TEST REPORT

Product	:	Remote control
Model Name	:	RF590
Report No.	:	PTC24061815301E-RF01

Prepared for

Shenzhen C&D Electronics Co ., Ltd

10/F Tower 1A, Baoneng Science & Technology Park, 1Qingxiang Road, Longhua District, Shenzhen, Guangdong, China

Prepared by

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1 Test Result Certification

Applicant's name	:	Shenzhen C&D Electronics Co ., Ltd
Address	:	10/F Tower 1A, Baoneng Science & Technology Park, 1Qingxiang Road, Longhua District, Shenzhen, Guangdong, China
Manufacture's name	:	Shenzhen C&D Electronics Co ., Ltd
Address	:	10/F Tower 1A, Baoneng Science & Technology Park, 1Qingxiang Road, Longhua District, Shenzhen, Guangdong, China
Product name	:	Remote control
Model name	:	RF590
Standards	:	GB/T 9410-2008; ANSI/IEEE Std 149-1979
Test Date	:	Jun. 21, 2024 to Jul. 02, 2024
Date of Issue	:	Jul. 03, 2024
Test Result	:	Pass

This device described above has been tested by PTC, and the test results show that the equipment under test (EUT) is in compliance with the GB/T 9410 and ANSI/IEEE Std 149 requirements. And it is applicable only to the tested sample identified in the report.

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Test Engineer:

Jack zhou / Engineer

Technical Manager:

Simon Pu / Manager

Revision History of Report

Vision No.	Date	Revisions	Modifier
00	Jul. 03, 2024	Initial Issue	

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2 Test Summary

Name	Parameter	Method	Standard no.
Mobile communication antenna	Antenna gain	Generic specification for antennas used in the mobile communications	GB/T 9410-2008
	Radiation pattern		
Antenna	Radiation efficiency	IEEE Standard Test Procedures for Antennas	ANSI/IEEE Std 149-1979
	Gain and directivity		

3 Test Site

3.1 Test Facility

Name	Precise Testing & Certification Co., Ltd
Address	Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China
CNAS	L5772

3.2 Measurement Uncertainty

The uncertainty was calculated on the basis of the GUM published by ISO, using the inclusion factor of K=2 and the 95% confidence level to express the extended uncertainty.

Item	Uncertainty
Antenna gain	±0.68dB
Radiation efficiency	±0.68dB

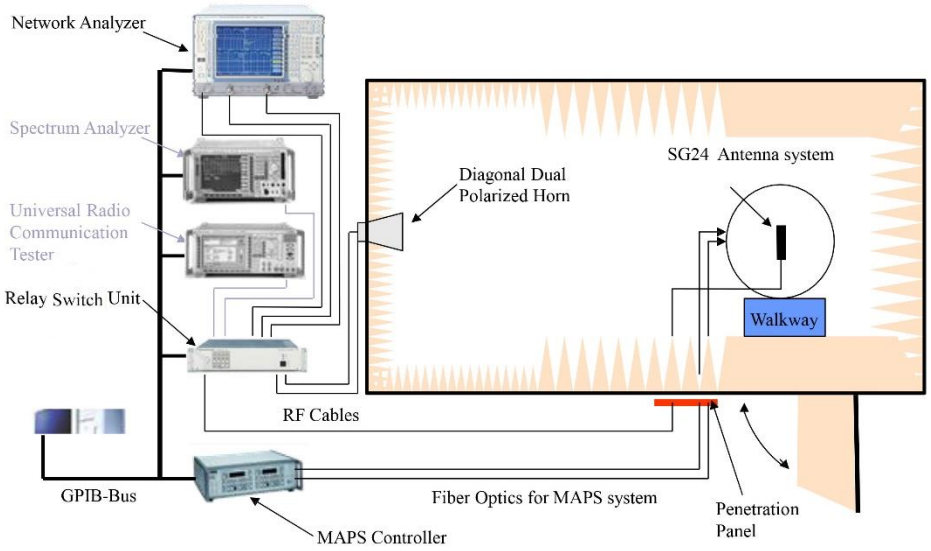
3.3 List Of Test And Measurement Instruments

Name of Equipment	Manufacturer	Serial No.	Last Cal.	Calibration Interval
24 probe microwave chamber	YIHENG ELECTPONC	4*4*4	Jan. 10,2024	1 Year
Network Analyzer	E5071C	Agilent	Jan. 10,2024	1 Year
XH.PassiveTest 2.7.6	XH-IOT	/	/	/

3.4 Test environmental

Environment Parameter	Selected Values During the Testes	
Relative Humidity	45% to 55%	
Value	Temperature(℃)	Voltage(V)
NTNV	20 to 24	N/A
Note: NV: Normal Voltage; NT: Normal Temperature		

3.5 Test Setup



4 EUT Description

Product Name	Remote control
Sample Model	RF590
Size	/
Test Item	Antenna gain; Radiation pattern and efficiency
Antenna Type	PCB Antenna
Frequency Range	430MHz-435MHz

5 Test Data

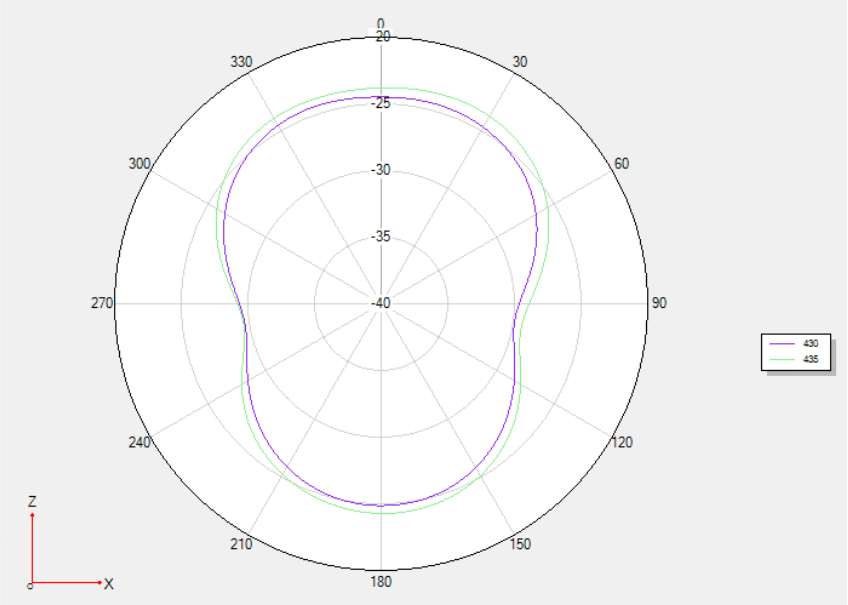
5.1 Typical free space efficiency and gain

Frequency/MHz	Efficiency / dB	Efficiency / %	Max Gain/dBi	Avg Gain/dBi
400	-31.11	0.08	-26.18	-31.11
405	-31.25	0.07	-26.4	-31.25
410	-29.89	0.10	-25.01	-29.89
415	-29.86	0.10	-24.73	-29.86
420	-28.93	0.13	-23.66	-28.93
425	-28.75	0.13	-23.48	-28.75
430	-28.33	0.15	-23.25	-28.33
435	-27.88	0.16	-23.17	-27.88

5.2 Typical free space radiation pattern

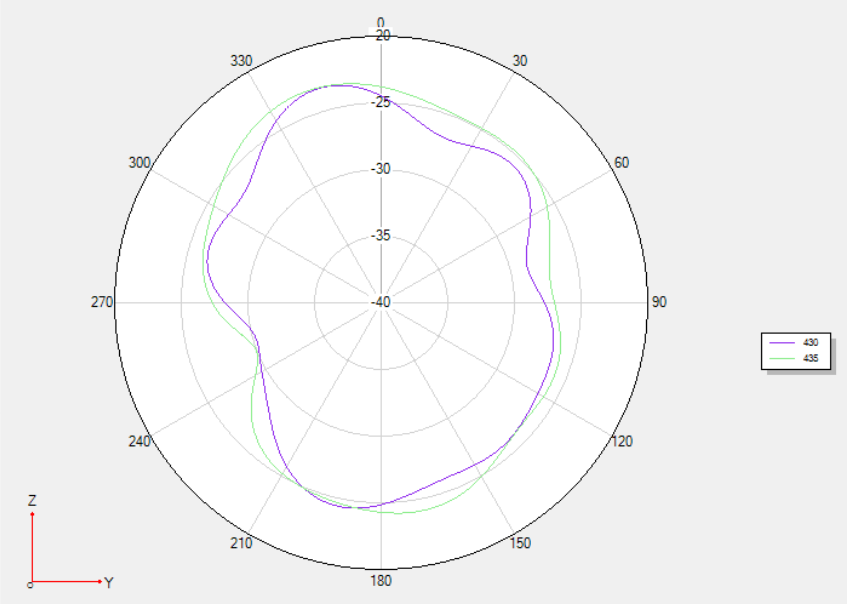
(1) X-Z Plane:

V Phi=0



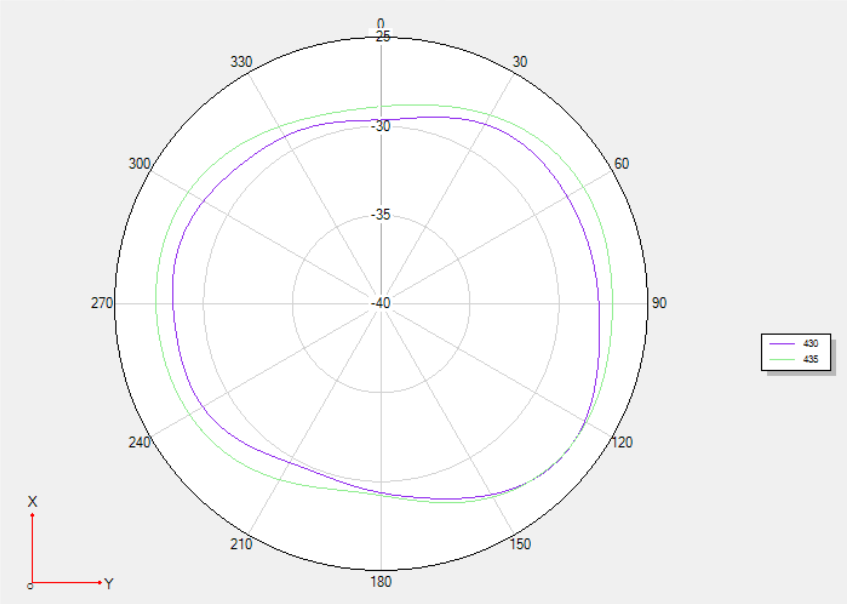
(2) Y-Z Plane:

V Phi=90



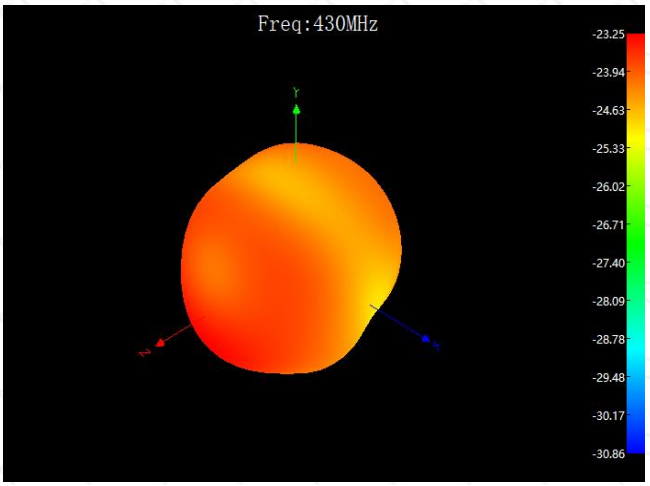
(3)X-Y Plane:

H Theta=90

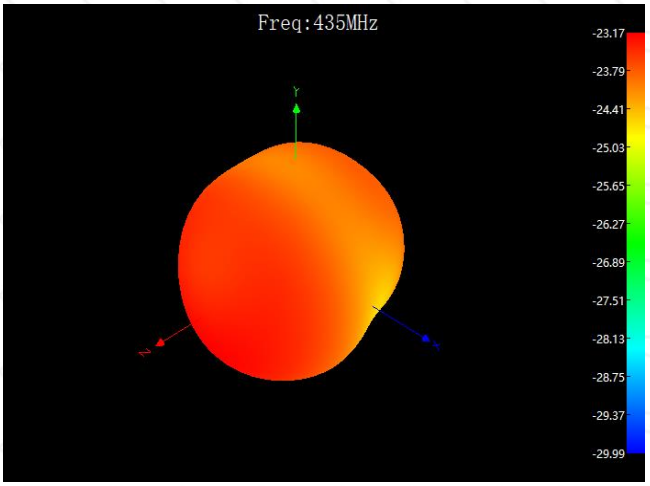


5.3 3D Pattern

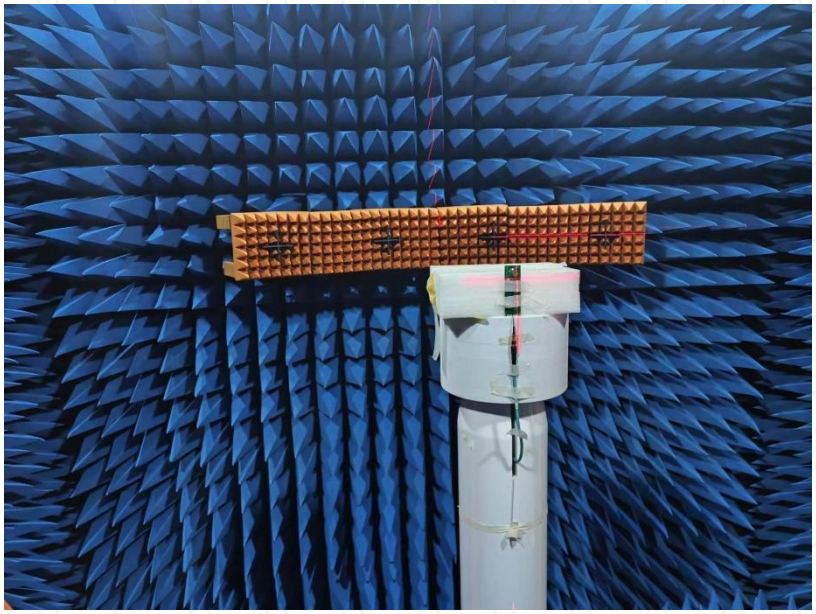
3D Pattern for 430MHz

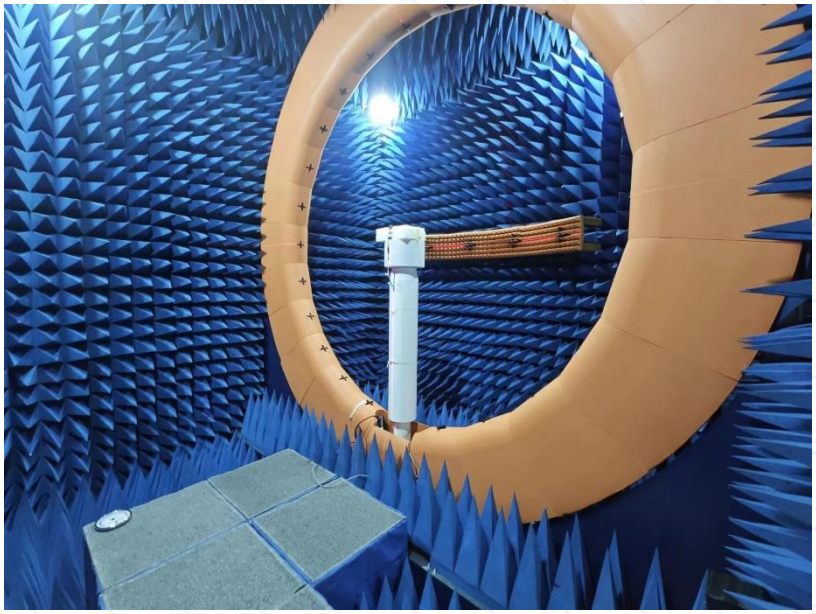


3D Pattern for 435MHz

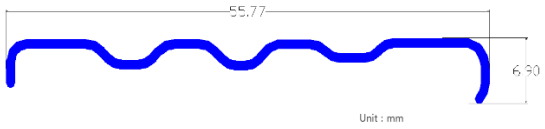


6 EUT setup photo of free space OTA testing





7 EUT appearance



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