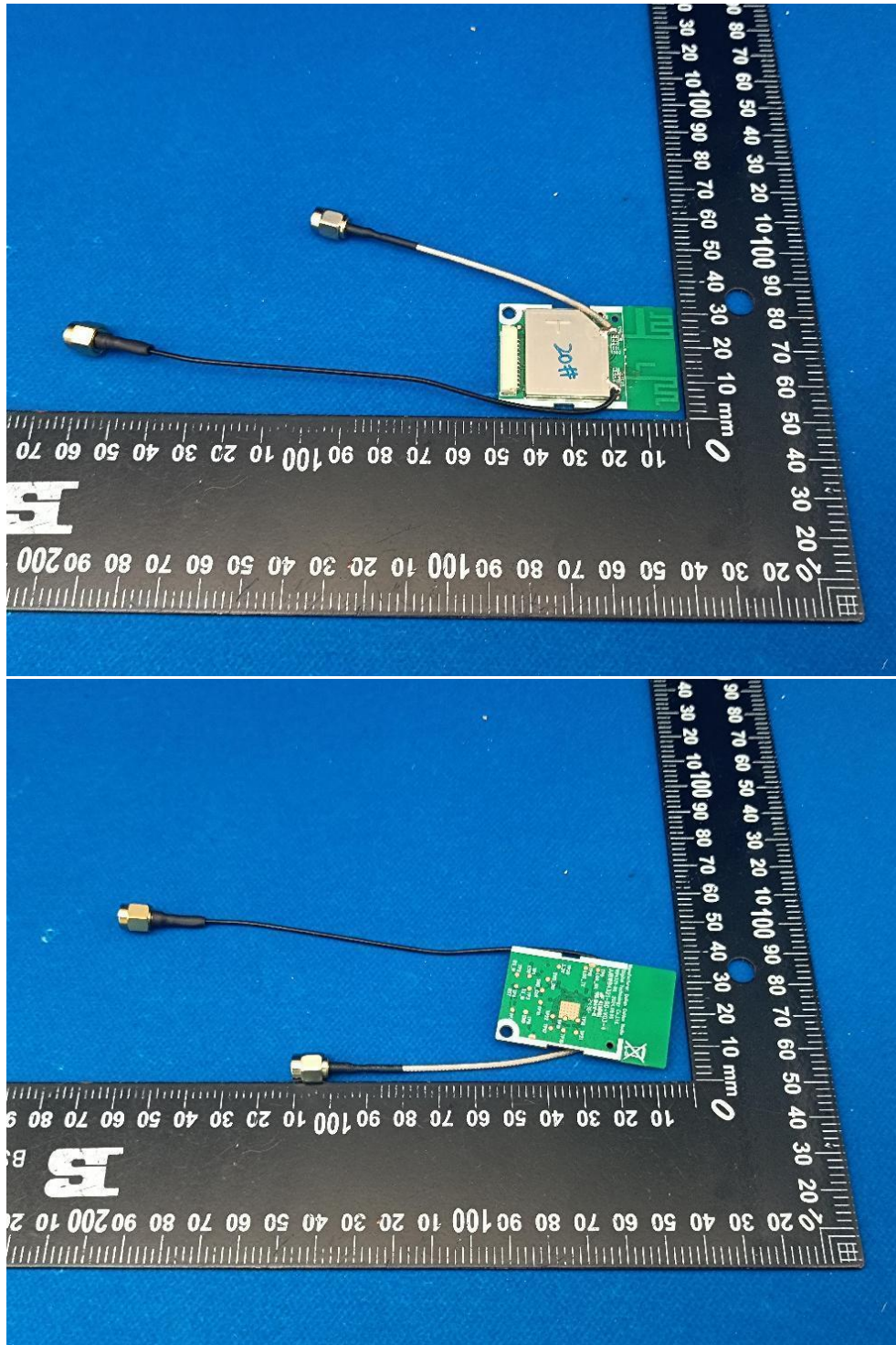


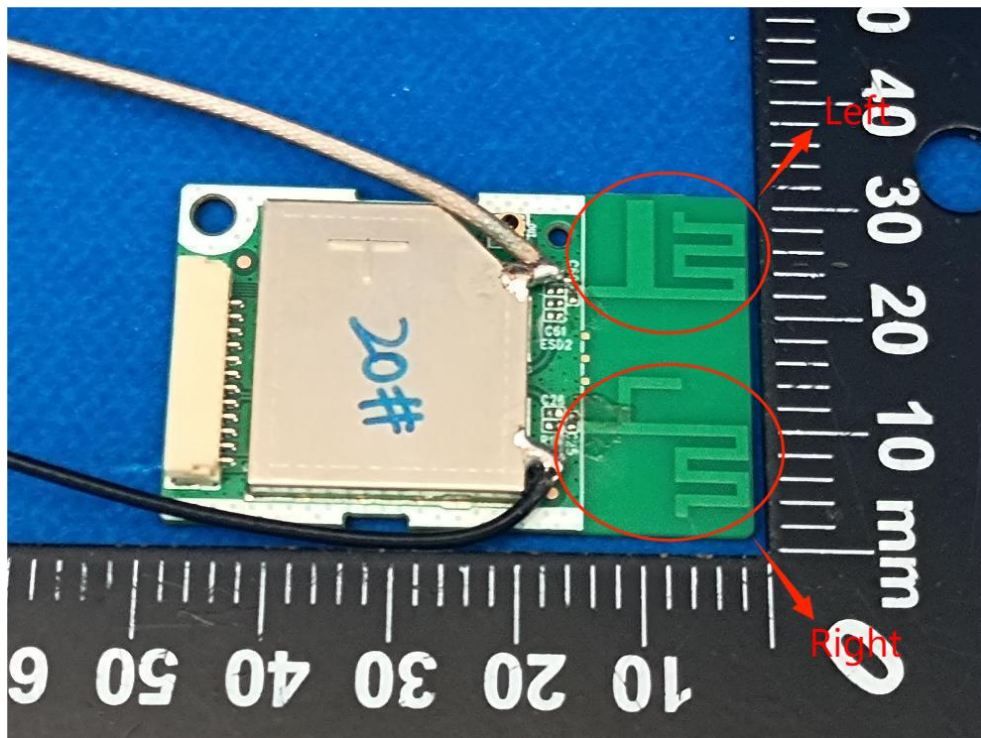
20#_Left



20#_Right

2. EUT





20#



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	2024.05.30	2025.05.29
2	OTA Chamber	TJ2235-Q1793	AMS-892 3-150	ETS	2022.11.30	2025.11.29

1.4 Test Software Utilized

No.	Software Name	Serial No.	Version	Manufacturer
1	Antenna Measurement System	1685	EMQuest EMQ-100 V 1.13 Build 21267	ETS

————— END OF REPORT —————