

ShenzhenXingtongWieressTechnologyCo.,Ltd

FOR

ShenzhenXinruizhiIndustrialCo., Ltd

B13

Antenna specification sheet

Part No. : B13

STYLE: B13-WiFi-Antenna

Specification No. :2025-07-02-V1.0

Client	
Approved	

Approved by	Checked by	Designed by
XUGENG	HUANJJ	WUYANLONG

Project: B13-WIFI		Author: HUANG	File Name: B13-APP-RA
Date: 2025-06-21			
TEST:	Language:	Check: XIE	
A	English		
Address: 3rd Floor, Building A1, Qianglong East Industrial Zone, Jiuwei, Xixiang, Bao'an District, Shenzhen			
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Revision History

Date	Revision	Description of Changes
2025-7-02	RA	Measured with FPC+Ceramic sample.

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1 Technical Summary

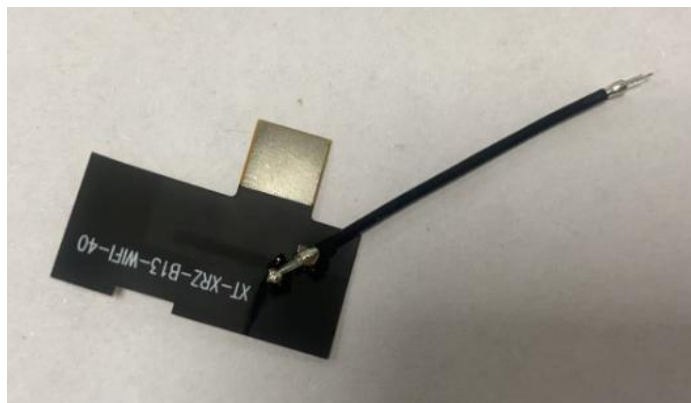
This report summarizes the electrical results of the proposed antenna to support the B13-WIFI program. We test the antenna with the latest version handset. And it seems to be acceptable.

2 General Description

2.1 Components/Part revisions

VSWR: Voltage Standing Wave Rate.

3 Mechanical Description



4 Electrical Performance

4.1 Set-up

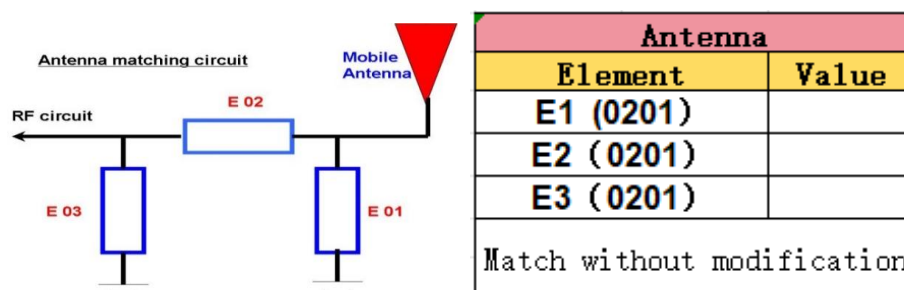
4.1.1 VSWR

VSWR measurements (S21) were performed using an Agilent 8753D Network Analyzer and the previously described test fixture. Coaxial chokes were used to mitigate surface currents on the outside of the cabling. The testing was performed in free space.

4.1.2 Gain & Radiation Patterns

The gain of the antenna was measured in the XingTong's anechoic chamber. Coaxial chokes on the feed cable were used to mitigate surface currents. The chamber provides less than -30 dB reflectivity from 2400 MHz through 6000MHz and an 18" diameter spherical quiet zone. The measurement results are calibrated using both dipole and leaky wave horn standards.

4.1.3 Matching Circuit Description



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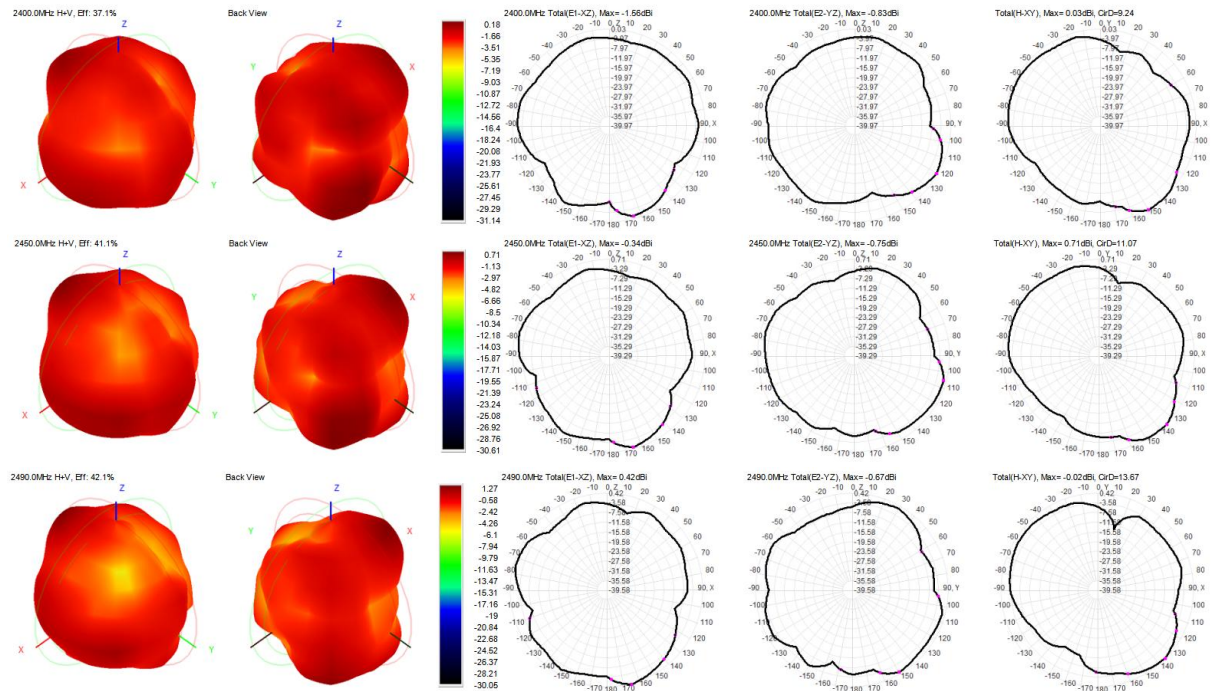
4.2 Measurement Data

4.2.1 WiFi/BT/GPS-OTA:

1. WIFI/BT2. 4G-2D

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-4.31	-4.30	-4.10	-4.13	-4.32	-3.86	-3.86	-4.02	-3.61	-3.76	-3.84
Gain (dBi)	0.18	0.24	0.54	0.53	0.15	0.71	0.78	0.75	1.31	1.27	1.47
Efficiency (%)	37.07	37.17	38.86	38.67	37.01	41.12	41.14	39.59	43.57	42.09	41.34
Directivity (dB)	4.49	4.54	4.64	4.66	4.47	4.57	4.64	4.78	4.92	5.02	5.31
Peak Gain Position (Theta)	75.00	75.00	75.00	75.00	90.00	90.00	90.00	30.00	30.00	150.00	150.00
Peak Gain Position (Phi)	240.00	240.00	240.00	240.00	225.00	225.00	225.00	300.00	300.00	300.00	300.00
Efficiency ThetaPol (%)	17.62	17.54	18.20	18.07	17.06	18.90	19.21	19.05	21.31	20.71	20.62
Efficiency PhiPol (%)	19.45	19.62	20.67	20.60	19.95	22.23	21.93	20.54	22.25	21.38	20.71
Upper Hem. Efficiency (%)	19.67	19.65	20.44	20.21	19.29	21.23	20.86	19.62	21.15	20.10	19.39
Lower Hem. Efficiency (%)	17.40	17.52	18.43	18.46	17.72	19.90	20.28	19.97	22.42	22.00	21.95

2. WIFI/BT2. 4G-band-3D



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Frequency ID	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Frequency (MHz)	5150.0	5200.0	5250.0	5300.0	5350.0	5400.0	5450.0	5500.0	5550.0	5600.0	5650.0	5700.0	5750.0	5800.0	5850.0
Efficiency (dB)	-3.95	-3.08	-2.92	-3.87	-3.17	-2.75	-4.10	-3.68	-2.60	-4.15	-4.05	-3.18	-4.10	-4.72	-3.68
Gain (dBi)	2.93	3.82	3.94	2.94	3.18	4.74	2.86	3.51	5.00	2.38	3.12	4.51	3.19	2.12	3.23
Efficiency (%)	40.29	49.15	51.07	41.00	48.16	53.05	38.92	42.87	55.00	38.45	39.37	48.09	38.87	33.72	42.90
Directivity (dB)	6.88	6.90	6.86	6.81	6.35	7.49	6.96	7.18	7.60	6.53	7.17	7.69	7.30	6.85	6.91
Peak Gain Position (Theta)	120.00	120.00	120.00	120.00	120.00	120.00	120.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00
Peak Gain Position (Phi)	210.00	210.00	210.00	210.00	210.00	210.00	210.00	255.00	255.00	255.00	255.00	255.00	255.00	255.00	255.00
Efficiency ThetaPol (%)	21.43	26.63	28.49	22.71	27.27	29.39	21.21	22.73	28.48	19.39	20.84	24.86	19.98	17.77	23.01
Efficiency PhiPol (%)	18.86	22.52	22.58	18.29	20.89	23.66	17.72	20.14	26.51	19.06	18.52	23.23	18.88	15.95	19.89
Upper Hem. Efficiency (%)	20.97	25.67	26.16	21.13	24.09	25.93	18.81	20.48	26.69	19.18	18.77	22.72	18.49	16.53	20.76
Lower Hem. Efficiency (%)	19.32	23.48	24.91	19.87	24.07	27.12	20.12	22.39	28.30	19.28	20.60	25.37	20.38	17.19	22.14

Figure 10 displays the radiation pattern plots for the 5600 MHz antenna. The figure is organized into three rows, each corresponding to a different polarization configuration: H+V, E+V, and H+X. Each row contains two plots: a 3D radiation pattern plot on the left and a 2D radiation pattern plot on the right. The 3D plots show the antenna structure with X, Y, and Z axes. The 2D plots show the radiation pattern in the XZ and YZ planes. The color scale bars on the left of each 2D plot indicate the dB level, ranging from -28.38 to 2.93 dB for the first row, -27.81 to 3.51 dB for the second row, and -28.09 to 3.23 dB for the third row. The numerical data tables on the right of each 2D plot provide specific values for the radiation pattern at various angles.

Row 1: 5600 MHz Total (E1-XZ), Max = -0.28 dB

3D Plot: 5600 MHz H+V, Eff: 40.3%

2D Plot: 5600 MHz Total (E2-YZ), Max = 0.42 dB

Total (H+XY), Max = -1.85 dB, Crd = 15.89

Row 2: 5600 MHz Total (E1-XZ), Max = -0.55 dB

3D Plot: 5600 MHz H+V, Eff: 42.9%

2D Plot: 5600 MHz Total (E2-YZ), Max = 0.97 dB

Total (H+XY), Max = -0.11 dB, Crd = 14.84

Row 3: 5600 MHz Total (E1-XZ), Max = -0.68 dB

3D Plot: 5600 MHz H+V, Eff: 42.9%

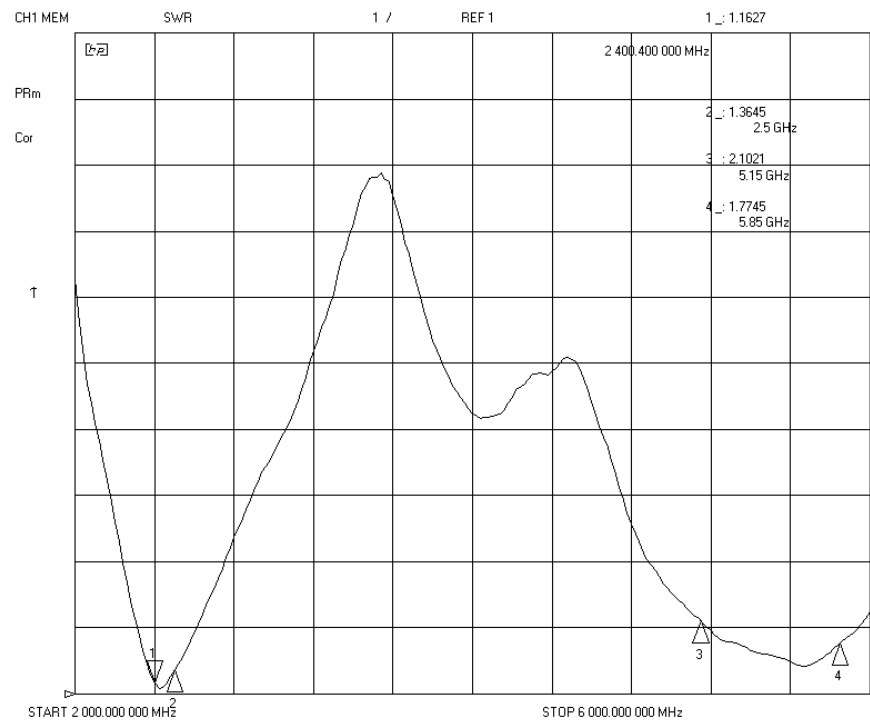
2D Plot: 5600 MHz Total (E2-YZ), Max = 0.86 dB

Total (H+XY), Max = 1.23 dB, Crd = 18.85

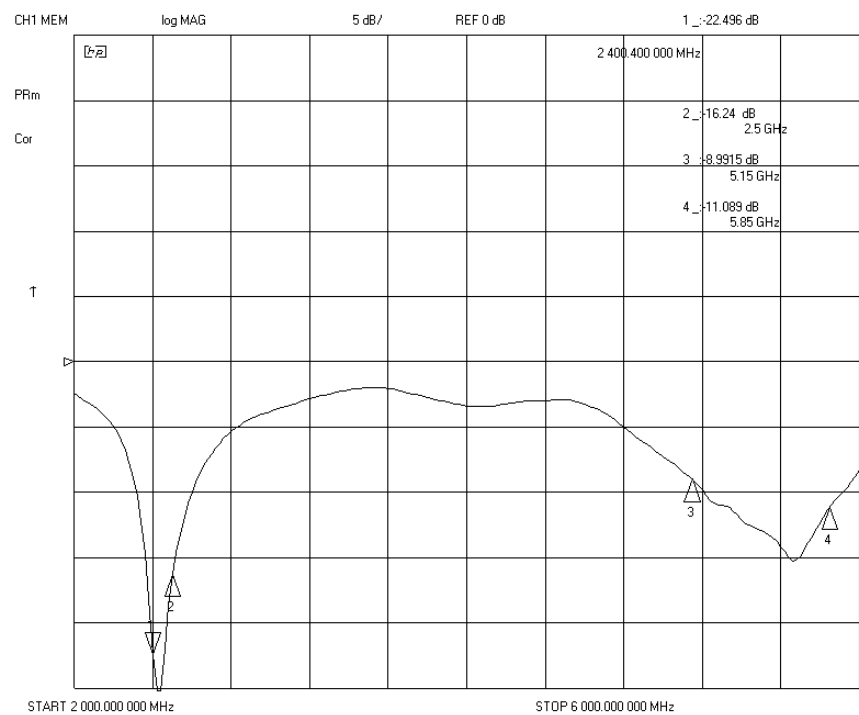
- 5 -

5 Plots

5.1 Lobe pattern(WIFI)



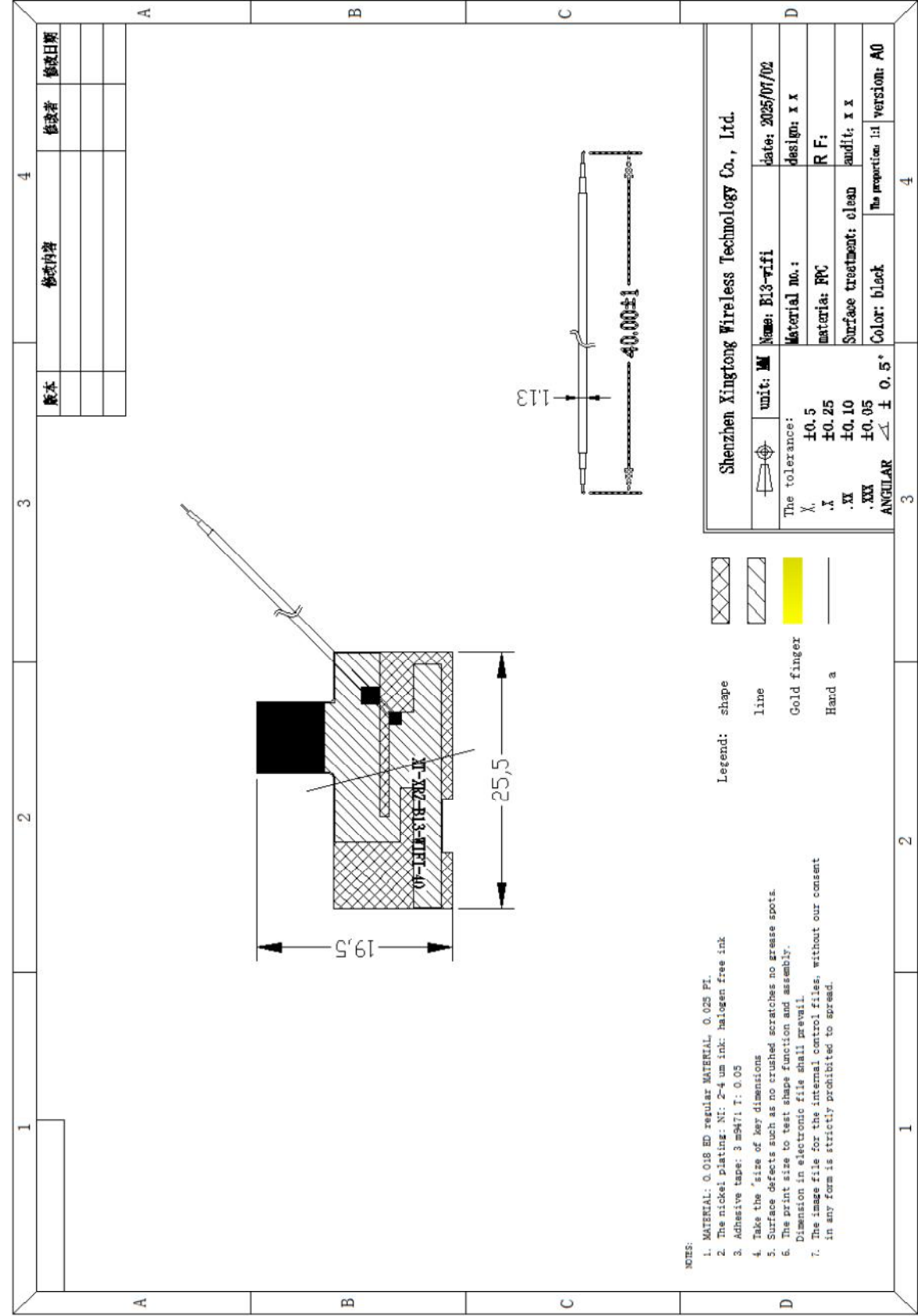
5.2 LOG MAG(WIFI)



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6 Mechanical drawing

WIFI-MD



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7 Reliability tests

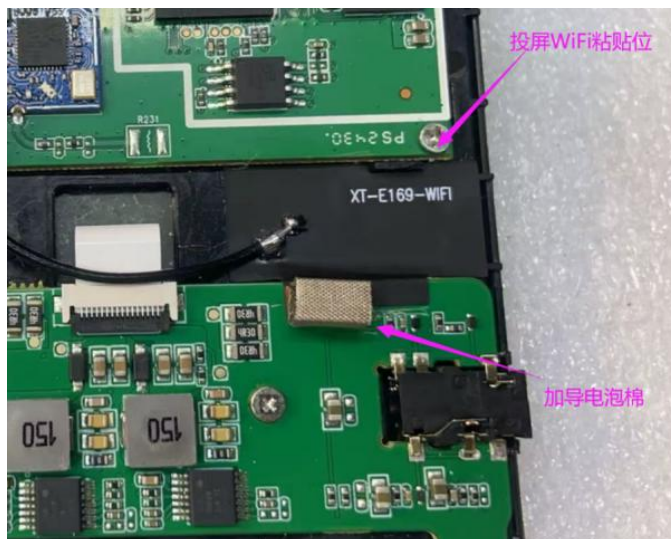
7.1 Test content

No	Test items	test method	defining principle
1	Salt water spray test	Spray the solution with salt concentration of 5% for 48HR	There should be no defects such as discoloration, deformation, or detachment, and the corrosion area should not be too large
2	Operational Temperature	-40℃~+65℃	
3	Storage Temperature	-50℃~+85℃	
4	Humidity	40%~95%	

7.2 Test results

NO	Number of samples	Test time	experimental result	notes
1	50	24 hour	OK	Technical level is level 9 Corrosion<0.4mm
2	50	24 hour	OK	Technical level is level 9 Corrosion<0.4mm

8 Conclusion



Note: The environmental treatment of the entire machine is based on the antenna report as the final decision.

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