



Antenna Test Report

Project No	P24069B6I	PCB Version	LS028FB_PCB_V1.0
Tester	XuNing	Date	2025.3.5
Auditing		Date	
Approval		Date	

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1. Project Information

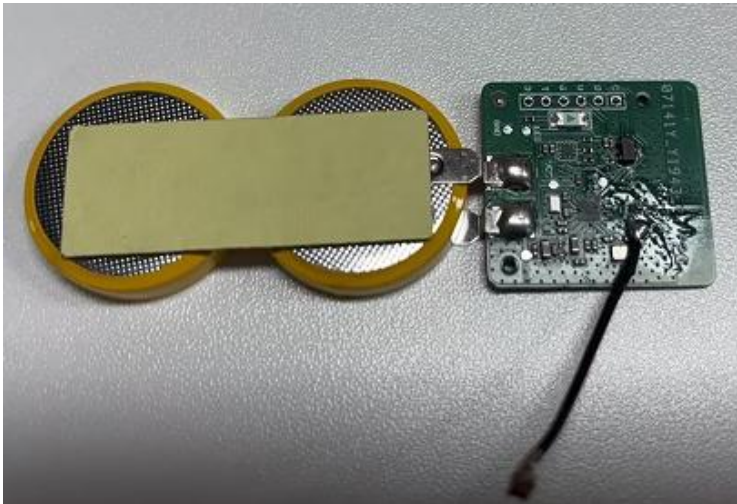
1.1. Antenna Coding: ANT-BBNCNC25001

1.2. Antenna Type: On board PCB Antenna

1.3. Model of the DUT: MTB07

1.4. Test Data : 2025.3.5

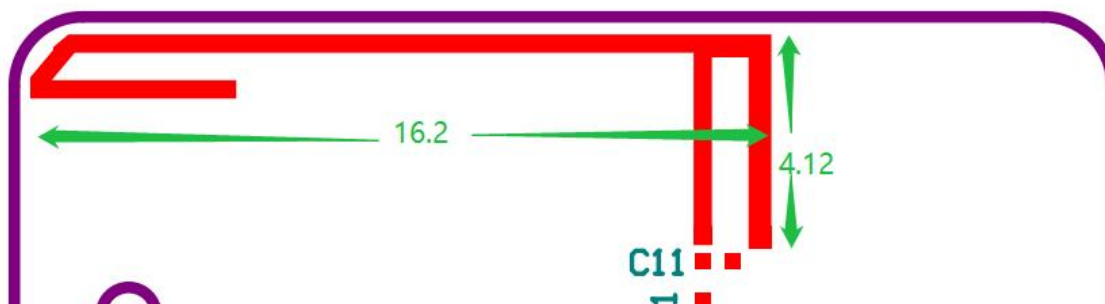
1.5. Product picture:

Product appearance	 A blue plastic device with a QR code on the front and a cable attached to the bottom. The device has two circular holes on the sides.
PCB board and antenna	 A green PCB board with a yellow antenna and a cable attached to the bottom. The antenna is a circular patch antenna with a yellow substrate.

2. Technical Specification

Electrical Specifications	
Frequency Range	2400-2480 MHz
Peak Gain	4.96 dBi
Efficiency	68.92%
Return Loss	$\leq -13\text{dB}$
VSWR	≤ 1.5
Bandwidth (S11 $\leq -10\text{dB}$)	100 MHz
Input Impedance	50 Ω
Radiation direction	Omni
Polarization Type	Linear
Lightning Protection	DC grounding
Power Capacity	1000mW (30dBm)
Mechanical Specifications	
Antenna Size	16.2 x 4.12 mm
Core Radiator	Copper
Substrate material	FPC
Substrate thickness	1mm $\pm$ 0.02mm
Substrate Size (mm)	24x 25 mm
Coaxial wire	Not Required
Connect Type	Not Required
Operating Temperature	-20 to +60 $^{\circ}\text{C}$
Storage Temperature	-10 to +60 $^{\circ}\text{C}$

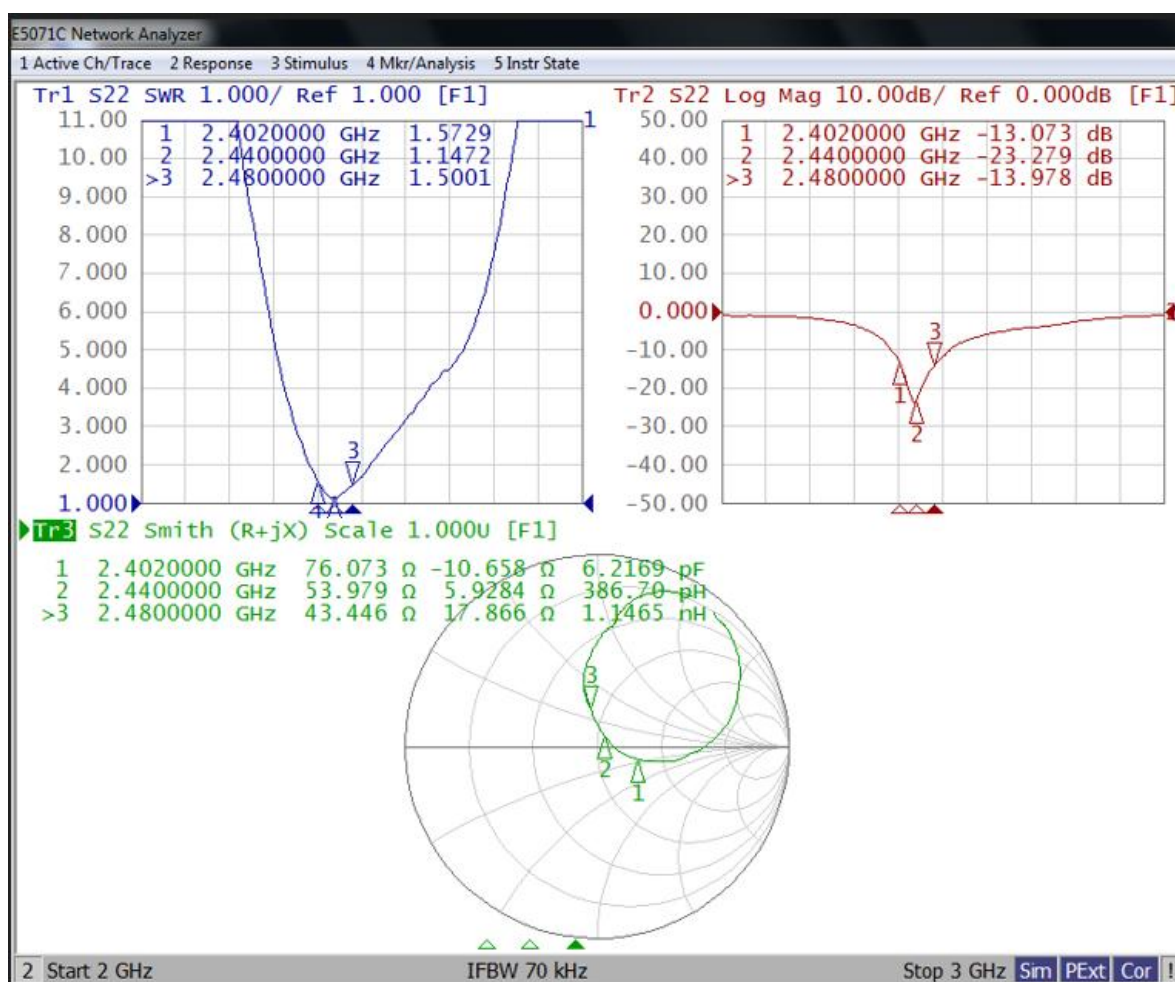
3. The shape and size of the antenna



Unit: mm

4. The result of the test

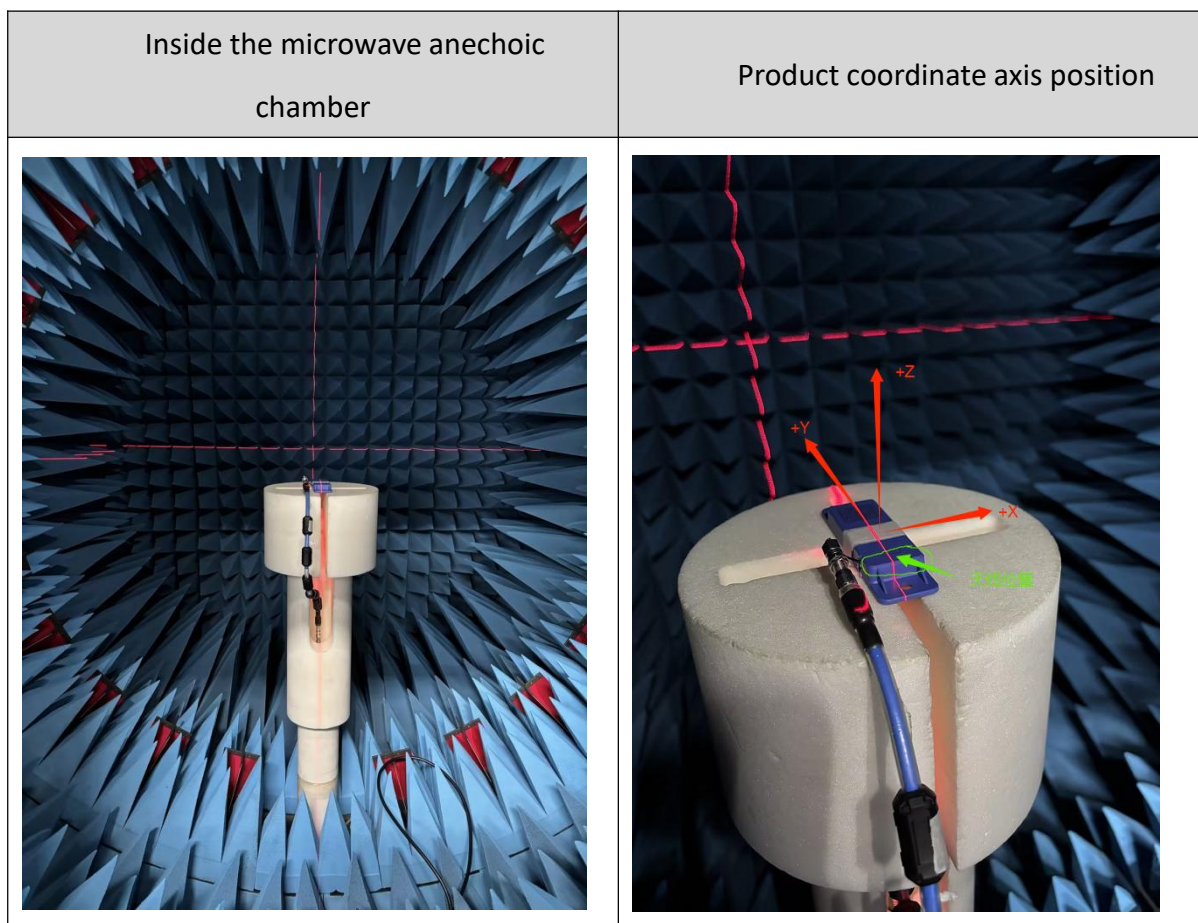
4.1. VSWR & Return loss & Smith



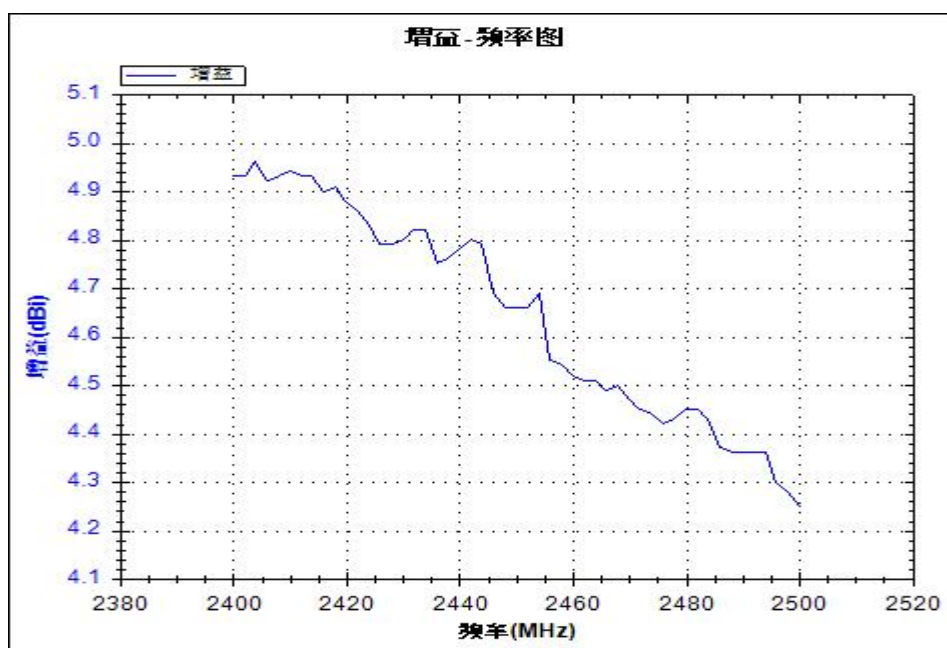
Frequency (MHz)	Return Loss (dB)	VSWR
2402	-13.0	1.57
2440	-23.2	1.14
2480	-13.9	1.50
Bandwidth (S11≤-10dB)	100	

4.2. Antenna Gain and Efficiency

4.2.1. Product coordinate axis position



4.2.2. Graphs of Gain

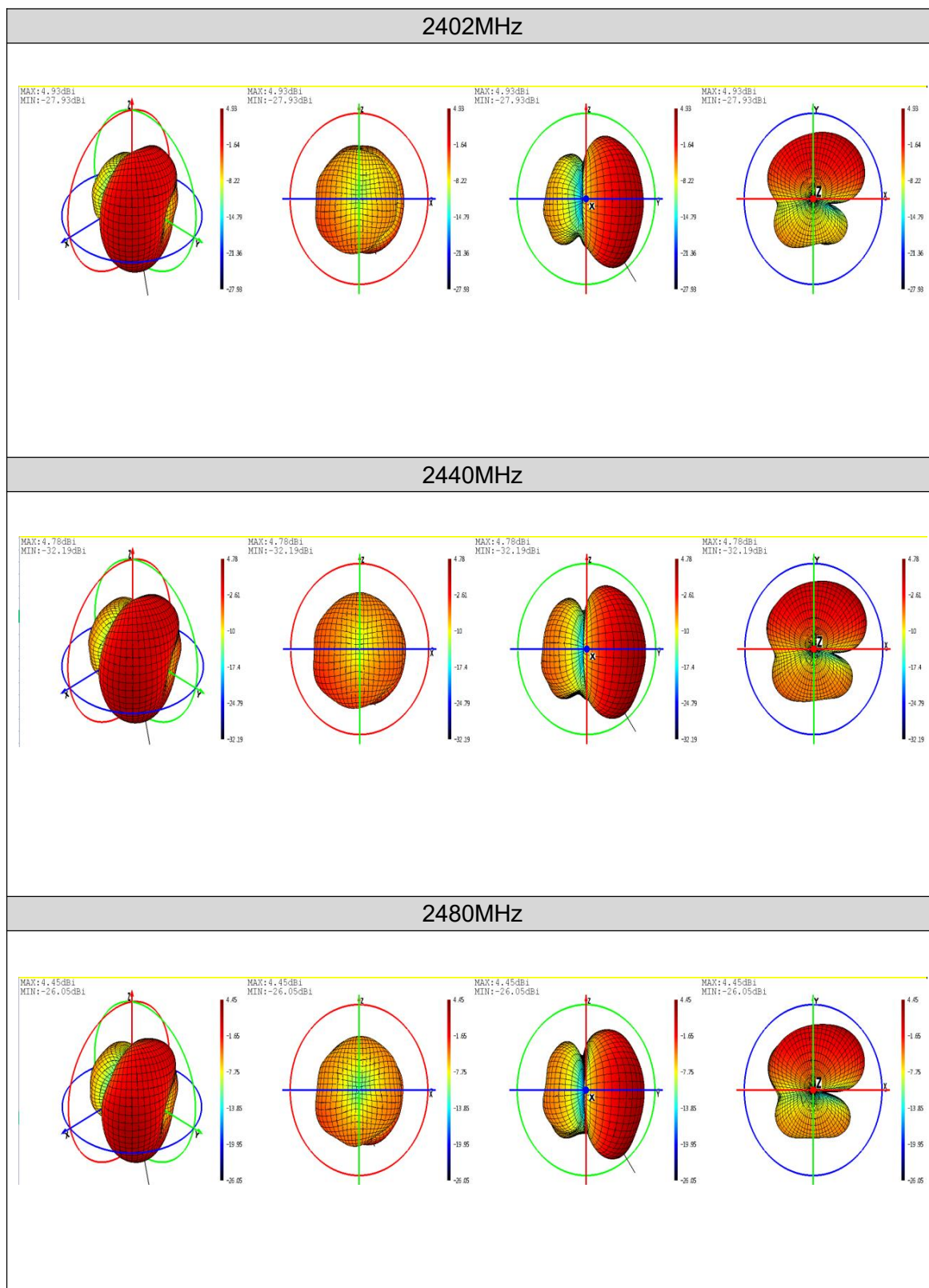


4.2.3. Gain and Efficiency data sheet

Fre (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)	PeakGain (dBi)
2400	4.93	-1.65	68.39	4.96
2402	4.93	-1.65	68.44	
2404	4.96	-1.62	68.83	
2406	4.92	-1.62	68.92	
2408	4.93	-1.60	69.15	
2410	4.94	-1.59	69.27	
2412	4.93	-1.60	69.24	
2414	4.93	-1.59	69.28	
2416	4.90	-1.60	69.14	
2418	4.91	-1.60	69.14	
2420	4.88	-1.62	68.82	
2422	4.86	-1.63	68.74	
2424	4.83	-1.64	68.58	
2426	4.79	-1.64	68.51	
2428	4.79	-1.64	68.51	
2430	4.80	-1.65	68.38	
2432	4.82	-1.65	68.42	
2434	4.82	-1.66	68.31	
2436	4.75	-1.68	67.99	
2438	4.76	-1.66	68.17	
2440	4.78	-1.65	68.43	
2442	4.80	-1.61	68.97	
2444	4.79	-1.60	69.14	
2446	4.69	-1.64	68.60	
2448	4.66	-1.63	68.67	
2450	4.66	-1.59	69.31	
2452	4.66	-1.59	69.41	
2454	4.69	-1.57	69.74	
2456	4.55	-1.60	69.25	
2458	4.54	-1.62	68.90	
2460	4.52	-1.66	68.27	
2462	4.51	-1.68	67.89	
2464	4.51	-1.68	67.84	
2466	4.49	-1.67	68.02	
2468	4.50	-1.66	68.17	
2470	4.47	-1.69	67.77	
2472	4.45	-1.70	67.60	
2474	4.44	-1.71	67.45	
2476	4.42	-1.72	67.32	
2478	4.43	-1.70	67.61	
2480	4.45	-1.67	68.00	

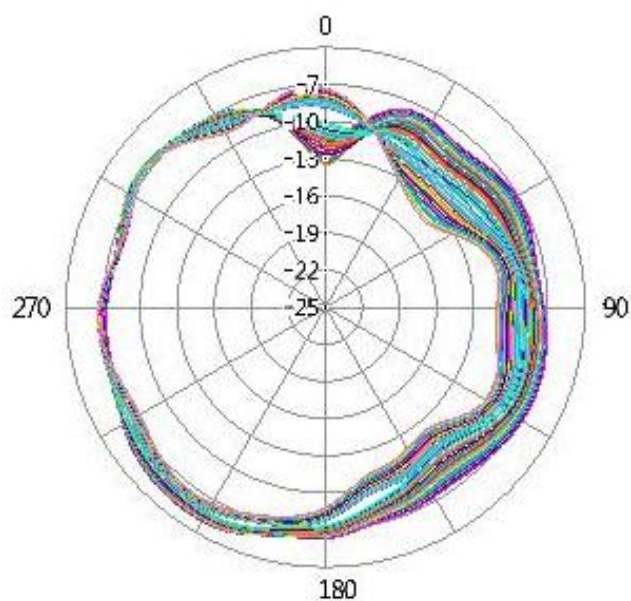
4.3.Radiation Pattern

4.3.1. 3D Radiation Pattern

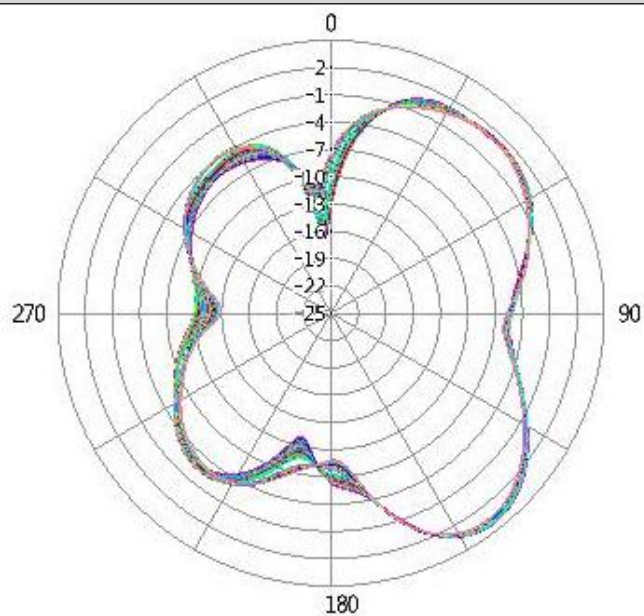


4.3.2. 2D Radiation Pattern

E1, XZ-Face, $\phi=0^\circ$; (E1, $\theta=0^\circ\sim 360^\circ$, $\phi=0^\circ$)



E2, YZ-Face, $\phi=90^\circ$; (E2, $\theta=0^\circ\sim 360^\circ$, $\phi=90^\circ$)



H, XY-Face, $\theta=90^\circ$; (H, $\phi=0^\circ\sim 360^\circ$, $\theta=90^\circ$)

