Test Report

Verified code: 018878

Report No.: E202303225385-1

Customer:	Suzhou Performance Information Technology Co., Ltd.
Address:	2F, Building 4th No.99 Gangtian Road, Suzhou Industrial Park,Jiangsu Province, China
Sample Name:	PCB Antenna
Sample Model:	TEKHOME ONXYZ_ Antenna
Receive Sample Date:	May.10,2023
Test Date:	May.30,2023 ~ May.30,2023
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

Xu Xingqiu Wang Guodong Zhao Zetian

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2023-07-07

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Statement

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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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TABLE OF CONTENTS

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202303225385-1	Original Issue	2023-07-07

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1. TEST RESULT SUMMARY

Test Item	TestFrequency	Test Method	Test Scene	Test Result
Gain	2400 MHz ~2500MHz	ANSI IEEE 149-2021 Part 8	scene 1	/1)
Efficiency	2400 MHz ~2500MHz	ANSI IEEE 149-2021 Part 10	scene 1	/1)
Radiation pattern	2400 MHz ~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:	Suzhou Performance Information Technology Co., Ltd.
Address:	2F, Building 4th No.99 Gangtian Road, Suzhou Industrial Park,Jiangsu Province, China

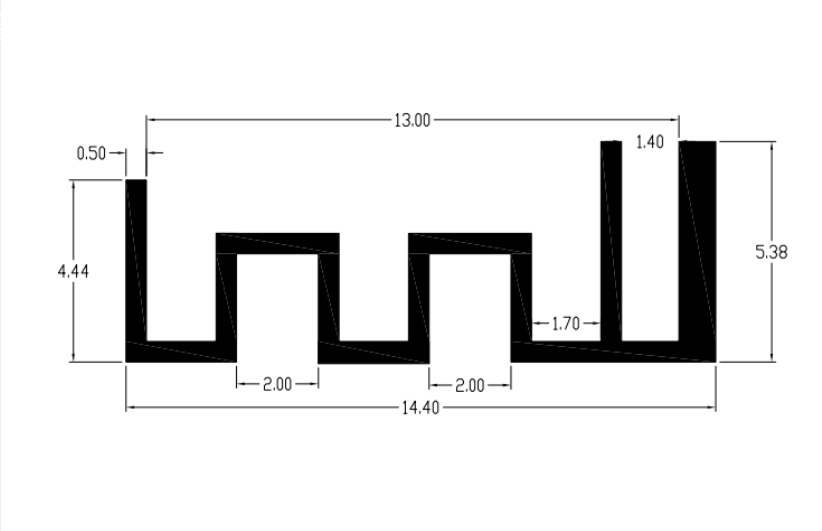
2.2 MANUFACTURER

Name:	Suzhou Performance Information Technology Co., Ltd.
Address:	2F, Building 4th No.99 Gangtian Road, Suzhou Industrial Park,Jiangsu Province, China

2.3 FACTORY

Name:	Suzhou Performance Information Technology Co., Ltd.
Address:	2F, Building 4th No.99 Gangtian Road, Suzhou Industrial Park,Jiangsu Province, China

2.4 BASIC DESCRIPTION OF EUT

Product Name:	PCB Antenna
Product Model:	TEKHOME ONXYZ_ Antenna
Trade Name:	/
Software Version:	/
Hardware Version:	/
Antenna Type:	PCB Antenna
Frequency Band:	2400MHz – 2500MHz
Sample submitting way:	■Provided by customer □Sampling
Sample No:	E202303225385-0001
Note:	 ANTENNA size (NOTE:The antenna size is in millimeters,and the antenna size data is provided by the manufacturer)

2.5 TEST SCENE

Scene	Scene description
Test scene 1	Free space

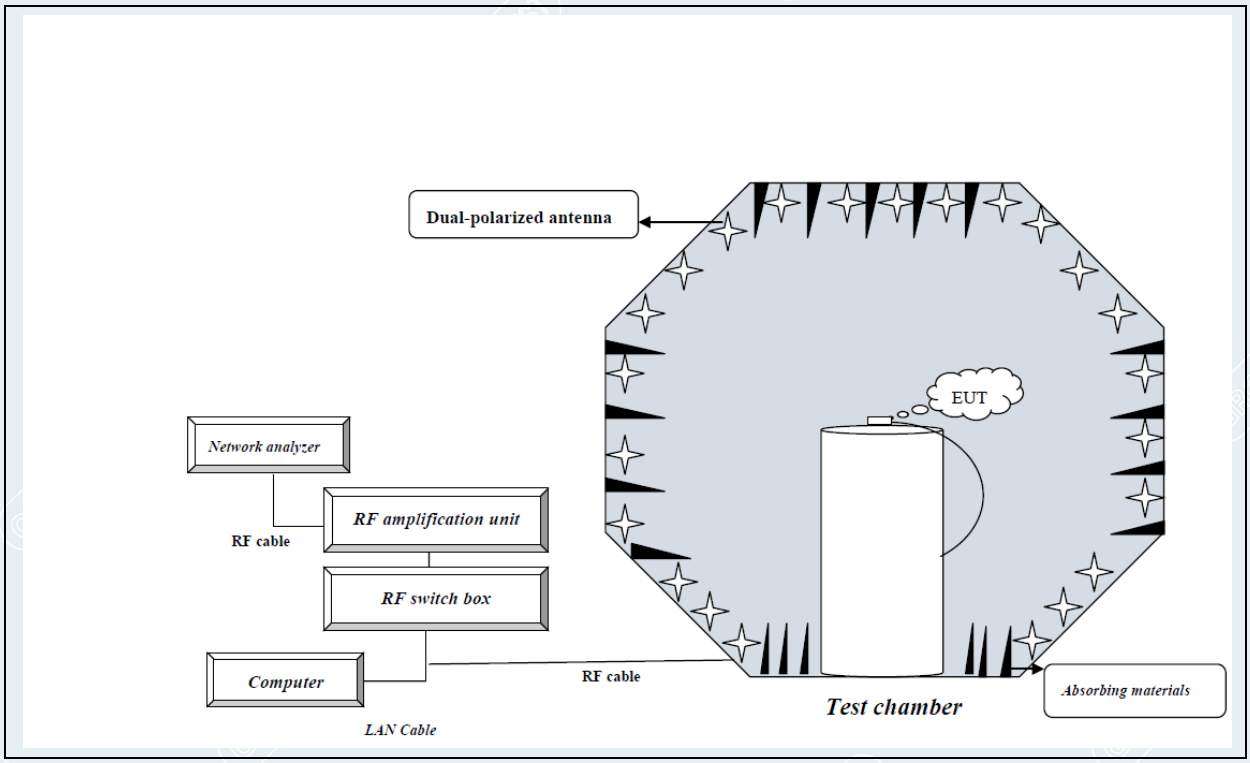
2.6 SAMPLE WORK DESCRIPTION

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	/

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
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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	0.6

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5. EQUIPMENT AND TOOLS USED DURING TEST

Name of Equipment	Manufacturer	ModelNo.	Serial No.	Calibration Due
OTA test chamber	HWA-TECH	AC7500	OTA-SC2021030 1MSN	2024-02-23
Network analyzer	ROHDE&SCHWARZ	ZNB8	101169	2024-05-23

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6. ANTENNA RADIATION PERFORMANCE MEASUREMENT

6.1 LIMITS

Test Item	TestFrequency	Limits
Gain	2400 MHz ~2500MHz	/[1)]
Efficiency	2400 MHz ~2500MHz	/[1)]
Radiation pattern	2400 MHz ~2500MHz	/[1)]
Note 1)：Customer-defined tests, unlimited definitions.		

6.2 TEST PROCEDURE

a) Adjust the ambient temperature of the test system to within 20℃-30 ℃.

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 OTA 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.

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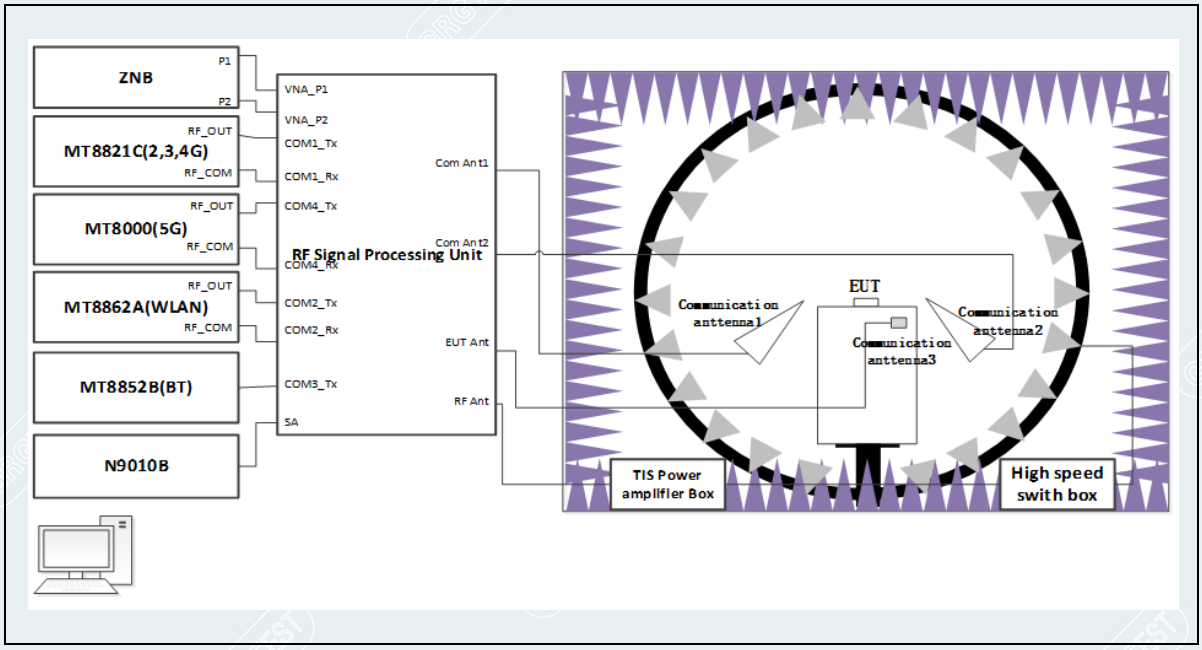
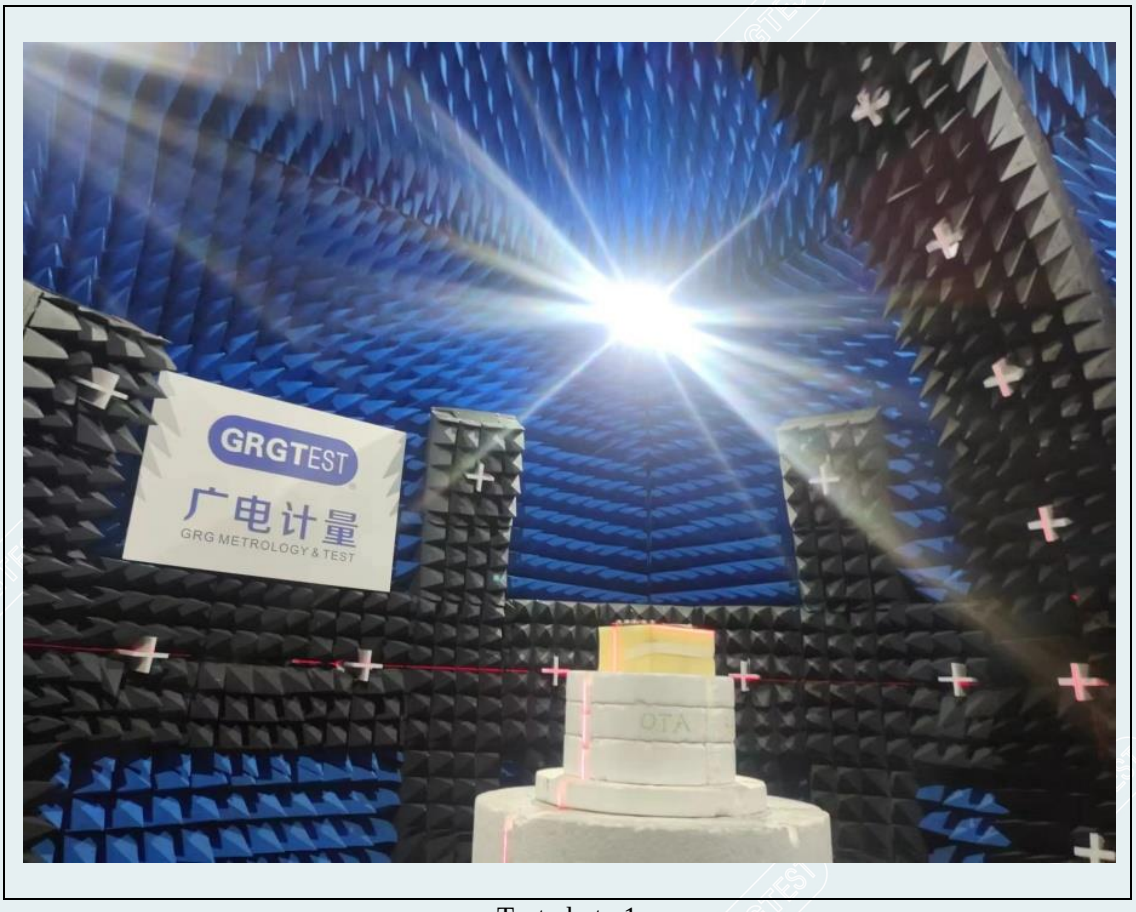
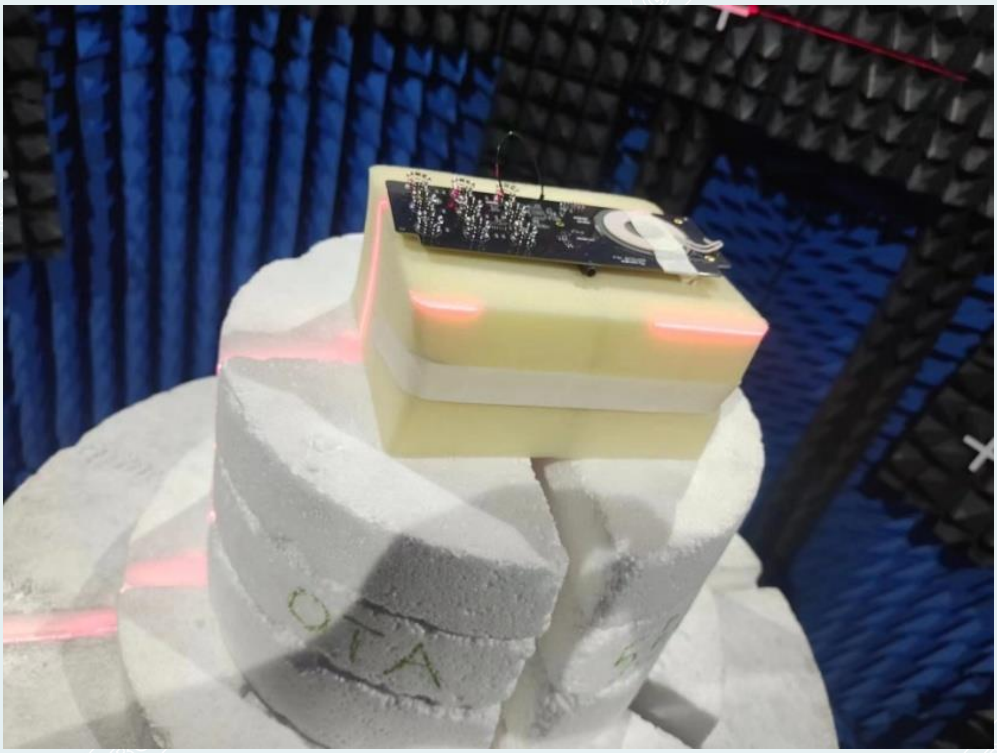
6.3 CONFIGURATION OF SYSTEM UNDER TEST



6.4 TEST PHOTOS



Test photo 1



Test photo 2

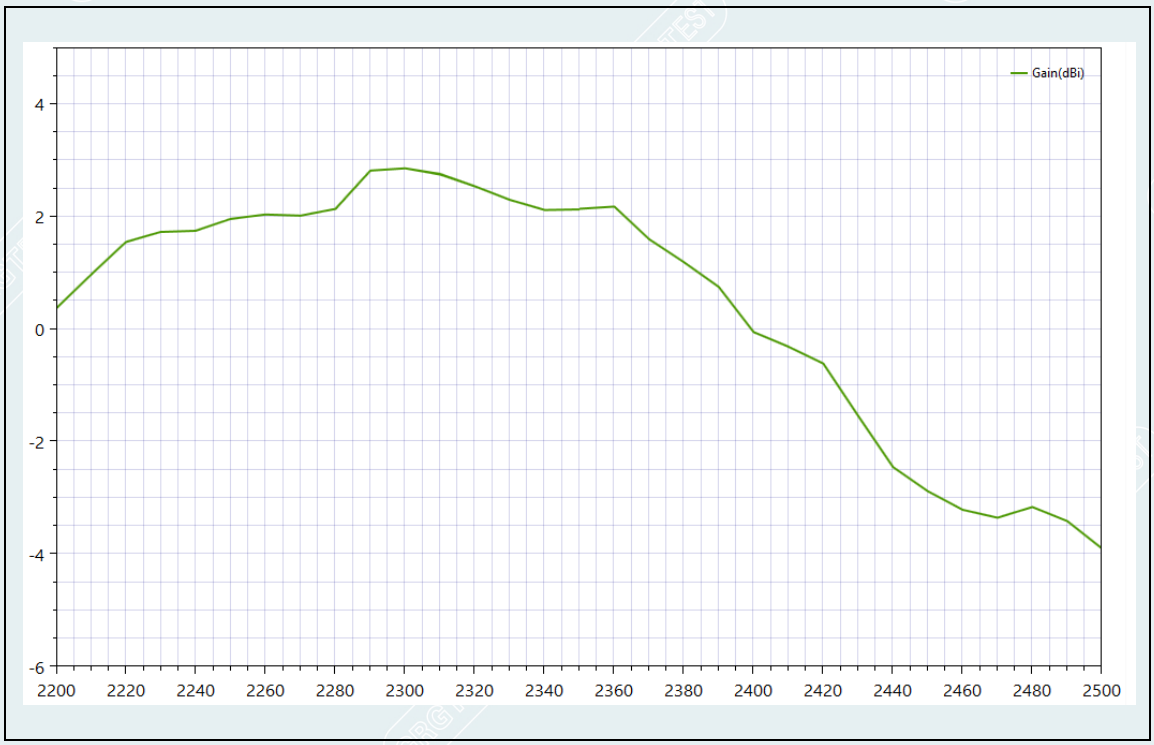
6.5 TEST RESULTS

EUT Name	PCB Antenna	**Model No.**	TEKHOME ONXYZ_ Antenna
Environmental Conditions	22.3 ℃/ 55%RH / 101kPa	**Test Scene**	Scene 1
Power Supply	/	**Tested By**	Wang Jun
Test Date	2023-05-30	**Sample No.**	E202303225385-0001
Antenna polarization	/	**Impedance**	50 Ω

Test item	Test Frequency (MHz)	Test Data
Gain(dBi)	2400	-0.05
	2410	-0.31
	2420	-0.61
	2430	-1.54
	2440	-2.45
	2450	-2.88
	2460	-3.21
	2470	-3.35
	2480	-3.16
	2490	-3.41
	2500	-3.90
Efficiency (%)	2400	28.16
	2410	28.40
	2420	27.66
	2430	23.36
	2440	19.60
	2450	18.31
	2460	17.83

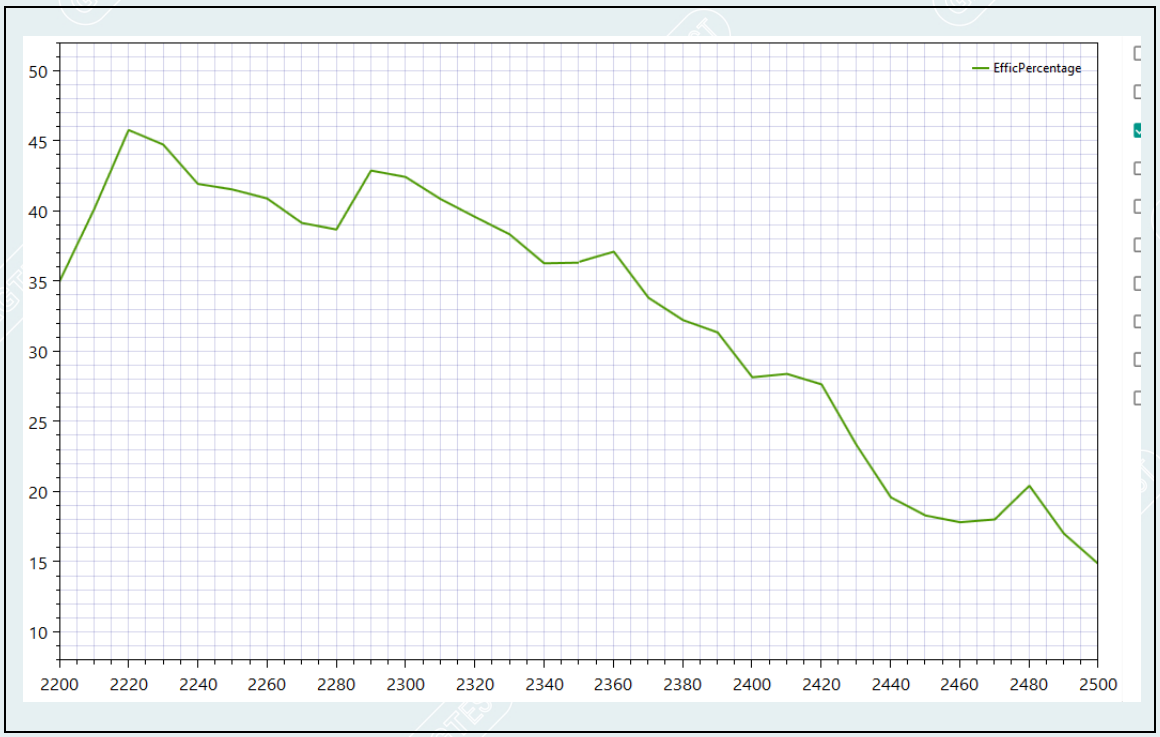
	2470	18.04
	2480	20.43
	2490	17.01
	2500	14.84

a)Gain result plot



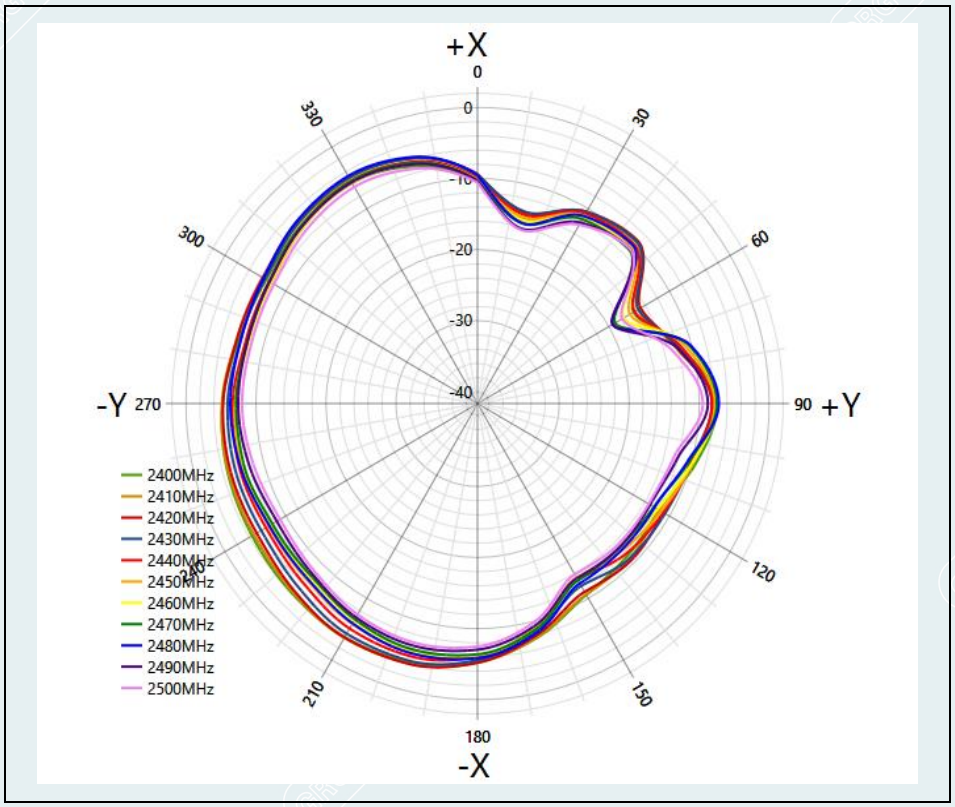
Gain plot

b)Efficiency result plot

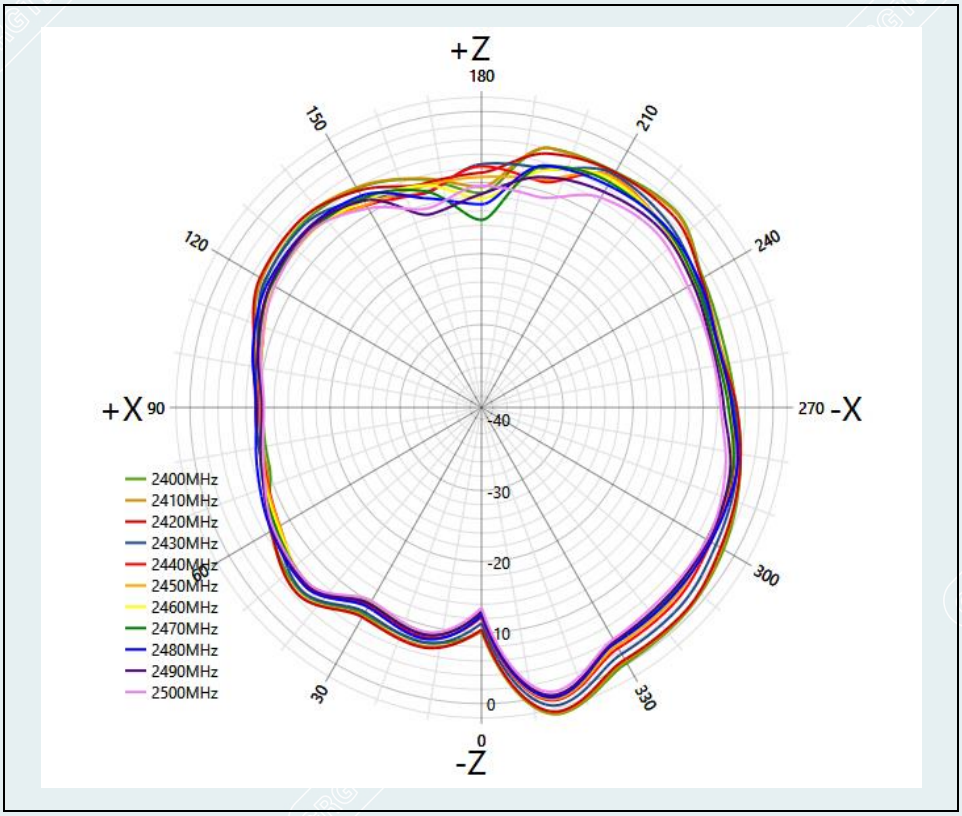


Efficiency plot

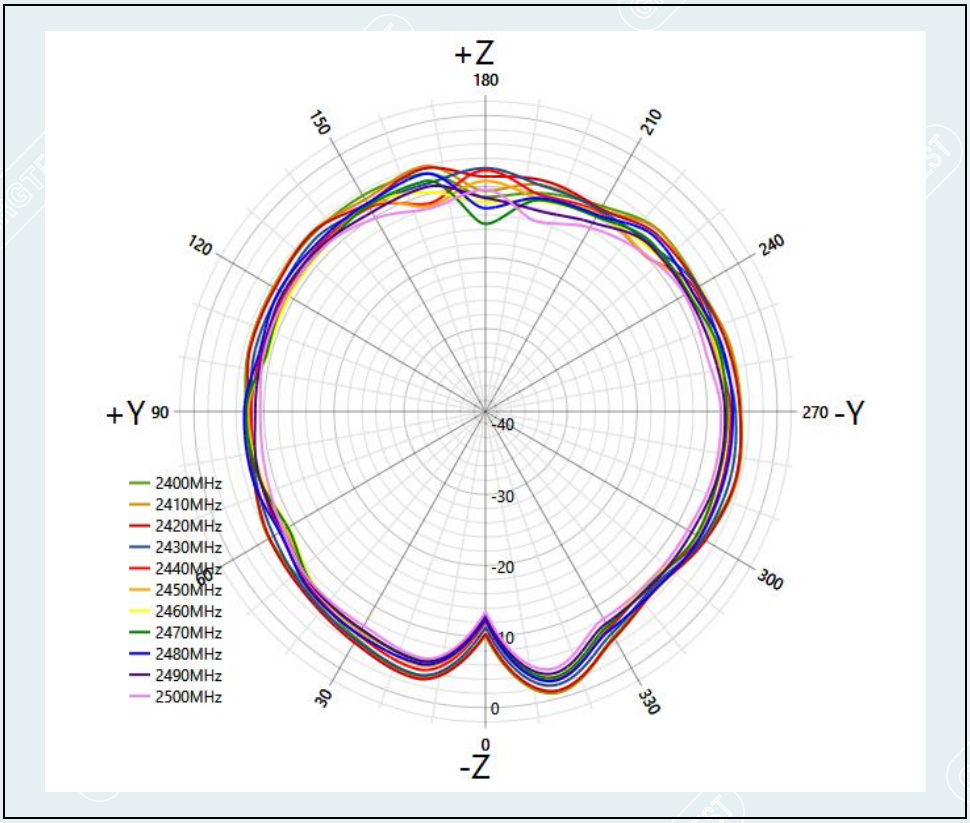
c）2D Radiation pattern



Theta=90 °



Phi=0 °



Phi=90 °

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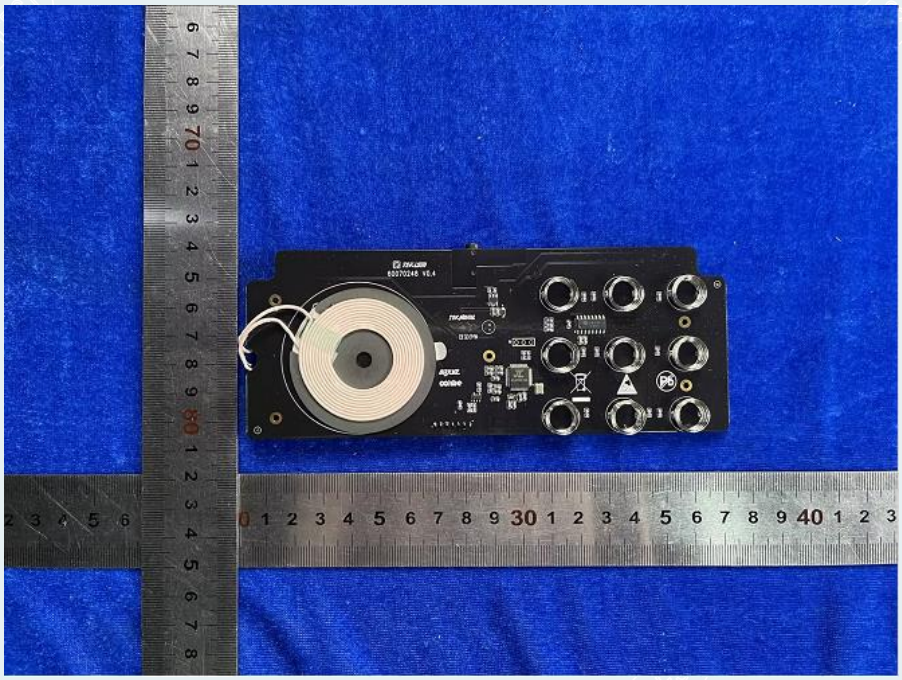
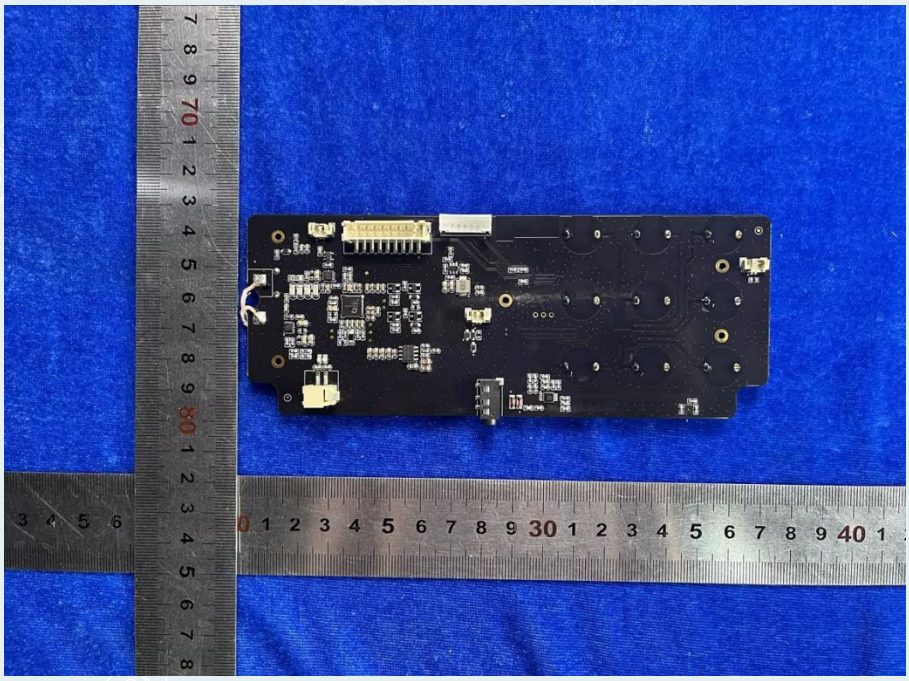
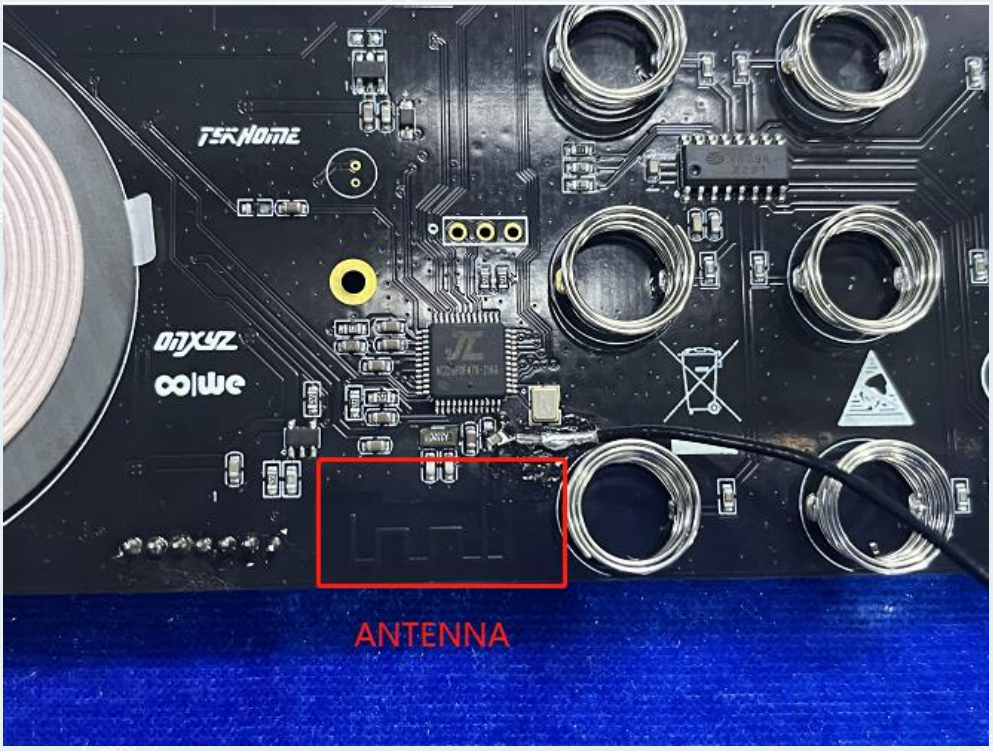
7. PHOTOGRAPH OF THE EUT



Frontal photo



Back photo



ANTENNA photo

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