



Antenna OTA Test Report

For

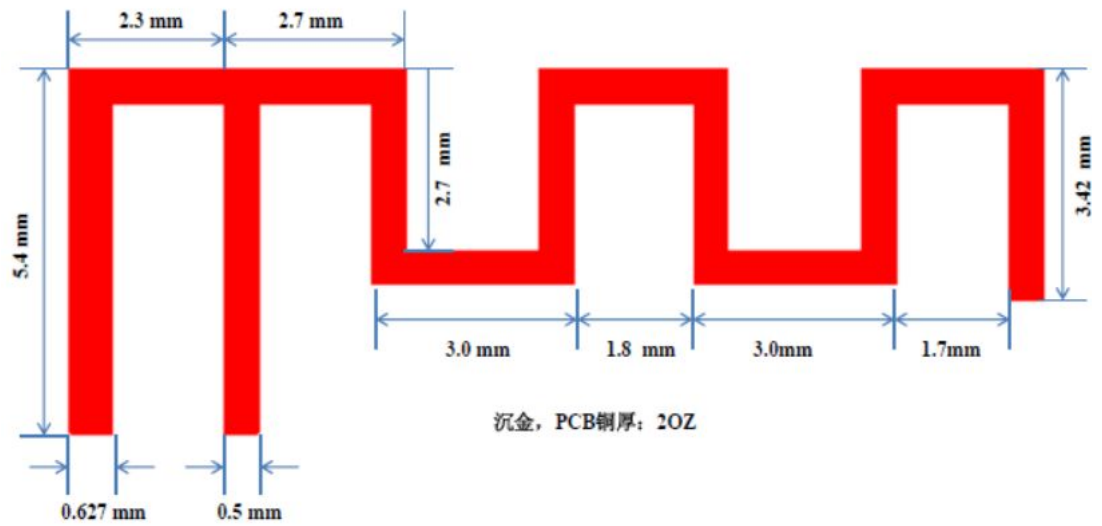
ESP-ANT-A

Customer	GranWin	Demo	GY-SUC3F1-1
Band	2.4G	Color	蓝色
PRS PN		Version	V1.0
Issued by	Jason	Checked by	Mem
Confirmed by	Zhang	Date	2022.03.18

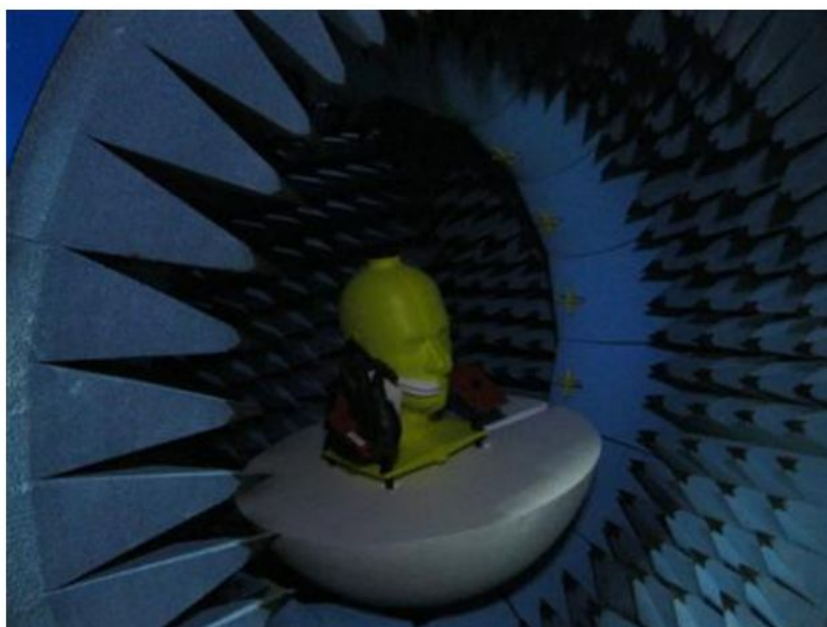
一.TEST INSTRUMENTATION

CHAMBER	SATIMO Chamber
Wireless Networking Test Set	Agilent E5071C
NETWORK ANALYZER	Agilent 8753D
TEMPERATURE	$20\pm3^{\circ}\text{C}$
HUMIDITY	$50\pm20\%\text{rh}$
GROUND RESISTANCE	$<0.5\text{R}$

WiFi Module



Antenna Dimension



The diagram illustrates the coordinate systems and probe movement for the AUT. It shows the AUT (Automated Under Test) and the probe (Probe 15) moving along the z-axis. The AUT is represented by a grey rectangular block, and the probe is a blue cylindrical rod. The AUT's coordinate system (AUT Coordinates) has axes x, y, and z. The probe's coordinate system (FF Coordinates) has axes x, y, and z. The probe is moving along the z-axis, as indicated by the 'Scan moving' arrow. The probe is labeled 'Probe 15' and 'Probe 1'. The probe's movement is also indicated by a green arrow labeled 'Height axis'. The probe's position is defined by the 'Elevation axis' and 'Azimuth axis'. The probe's orientation is defined by the 'Boresight' angle, which is $\theta = 90^\circ$ and $\phi = 180^\circ$. The probe's position is also defined by the 'FF Coordinates' (Far Field Coordinates).

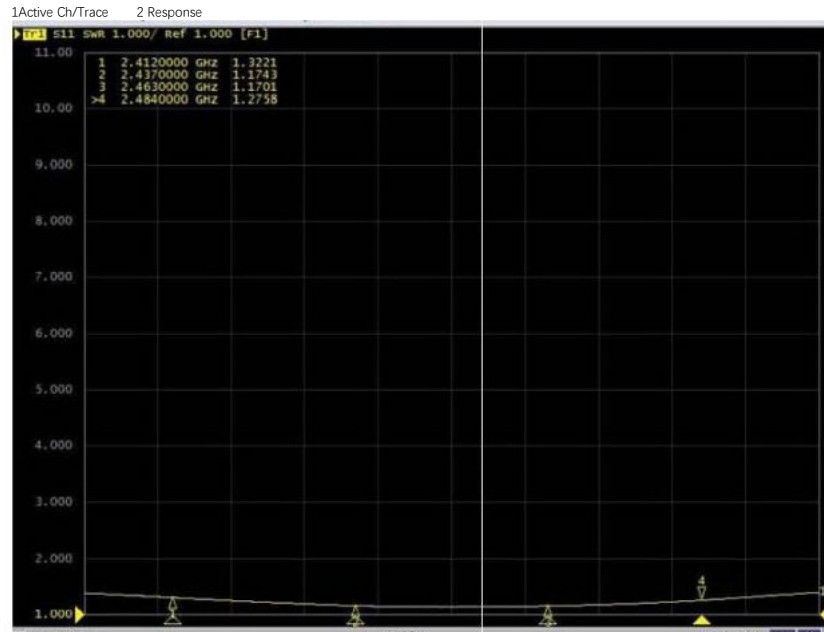
Diagram illustrating the probe system and coordinate system. The probe is a circular structure divided into three segments: P8 (top), P15 (bottom-left), and P1 (bottom-right). The coordinate system is defined by the X, Y, and Z axes. The probe's orientation is defined by the elevation angle θ and the azimuth angle Φ . The probe is labeled "Probe" and "Azimuth motor (Φ)".

二.Test Results

2.1 Gain and Efficiency

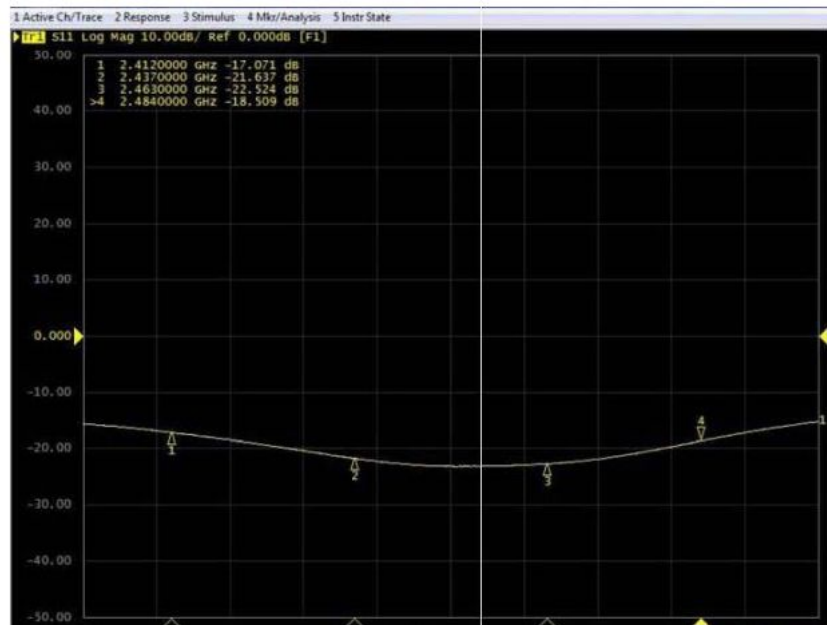
Test Item	Freq (MHz)	Efficiency (%)	Gain (dBi)	Note
Gain	2400	71.32	2.72	Vertical 30°
	2412	70.68	3.21	
	2417	76.51	2.88	
	2422	77.78	2.67	
	2427	80.76	2.89	
	2432	80.11	2.80	
	2437	75.32	2.64	
	2442	75.23	2.93	
	2447	72.99	2.78	
	2452	70.01	3.12	
	2457	72.34	3.13	
	2462	71.32	3.28	
	2467	72.33	3.24	
	2472	75.67	3.33	
	2477	72.12	3.42	
	2482	80.23	3.57	
	2500	79.65	3.22	

2.2 VSWR(Voltage Standing Wave Ration)



Frequency (MHz)	2412	2437	2463	2484
VSWR	1.31	1.17	1.16	1.29

2.3 Antenna S11



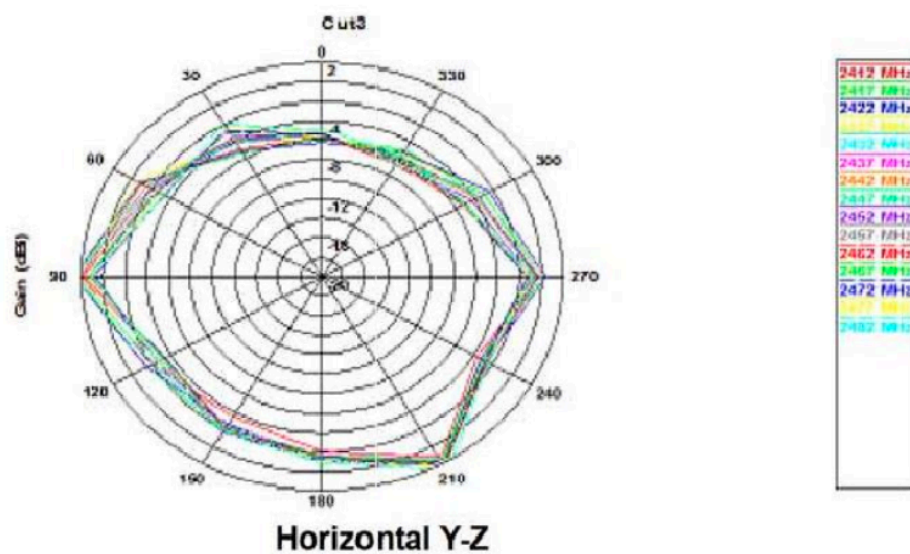
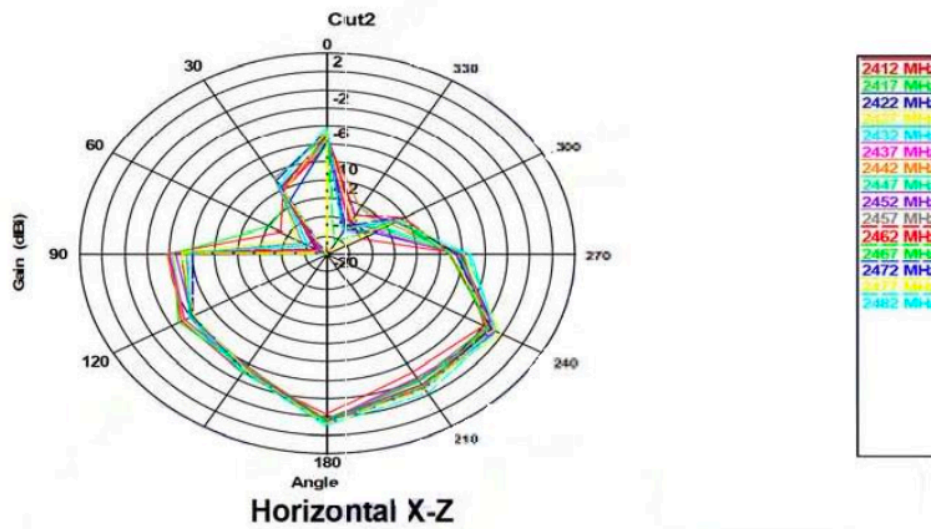
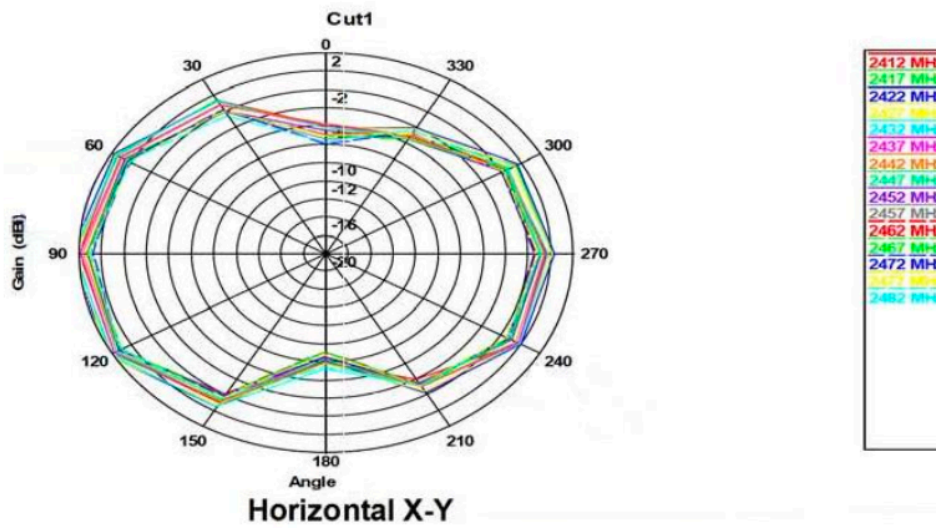
1 Start 2.4 GHz

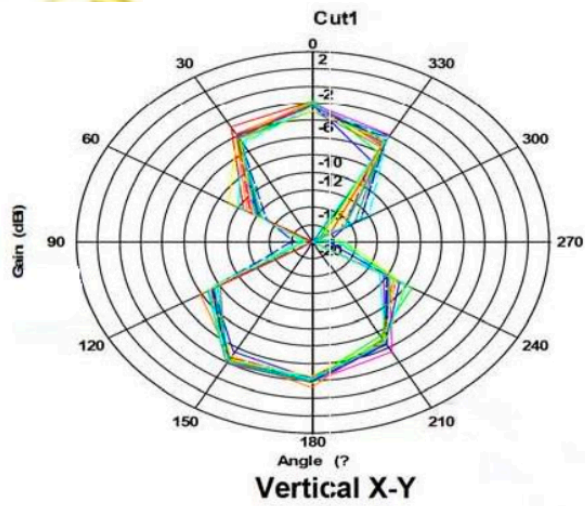
Stop 2.5 GHz

Frequency (MHz)	2412	2437	2463	2484
S11 (dB)	-17.01	-21.65	-22.52	-18.51

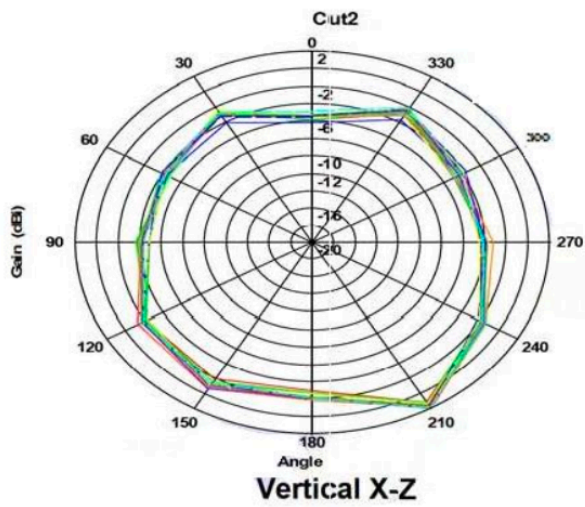
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三. 2-D pattern Plots

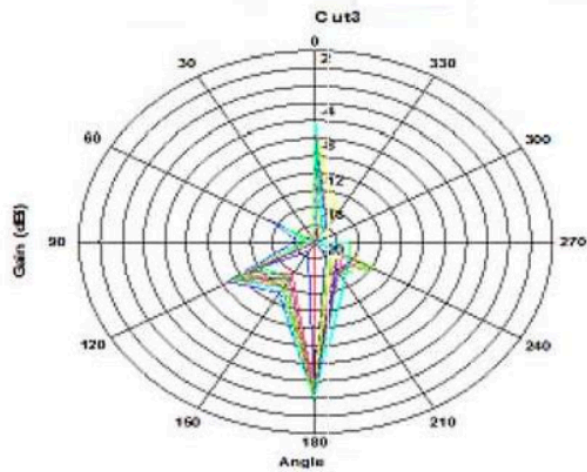




2412 MHz
2417 MHz
2422 MHz
2427 MHz
2432 MHz
2437 MHz
2442 MHz
2447 MHz
2452 MHz
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2462 MHz
2467 MHz
2472 MHz
2477 MHz
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