



Antenna Test Report

Project No	SE-290A	PCB Version	MS139F6_PCB_V1.0
Tester	ZHUWANLI	Date	2025-05-23
Auditing		Date	
Approval		Date	

Contents

一、Project Information	3rd
二、Technical Specification	4th
三、The shape and size of the antenna	5th
四、The result of the test	5th
1 .VSWR & Return loss & Smith	5th
2. Antenna Testing Environment	6th
3 .Gain and Efficiency	7th
4 .3D Radiation Pattern	8th
5. 2D Radiation Pattern	9th

一、Project Information

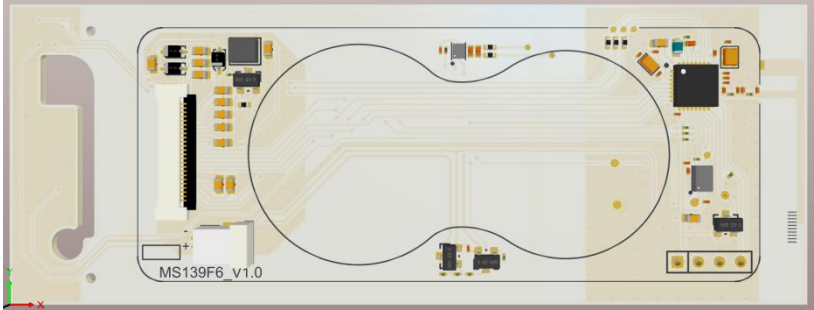
1. Antenna Coding: ANT-BBNCNC25015

2. Antenna Type: IFA

3. Model of the DUT: SE-290A

4. Test Data : 2025-05-23

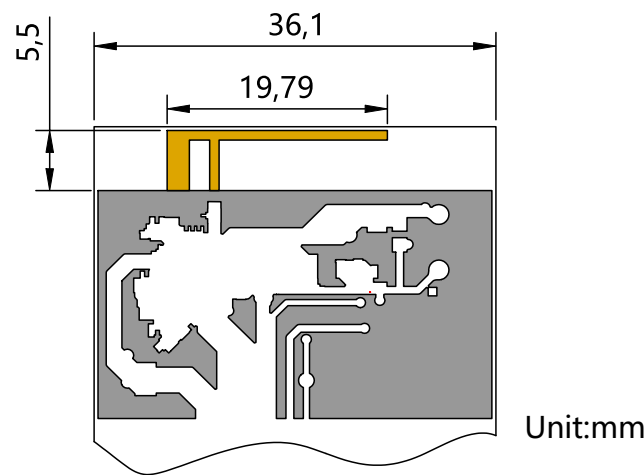
5. Product picture:

Product appearance	 A photograph of the SE-290A device, a white rectangular unit with a large black screen on the left and a circular button and a small square sensor on the right.
PCB board and antenna	 A photograph of the PCB board and antenna. The board is yellow with various components and a large circular antenna structure. The text 'MS139F6_V1.0' is visible on the board.

二、Technical Specification

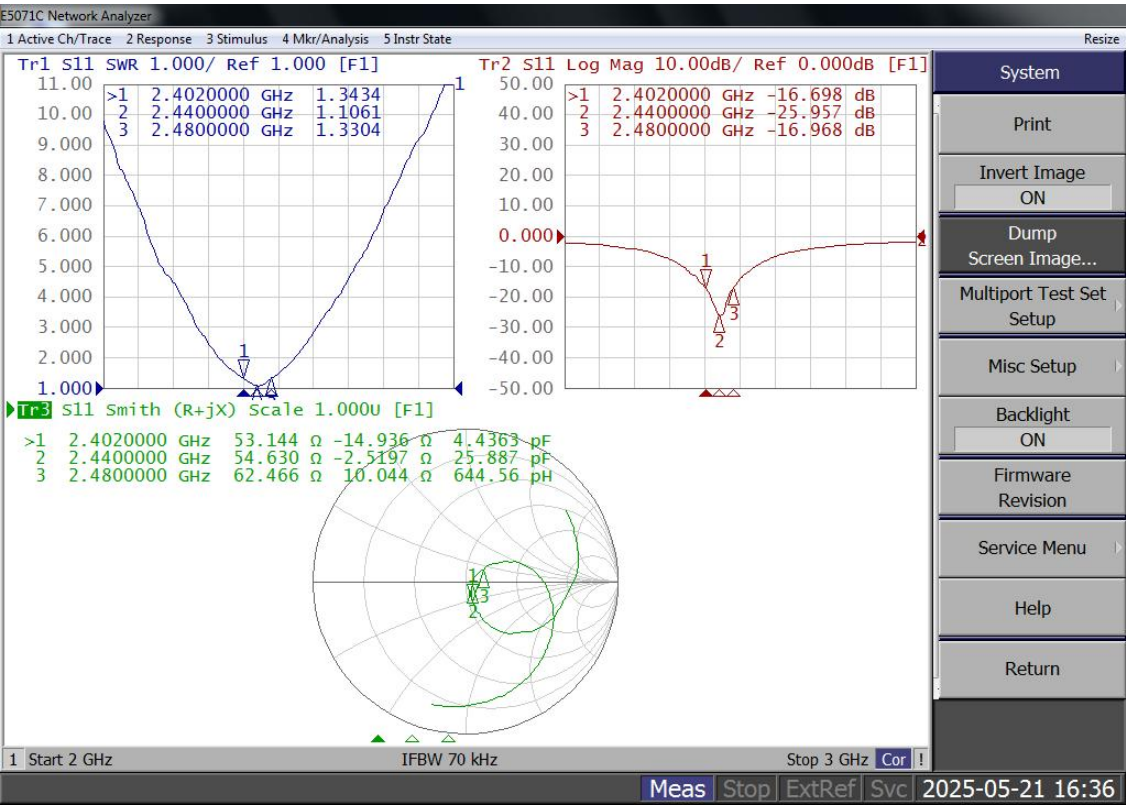
Electrical Specifications	
Frequency Range	2400-2480 MHz
Peak Gain	4.32 dBi
Efficiency	66.65%
Return Loss	≥ 16 dB (MAX)
VSWR	≤ 2.0 (MAX)
Bandwidth ($S_{11} \leq -10$ dB)	200 MHz
Input Impedance	50 Ω
Radiation direction	Omni
Polarization Type	Linear
Lightning Protection	DC grounding
Power Capacity	1000mW (30dBm)
Mechanical Specifications	
Antenna Size	19.8 x 5.5 mm
Core Radiator	Copper
Substrate material	FR4
Substrate thickness	1.0 mm
Substrate Size (mm)	96.2 x 36.1 mm
Coaxial wire	Not required
Connect Type	Not required
Operating Temperature	-15 ~65°C
Storage Temperature	-25 ~60°C

三、The shape and size of the antenna



四、The result of the test

1 .VSWR & Return loss & Smith



Frequency (MHz)	Return Loss (dB)	VSWR
2402	16.6	1.34
2440	25.9	1.10
2480	16.9	1.33
Bandwidth (S11≤-9.8dB)	200	

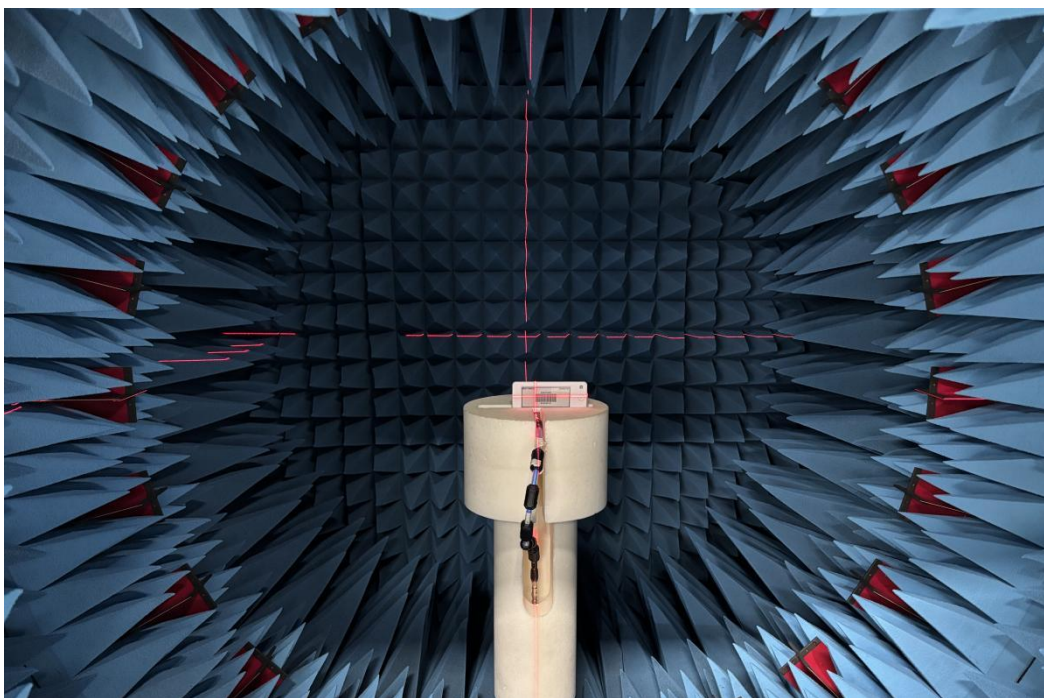
2. Antenna Testing Environment

(1).Test Equipment : SY-24M, Agilent-E5071C

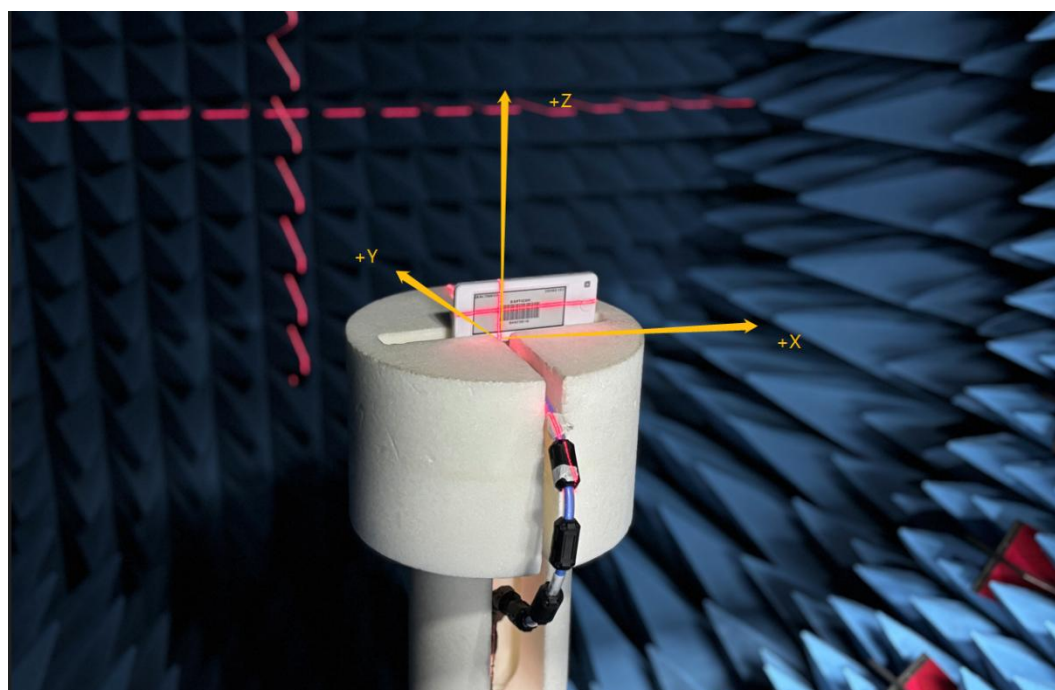
(2).Test Engineer : ZHUWANLI

(3).Test Environment : The microwave unreflected chamber

Inside the microwave anechoic chamber



Product coordinate axis position

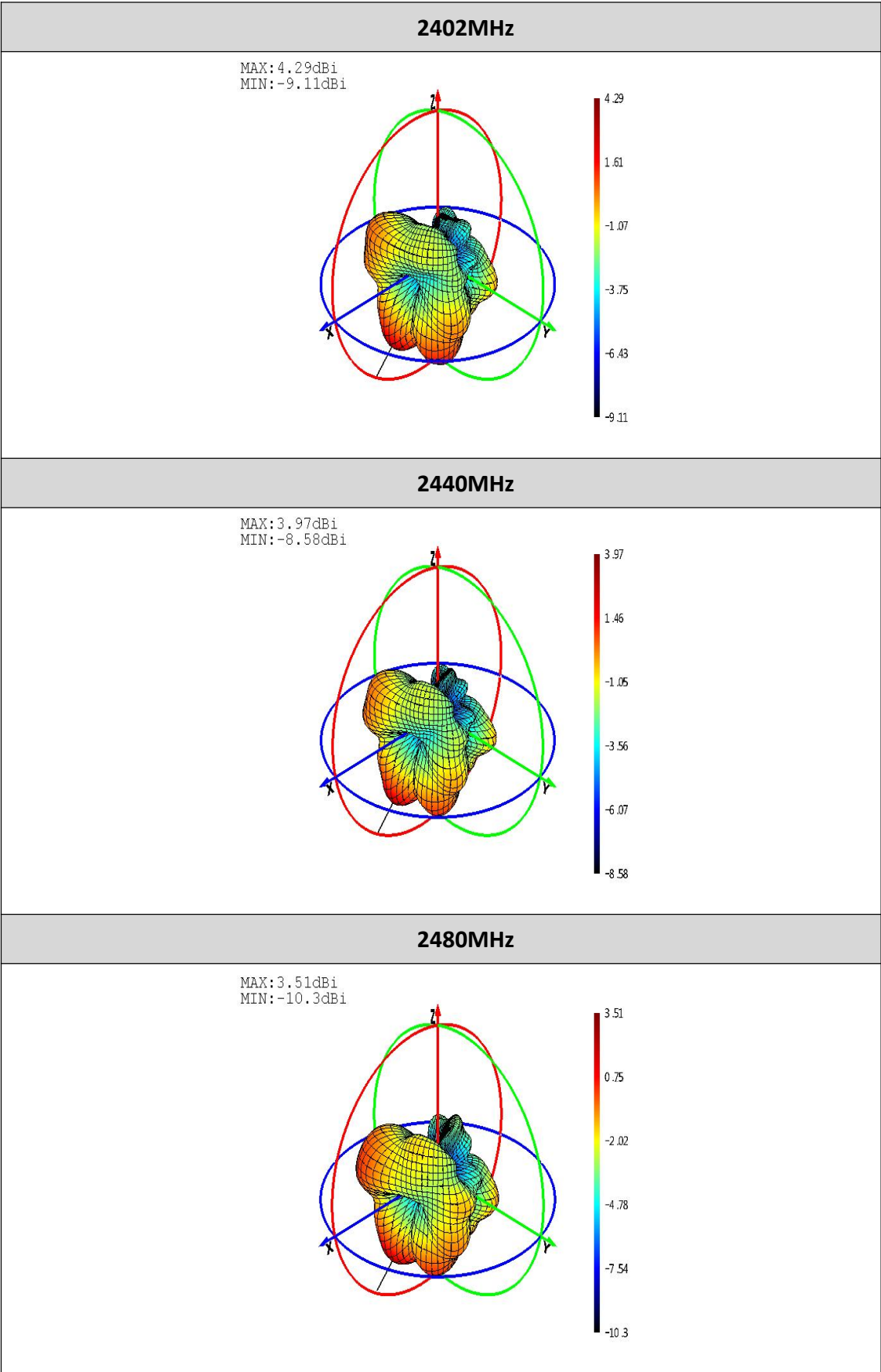


3 .Gain and Efficiency

频率(MHz)	增益(dBi)	效率(%)
2400	4.32	66.65
2402	4.29	66.47
2404	4.29	66.49
2406	4.27	66.31
2408	4.24	66.24
2410	4.22	66.16
2412	4.18	65.81
2414	4.18	65.78
2416	4.17	65.78
2418	4.17	65.59
2420	4.15	65.18
2422	4.13	64.84
2424	4.11	64.62
2426	3.99	64.37
2428	3.99	64.28
2430	4.01	64.15
2432	4.04	64.17
2434	4.05	64.02
2436	3.97	63.68
2438	3.97	63.76
2440	3.97	63.86
2442	3.98	64.29
2444	3.97	64.31
2446	3.89	63.87
2448	3.87	63.83
2450	3.88	64.32
2452	3.88	64.44
2454	3.90	64.77
2456	3.89	64.65
2458	3.85	64.18
2460	3.78	63.49
2462	3.70	62.84
2464	3.66	62.75
2466	3.65	62.91
2468	3.65	63.14
2470	3.61	62.80
2472	3.59	62.69
2474	3.55	62.43
2476	3.50	62.28
2478	3.50	62.54
2480	3.51	62.93

2482	3.51	63.07
2484	3.50	62.96
2486	3.43	62.53
2488	3.44	62.64
2490	3.46	62.95
2492	3.48	63.07
2494	3.47	63.00
2496	3.36	62.43
2498	3.32	61.97
2500	3.30	61.69

4 .3D Radiation Pattern



5.2D Radiation Pattern

