Antenna Gain Test Report

Project No.:	4791102838
Project Name：	Wireless Device
Antenna material：	PCB antenna
Antenna type：	Monopole
Antenna Size:	13.615mm*6.869mm
Test Date：	2023.12.6
Project Engineer：	Kebo Zhang
	kebo.zhang
Test Engineer：	Burt Hu
	Burt Hu
Test Standards：	ANSI/IEEE std 149-2021
Issued Date：	2023.12.7
Test Lab:	UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch
Lab Address:	Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	2023.12.07	Initial Issue	\
V1	2024.07.03	Removed Antenna Vendor's name and address	Burt Hu

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1 Test Equipment Information

Equipment	Manufacturer	Mode No.	Serial No.	Cal date	Cal Due
Test Chamber	ETS-Lindgren	8500	/	/	/
Test Software	ETS-Lindgren	EMQuest V1.12	1496	/	/
Network Analyzer	Keysight	E5071C	MY46524531	2023.10.12	2024.10.11
EXA Singal Analyzer	Keysight	N9010A	MY55150514	2023.10.12	2024.10.11

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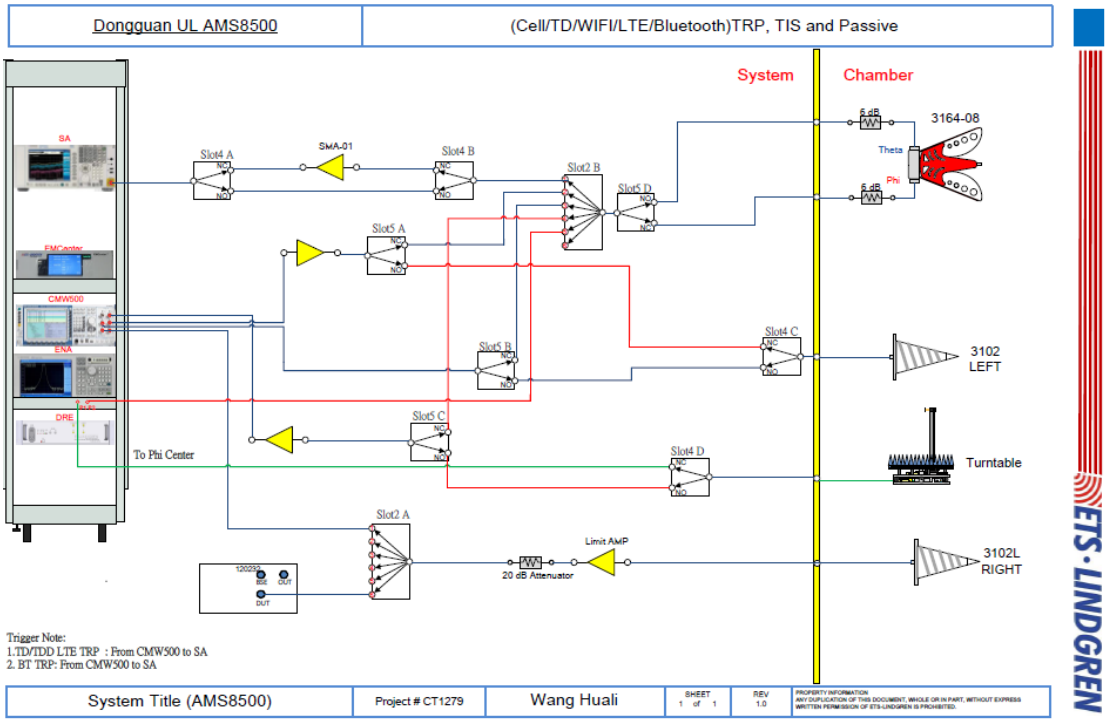
2 Setup block diagram



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3 Test Temperature and Humidity

Temperature: 22.3°C
Humidity: 60.1%

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4 CALIBRATION AND UNCERTAINTY

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognize national standards.

4.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty	
	2400-2500 MHz	5150-5825 MHz
Gain	0.82 dB	0.82 dB
Efficiency	0.82 dB	0.82 dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2.		

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5 Test Step Flow

1) Maintain the test ambient temperature of 23±2 C, the instrument is powered on and preheated for more than 30 minutes;
2) Turn on the darkroom power supply, connect the test cable, and set up the sample according to the standard;
3) Outline sets the test content objectives and conducts calibration tests;
4) Run the software, when the test is completed, export the corresponding test diagram and test data, and save to the corresponding directory.

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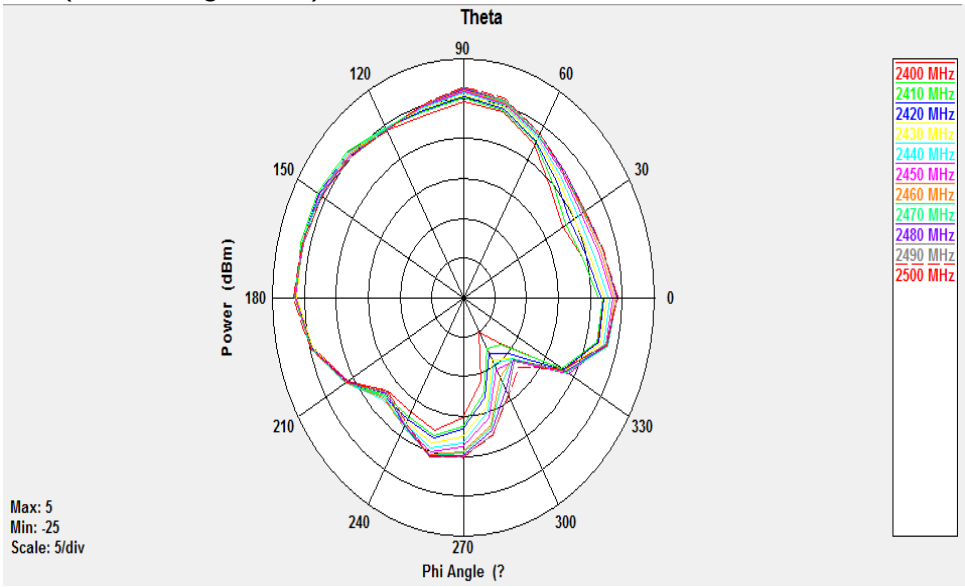
6 Test Result

Frequency (MHz)	Efficiency (%)	Gain (dBi)
2400	49.83	1.83
2410	50.14	1.76
2420	50.77	1.64
2430	52.40	1.61
2440	54.43	1.73
2450	56.87	1.82
2460	58.35	1.83
2470	59.45	1.90
2480	60.25	1.77
2490	60.58	1.79
2500	62.09	1.86

Polarization Pattern Photos

Theta Polarization(Theta Angle=90°)



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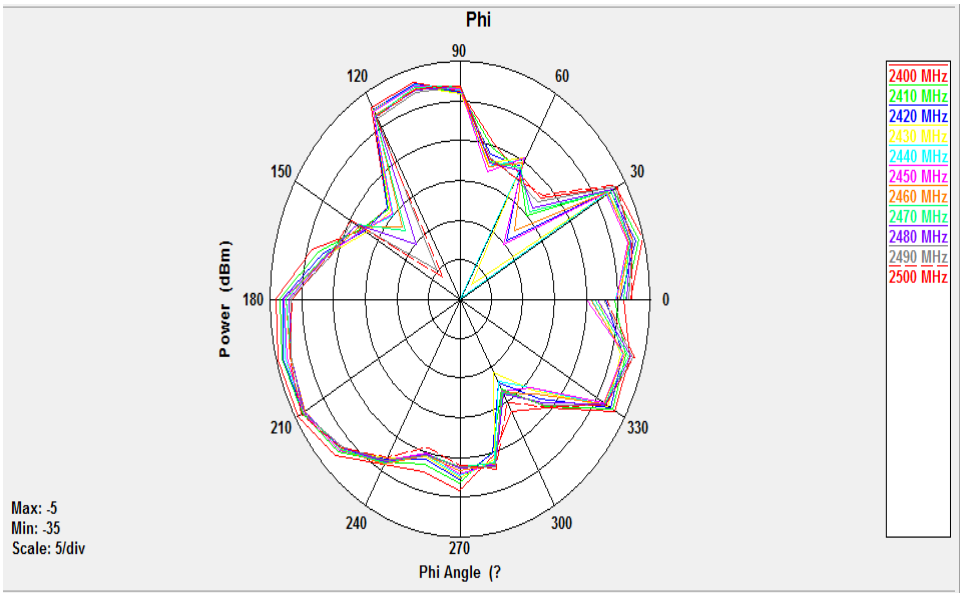
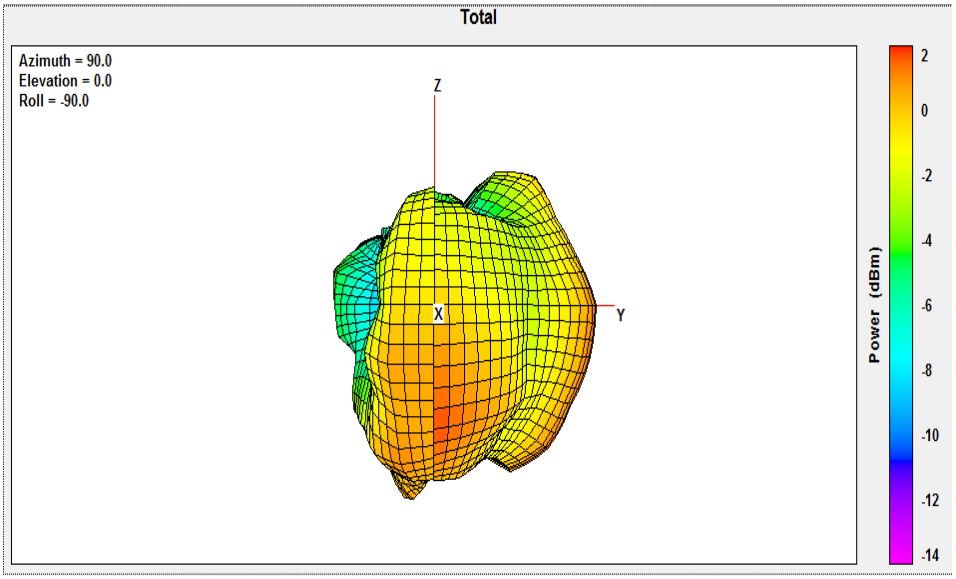
Phi Polarization(Theta Angle=90°)



Total 3D Plot(Fre.2500MHz)



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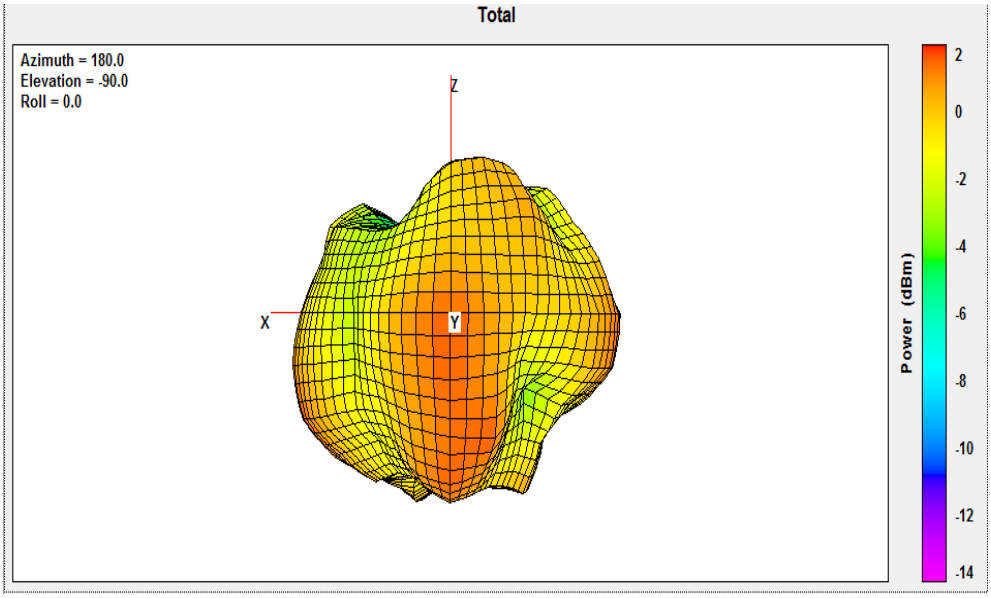

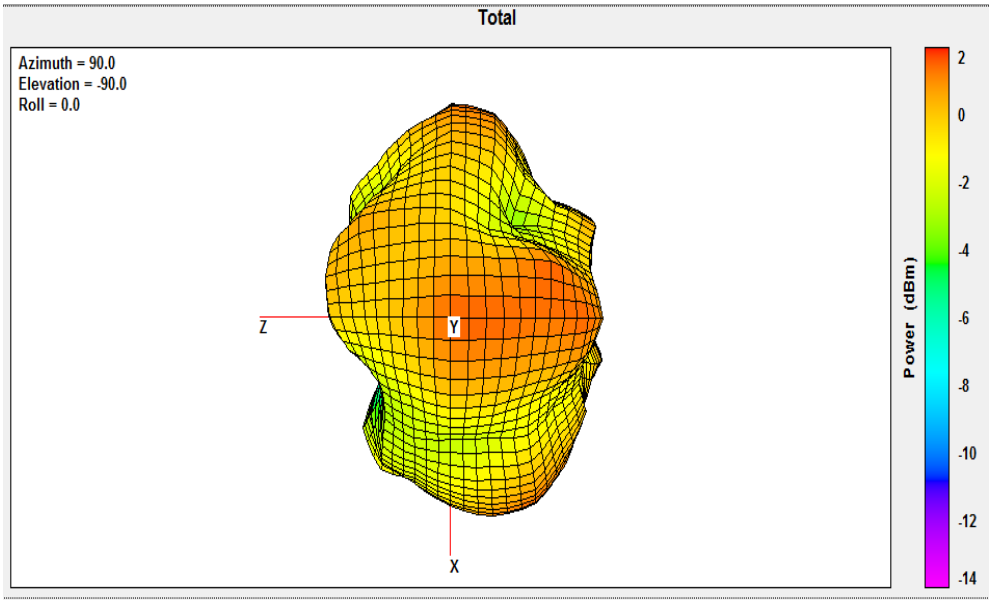

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7 Test Result

Referred to 4791102838_OTA setup photo.

END OF REPORT

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