Test Report

Verified code: 812480

Report No.: E202311296618-1

Customer:	ANDON HEALTH CO.,LTD.
Address:	No.3 Jin Ping Street，Ya An Road，Nankai District，Tianjin 300190, China
Sample Name:	Onboard Antenna
Sample Model:	ANT-OB13077
Receive Sample Date:	Dec.11,2023
Test Date:	Dec.13,2023 ~ Dec.13,2023
Reference Document:	ANSI IEEE 149-2021 Part 7, Part 8, Part 10
Test Result:	Refer to the following report

Prepared by: Xu Xingqiu　　Reviewed by: Wang Guodong　　Approved by: Zhao Zetian

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2023-12-15

GRG METROLOGY & TEST GROUP CO., LTD.
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Statement

1. The report is invalid without "special seal for inspection and testing"; some copies are invalid; The report is invalid if it is altered or missing; The report is invalid without the signature of the person who prepared, reviewed and approved it.

2. The sample information is provided by the client and responsible for its authenticity; The content of the report is only valid for the samples sent this time.

3. When there are reports in both Chinese and English, the Chinese version will prevail when the language problems are inconsistent.

4. If there is any objection concerning the report, please inform us within 15 days from the date of receiving the report.

5. Without the agreement of the laboratory, the client is not authorized to use the test results for unapproved propaganda.

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202311296618-1	Original Issue	2023-12-15

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1. TEST RESULT SUMMARY

Test Item	Test Frequency	Test Method	Test Scene	Test Result
Gain	2400MHz~2500MHz	ANSI IEEE 149-2021 Part 8	scene 1	/1)
Efficiency	2400MHz~2500MHz	ANSI IEEE 149-2021 Part 10	scene 1	/1)
2D Antenna pattern	2400MHz~2500MHz	ANSI IEEE 149-2021 Part 7	scene 1	/1)
3D Antenna pattern	2400MHz~2500MHz	ANSI IEEE 149-2021 Part 7	scene 1	/1)
Note 1)：Customer-defined test, test results do not make judgment.				

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2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT INFORMATION

Name:	ANDON HEALTH CO.,LTD.
Address:	No.3 Jin Ping Street，Ya An Road，Nankai District，Tianjin 300190, China

2.2 MANUFACTURER

Name:	ANDON HEALTH CO.,LTD.
Address:	No.3 Jin Ping Street，Ya An Road，Nankai District，Tianjin 300190, China

2.3 FACTORY

Name:	ANDON HEALTH CO.,LTD.
Address:	No.3 Jin Ping Street，Ya An Road，Nankai District，Tianjin 300190, China

2.4 BASIC DESCRIPTION OF EUT

Product Name:	Onboard Antenna
Product Model:	ANT-OB13077
Trade Name:	/
Antenna Type:	/
Frequency Band:	2400MHz~2500MHz
Sample submitting way:	■Provided by customer □Sampling
Sample No:	E202311296618-0001
Note:	The laboratory does not bear any consequences for the authenticity, completeness and effectiveness of the above product information

2.5 TEST SCENE

Scene	Scene description
Test scene 1	Free space

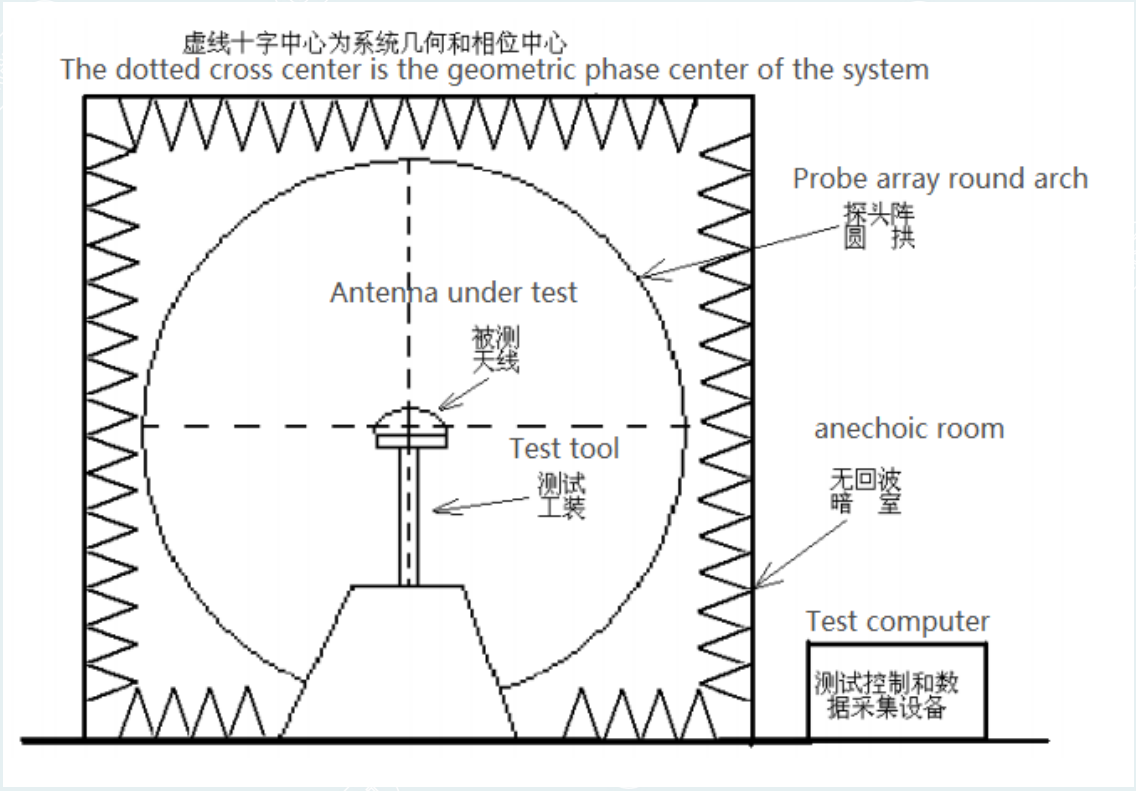
2.6 SAMPLE WORK DESCRIPTION

Serial **No.**	Work description
a)	The sample is erected according to the standard, so that the sample can be tested under normal operation

2.7 ASSISTIVE DEVICE INFORMATION

No.	Name of Equipment	Manufacturer	Model No.	Serial No.
1)	RF cable	Jun you radiofrequency	Amplitude stabilization and phase stabilization cable	/
2)	Calibrated parts	R&S	ZV-Z270	101464

2.8 SAMPLE CONNECTION DIAGRAM



Sample connection diagram

3. LABORATORY

The tests and measurements refer to this report were performed by ReportLabEMC Laboratory of GRG METROLOGY & TEST GROUP CO., LTD.

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P.C.	:	518110
Tel	:	0755-61180008
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4. MEASUREMENT UNCERTAINTY

Uncertainty is calculated according to ISO's "Guide to the Expression of Uncertainty in Measurement" (GUM), and the extended uncertainty is expressed using an inclusion factor of *k*=2 and a 95% confidence level.

Measurement	Uncertainty
Gain	0.75 dB

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5. EQUIPMENT AND TOOLS USED DURING TEST

Name of Equipment	Manufacturer	ModelNo.	Serial No.	Calibration Due
Spherical near-field test system full anechoic chamber	Rflight	EMT-GD001	EP128-20210710-01	2025-03-27
Network analyzer	Keysight	E5071C	MY46901661	2024-09-24
Spherical near-field test system	Rflight	Software version: v3.2	/	/

Note.: The calibration interval of the above Network analyzer is 12 months, The calibration interval of the above Spherical near-field test system full anechoic chamber is 36 months.

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6. ANTENNA RADIATION PERFORMANCE MEASUREMENT

6.1 LIMITS

Test Item	Test Frequency	Limits
Gain	2400MHz~2500MHz	/[1)]
Efficiency	2400MHz~2500MHz	/[1)]
2D Antenna pattern	2400MHz~2500MHz	/[1)]
3D Antenna pattern	2400MHz~2500MHz	/[1)]
Note 1)：Customer-defined tests, unlimited definitions.		

6.2 TEST PROCEDURE

a) Adjust the ambient temperature of the test system to within 22℃-26 ℃.

b) System gain calibration:

1) Set up the standard antenna so that the apparent phase center of the standard antenna is consistent with the geometric center of the system, rotate the turntable by 90 °, and adjust the phase center of the standard antenna again;

2) Start the test after setting the test frequency;

3) Gain calibration data is calculated and stored on the control computer.

c) Antenna test:

1) The antenna to be measured is erected on the test fixture, and the antenna phase center coincides with the center of the probe array ring by adjusting the antenna;

2) Connect the test cable, set the test frequency, start the test, during the test, the system supporting software should be able to automatically complete the acquisition, storage and calculation of the antenna amplitude and phase data to be measured.

d) Data processing:

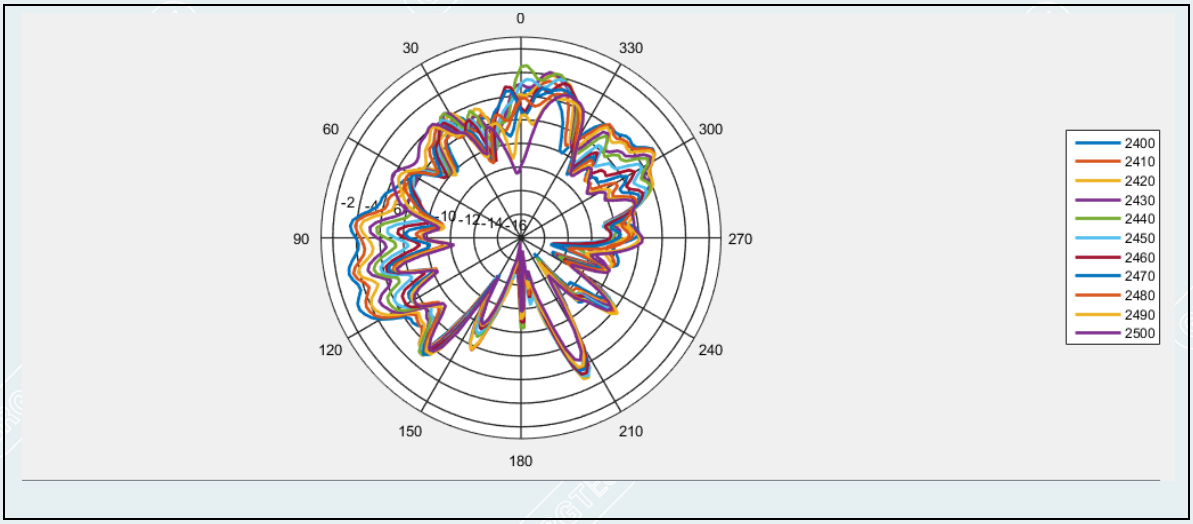
The system is used to test the antenna, and all the radiation information on the spherical surface of the antenna (including the polarization mode, gain, efficiency, pattern of the antenna, etc.) can be obtained through one test. Therefore, the antenna radiation indicators described in this standard can be obtained by a single test, the difference is that the data of different indicators are extracted differently.

6.3 TEST RESULTS

EUT Name	Onboard Antenna	Model No.	ANT-OB13077
Environmental Conditions	23.2 ℃ /51%RH/101kPa	Test Scene	Scene 1
Power Supply	/	Tested By	Wang Jun
Test Date	2023-12-13	Sample No.	E202311296618-0001
Antenna polarization	/	Impedance	50 Ω

Frequency (MHz)	Gain (dBi)	Efficiency(%)
2400	-0.88	17.65
2410	-0.39	18.41
2420	-0.04	19.27
2430	-0.11	18.35
2440	0.01	18.91
2450	-0.10	18.57
2460	-0.44	17.82
2470	-0.90	17.70
2480	-1.31	17.26
2490	-1.63	17.02
2500	-2.12	16.61

6.4 2D ANTENNA PATTERN



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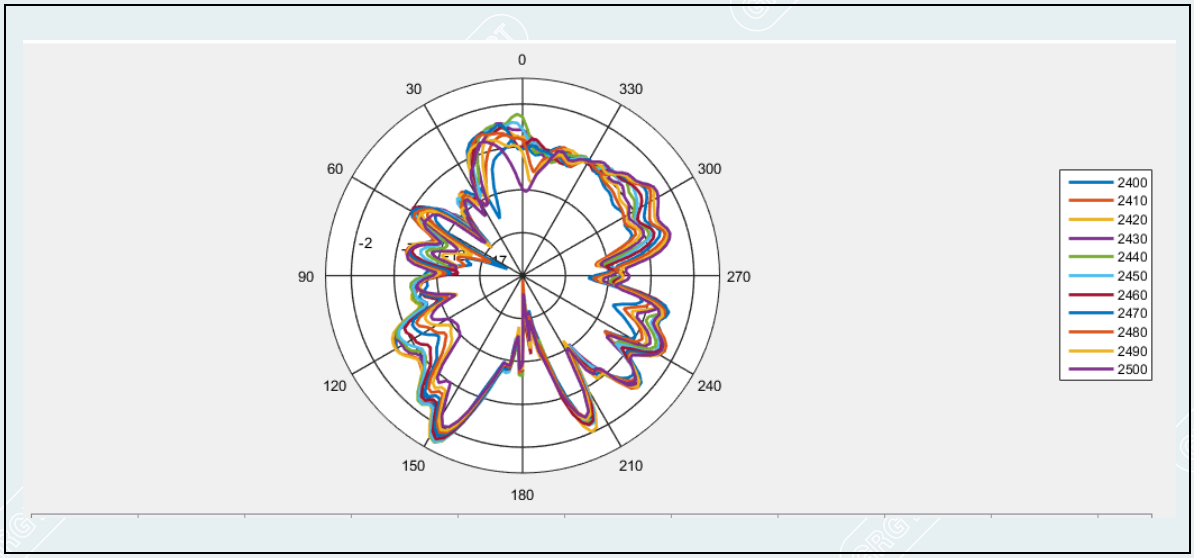

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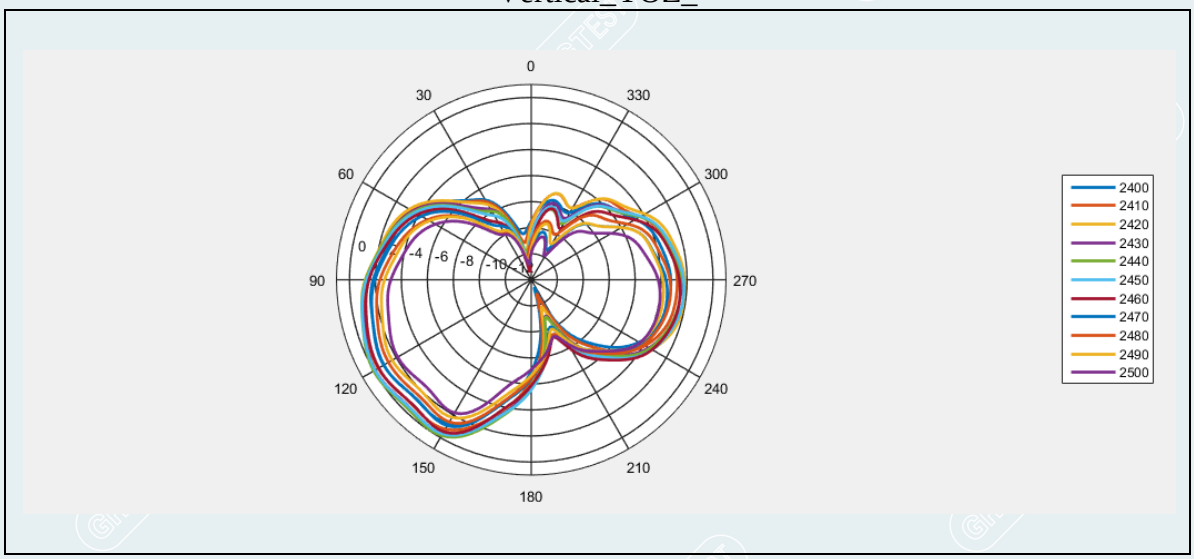

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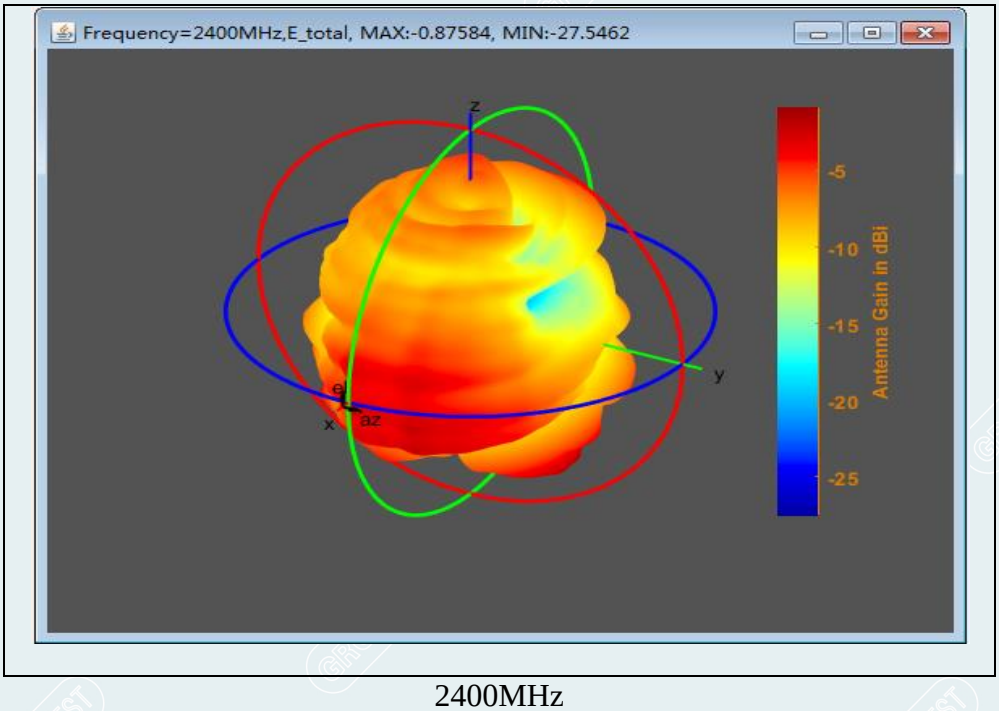
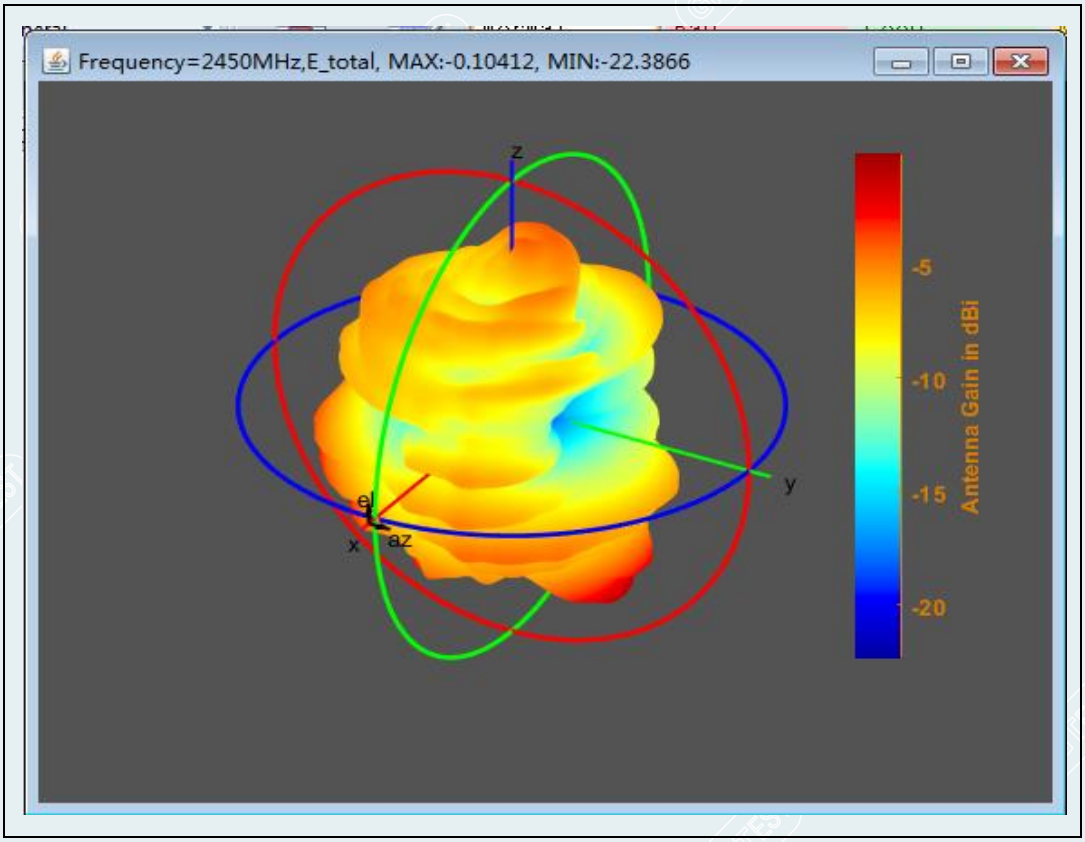
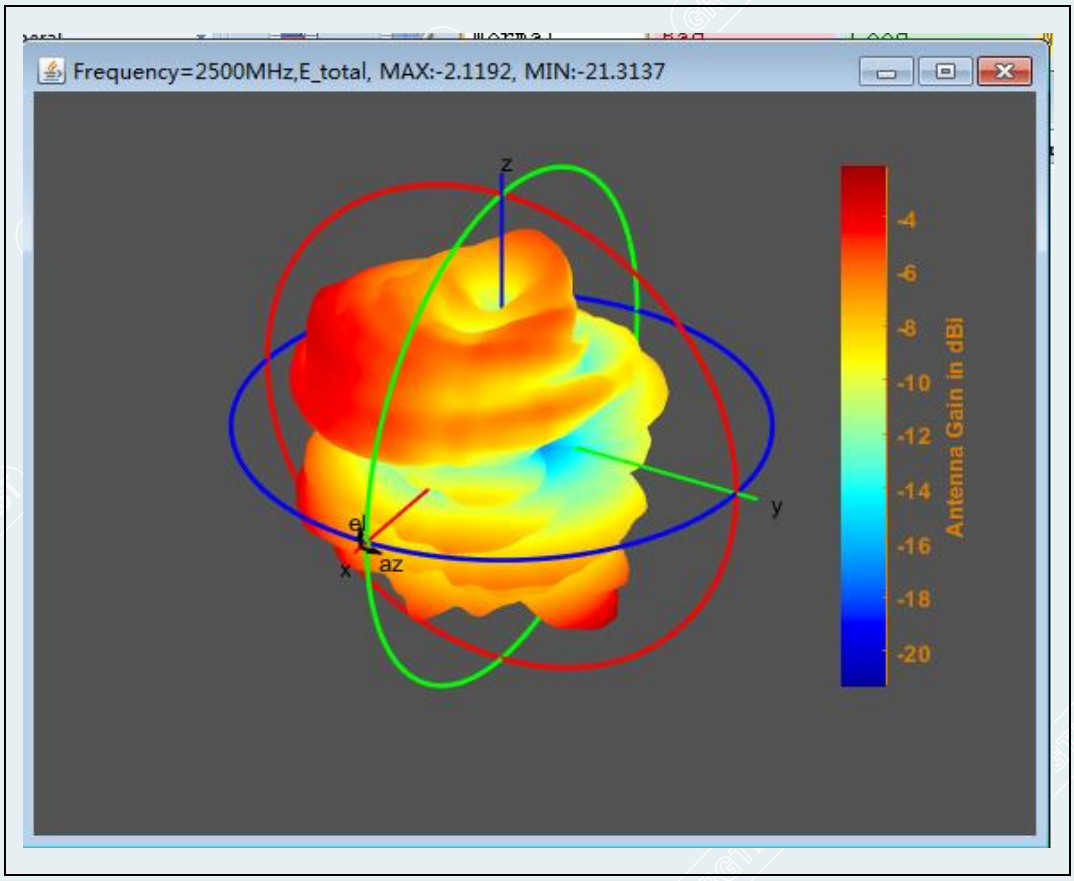
6.5 3D ANTENNA PATTERN



2400MHz



2450MHz



2480MHz

APPENDIX A TEST PHOTOS OF THE EUT

Please refer to the attached document E202311296618-Test photo.

APPENDIX B PHOTOGRAPH OF THE EUT

Please refer to the attached document E202311296618-EUT Photo.

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