

TEST REPORT

Product Name : 7-in-1 Wireless Haptic Sensor Array
Model/Type reference : WS90
Report Number : HTC20250704001
Date of Issue : July 4, 2025
Test Standards : GB/T 9410-2008
: ANSI/IEEE Std149-1979

Compiled by:

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Approved by:

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Date:

July 4, 2025



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Version

Version No.	Date	Description
00	July 4, 2025	Original

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1. General Information

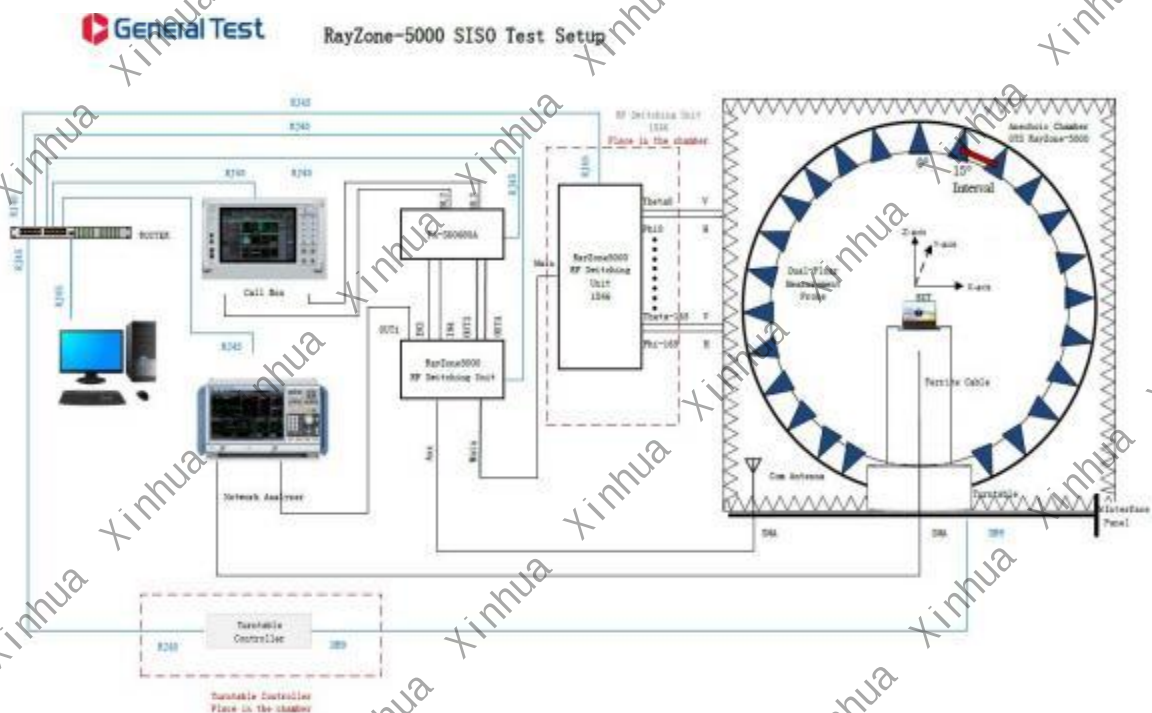
1.1 General information of testing institutions

Name	Shenzhen XinHua Technology co.,Ltd
Address	C709, Building D, Juji Industrial Park, Yabian Xueziwei, Shajing Street, Bao'an District, Shenzhen City

1.2 Applicant and Manufacturer

Applicant/Client Name	Shenzhen Fine Offset Electronics Co., Ltd.
Applicant Address	A, 4/F, Bldg.C, Dist.A, Minzhu Jiujiu Ind. City, Xihuan Rd., Shajing St., Baoan Dist. Shenzhen, Guangdong, China
Manufacturer Name	Shenzhen Fine Offset Electronics Co., Ltd.
Manufacturer Address	A, 4/F, Bldg.C, Dist.A, Minzhu Jiujiu Ind. City, Xihuan Rd., Shajing St., Baoan Dist. Shenzhen, Guangdong, China

1.3 Testing principle



1.4 Test equipment

Equipment	Model No.	Serial No.	Manufacturer	Calibration date	Next calibration date
OTA Test System	RayZone-5000	A0011	GTS	2023.8.14	2025.8.13
Network Analyzer	E5071C	C0017	KEYSIGHT	2025.5.25	2026.5.24

1.5 Test environment

Temperature	24.5℃
Humidity	81%RH
Pressure	100.09kPa

1.6 Statement

- (1) The test results in the report are only applicable to the tested samples and the tested samples work under the environment described in the report.
- (2) Only Shenzhen Xinhua Technology co.,Ltd have the right to modify the report, and the modification information shall be annotated in the revision form.
- (3) Any objection to this report shall be raised within 30 days after formal confirmation of the report.
- (4) This report is invalid if there is any evidence that the sample information provided is falsified.
- (5) The report is invalid without the signature of the auditor and approver.

2.Sample Information

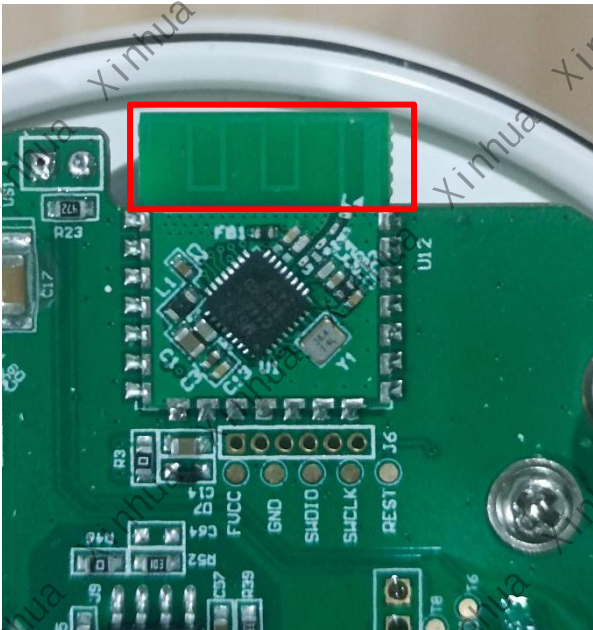
2.1 Description of EUT(S)

Test Item	VSWR;Antenna gain; Efficiency; Radiation pattern
Frequency Range	2400-2500MHz
Received Date	July 4, 2025
Test Date	July 4, 2025

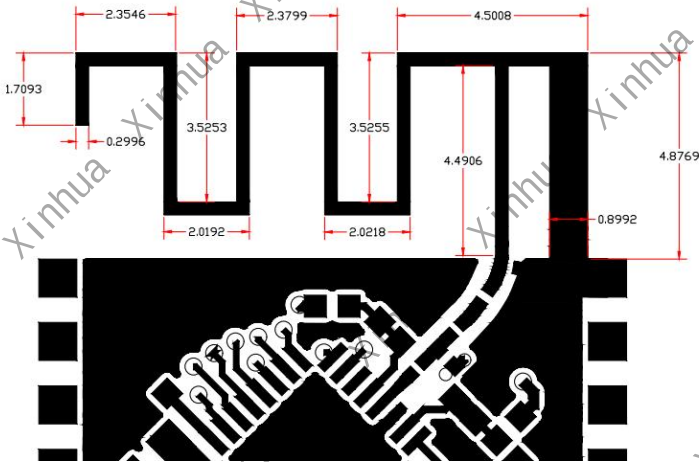
2.2 EUT appearance



View Of Product-01



View Of Product-02



Antenna Dimensions

EUT setup photo of free space OTA testing

3. Test Results

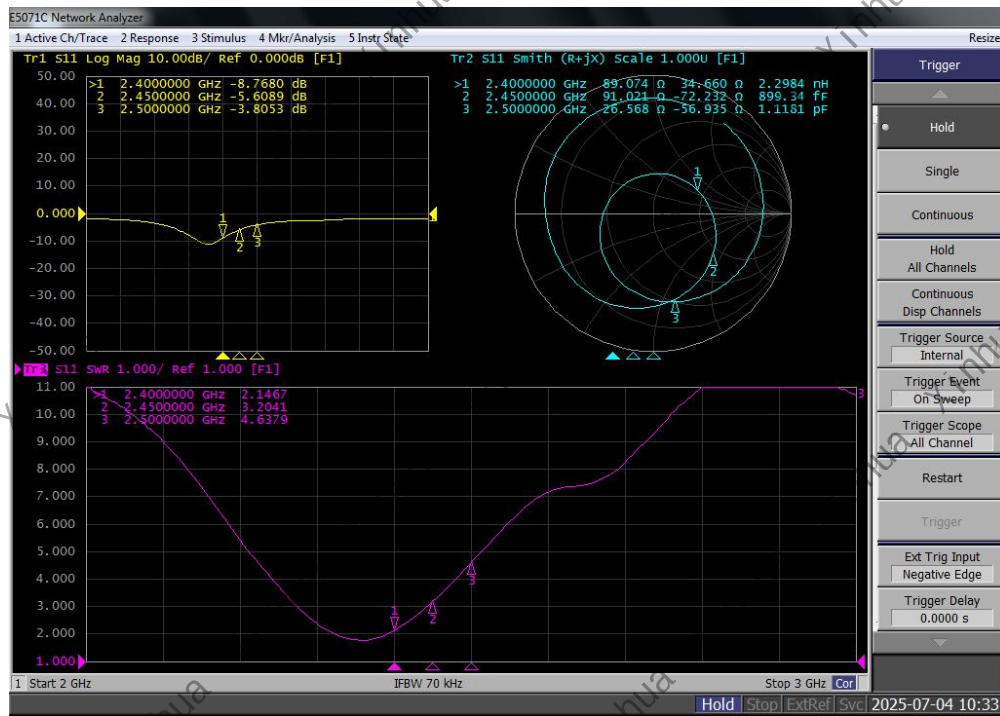
3.1 Test uncertainty

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
VSWR	± 0.3
Antenna gain	$\pm 0.72\text{dB}$
Radiation efficiency	$\pm 0.72\text{dB}$

3.2 Test data

3.2.1 VSWR parameters



3.2.2 VSWR data

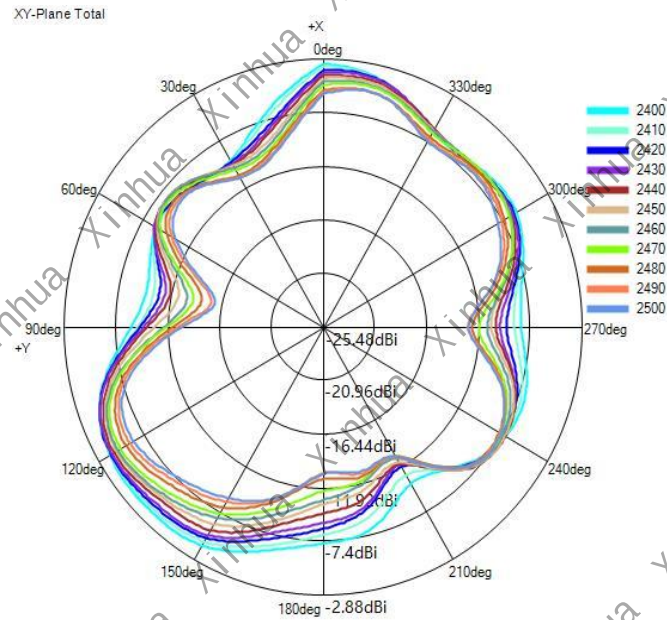
Frequency/MHz	2400	2450	2500
VSWR	2.1467	3.2041	4.6379

3.2.3 Typical free space efficiency and gain

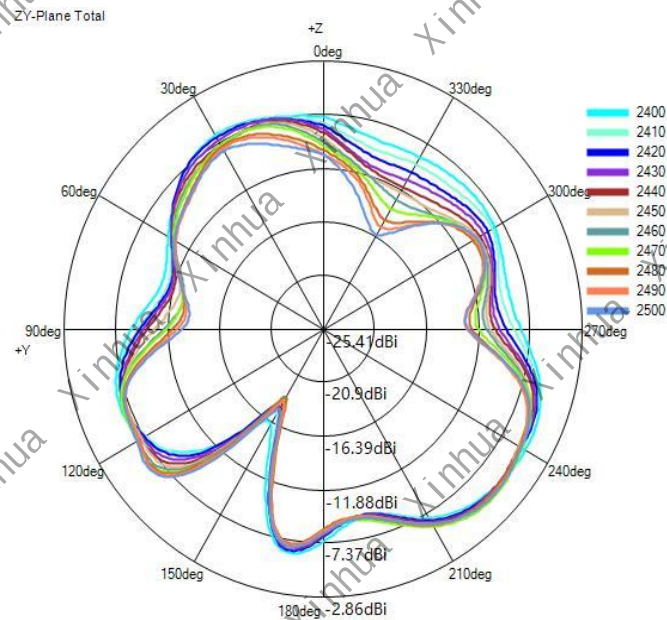
Frequency/MHz	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain/dBi	-2.89	-3.01	-3.23	-3.14	-3.11	-3.19	-3.33	-3.54	-3.82	-3.98	-4.18
Efficiency/%	21.65	20.60	19.87	19.38	18.63	17.89	17.49	16.93	15.68	15.18	14.94

3.2.4 Radiation pattern

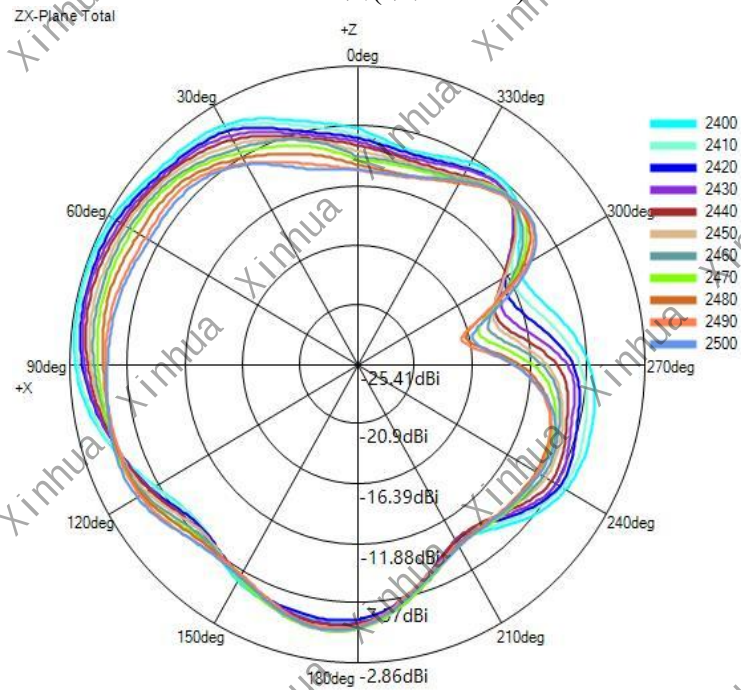
(1) X-Y面(单位: dBi):



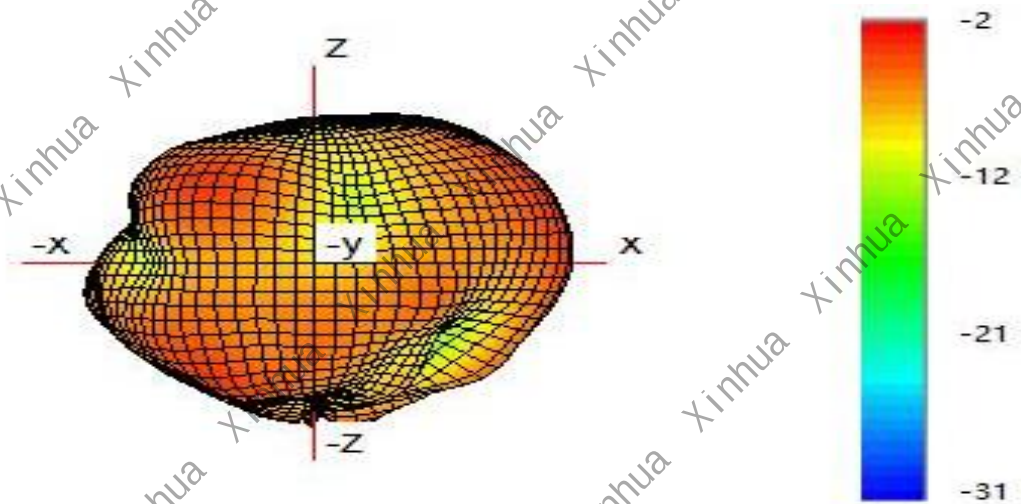
(2) Y-Z面(单位: dBi):



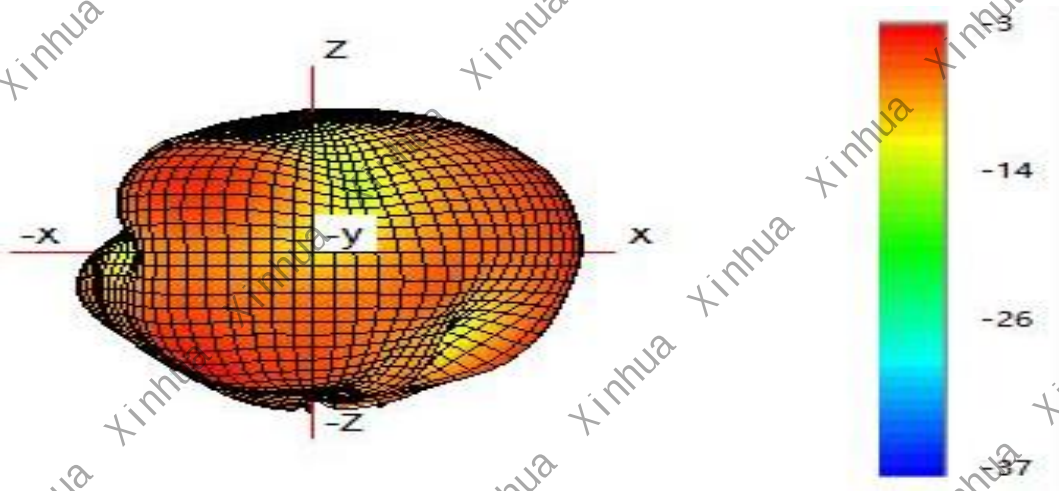
(3) X-Z面(单位: dBi):



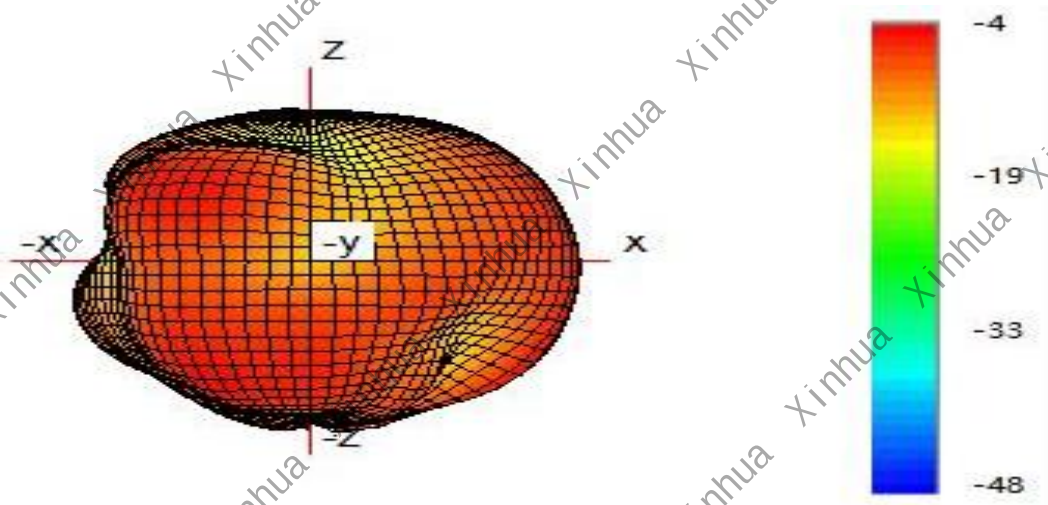
(4) 2400MHz的3D方向图(单位: dBi):



(5) 2450MHz的3D方向图(单位: dBi):



(6) 2500MHz的3D方向图(单位: dBi):



End