

Shenzhen Ruida Yongli Technology Co., Ltd.

Electrical Performance Technical Parameters

Model model	WIFI Surface Mount Antenna	
Frequency Range – MHz	2400-2500	5150-5850
Peak Gain (dB)	3.0~4.0dB	
VSWR (Voltage Standing Wave Ratio): ±0.3	≤2.5 : 1	
Input impedance- Ω	50	
Polarization Method	Vertical	
Maximum Power – W	20	
Connector Type: Connector Model	SMA-JW1.5 Nickel-plated elbow	
Cable Length: Cable length – m	1.5	
Weight – Weight in grams	35g±5g	
Installation Method	Paste	
Environmental	1. Working Temperature: -40°C to +85°C 2.Humidity humidity 95%~100%RH	

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2. Testing Equipment and Dark Room

2-1 Testing Equipment

Implementor name	Model	Use
Vector network analyzer	5071c	Test passive efficiency, standing wave, impedance, etc.
Comprehensive test instrument	Cmw500	Measure active OTA data

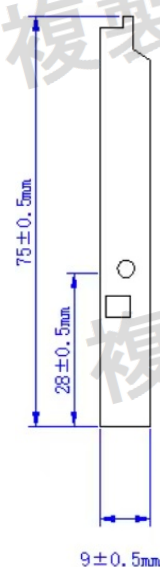
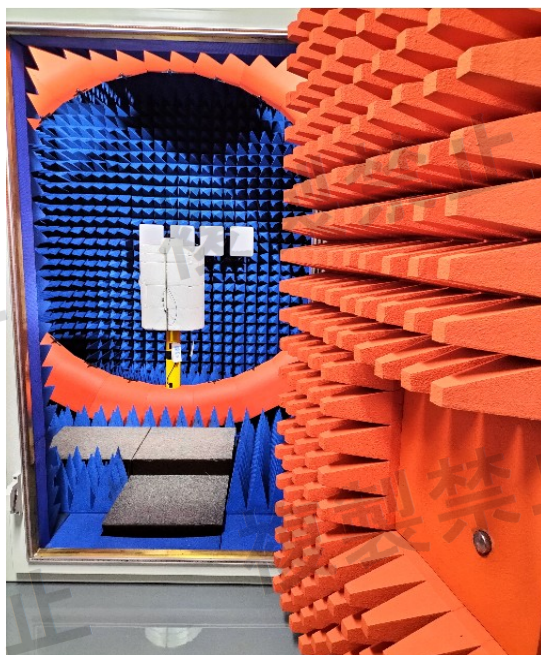


2-2 Test Dark Room

Dark Room Type: 24 Probe Antenna Test Dark Room

Measurement Method: Place the antenna under test horizontally on the testing platform, then control the darkroom using computer software to establish a testing plan.

Advantages: High speed, excellent load-bearing capacity, and the ability to convert near-field data into far-field data.



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3. Electrical Performance Requirements for Antennas

3-1 Frequency Requirements

The operating frequencies of the Wi-Fi antenna are as follows:

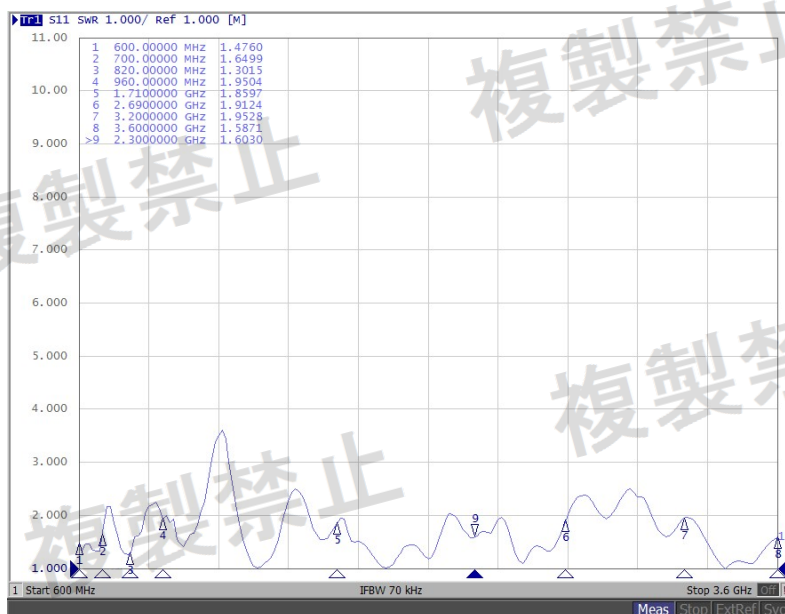
2.4G : 2400~2500MHz

5.8G : 5150-5850MHz

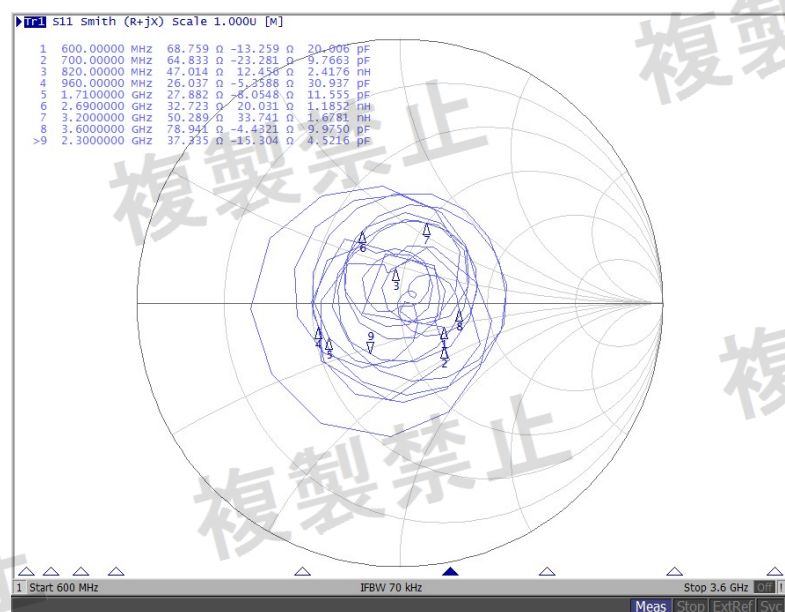
3-2 Passive S11 Parameter Measurement

Passive S11 parameter measurement method: Connect one end of a 50 Ω coaxial cable to the antenna and the other end to a network analyzer to measure the S11 parameter. During testing, keep the fixture at least 20 cm away from metal surfaces (maintaining the original test configuration minimizes errors).

The standing wave is as follows:



The impedance is as follows:



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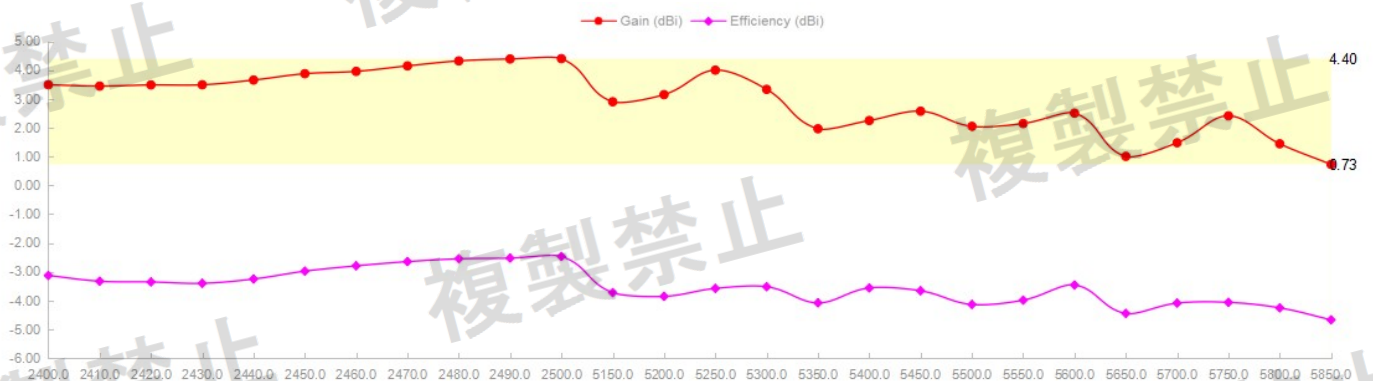
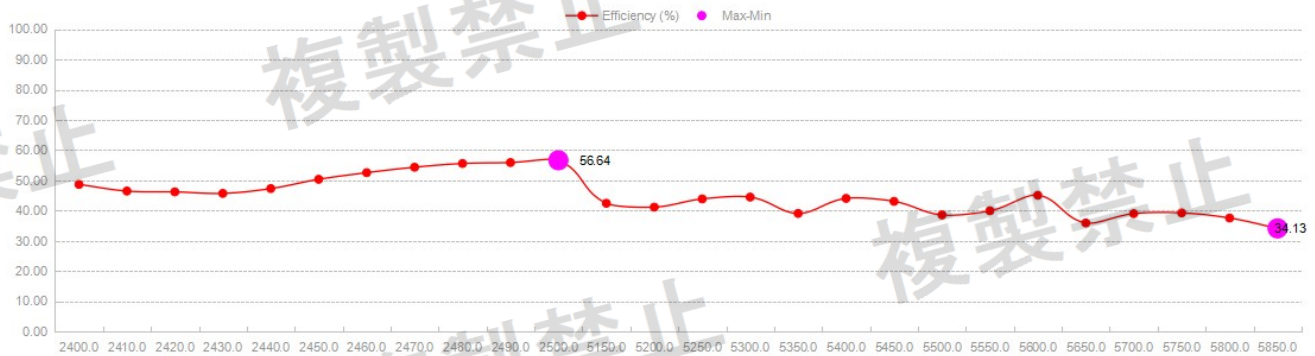
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Ltd.3-2 Passive Efficiency Testing

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)	-3.13	-3.33	-3.35	-3.40	-3.25	-2.98	-2.79	-2.65	-2.55	-2.53	-2.47
Gain (dBi)	3.49	3.45	3.49	3.49	3.66	3.88	3.96	4.15	4.32	4.39	4.40
Efficiency (%)	48.67	46.47	46.20	45.70	47.30	50.36	52.55	54.35	55.59	55.90	56.64
Directivity (dB)	6.62	6.77	6.84	6.89	6.91	6.86	6.75	6.80	6.87	6.91	6.87
Peak Gain Position (Theta)	142.00	142.00	143.00	143.00	144.00	145.00	145.00	146.00	146.00	146.00	145.00
Peak Gain Position (Phi)	323.00	323.00	324.00	325.00	326.00	327.00	328.00	328.00	329.00	329.00	330.00
Efficiency ThetaPol (%)	34.75	33.14	32.82	32.40	33.66	36.23	38.34	40.26	41.73	42.32	43.07
Efficiency PhiPol (%)	13.92	13.33	13.38	13.30	13.64	14.12	14.21	14.09	13.86	13.58	13.58
Upper Hem. Efficiency (%)	18.16	16.91	16.55	15.96	16.00	16.71	17.67	18.31	18.52	18.40	18.60
Lower Hem. Efficiency (%)	30.51	29.56	29.65	29.74	31.30	33.64	34.87	36.04	37.07	37.50	38.04

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 (dBi)	-3.72	-3.86	-3.58	-3.52	-4.08	-3.56	-3.66	-4.14	-3.98	-3.46	-4.45	-4.09	-4.06	-4.25	-4.67
Gain (dBi)	2.90	3.15	4.00	3.33	1.96	2.25	2.57	2.05	2.15	2.51	1.01	1.48	2.41	1.44	0.73
Efficiency (%)	42.42	41.16	43.87	44.47	39.07	44.04	43.05	38.59	39.95	45.09	35.92	39.01	39.25	37.55	34.13
Directivity (dB)	6.63	7.01	7.58	6.85	6.05	5.81	6.23	6.18	6.13	5.97	5.45	5.57	6.47	5.70	5.40
Peak Gain Position (Theta)	101.00	99.00	99.00	97.00	96.00	96.00	95.00	91.00	92.00	92.00	90.00	91.00	91.00	89.00	30.00
Peak Gain Position (Phi)	50.00	50.00	50.00	51.00	55.00	60.00	63.00	84.00	86.00	65.00	86.00	82.00	74.00	66.00	157.00
Efficiency ThetaPol (%)	36.80	35.36	38.64	39.20	33.49	38.71	38.37	33.52	35.47	40.33	31.92	35.18	35.75	34.29	31.38
Efficiency PhiPol (%)	5.63	5.80	5.23	5.27	5.58	5.33	4.68	5.07	4.48	4.76	4.00	3.83	3.50	3.26	2.75
Upper Hem. Efficiency (%)	19.74	17.36	18.11	21.31	18.61	21.22	21.95	19.41	19.86	24.84	21.31	21.60	21.30	23.09	22.24
Lower Hem. Efficiency (%)	22.68	23.80	25.76	23.16	20.46	22.82	21.11	19.18	20.09	20.24	14.61	17.41	17.95	14.46	11.89

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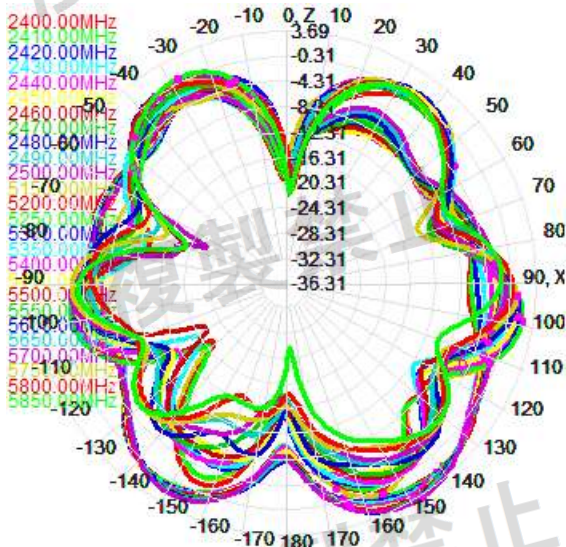


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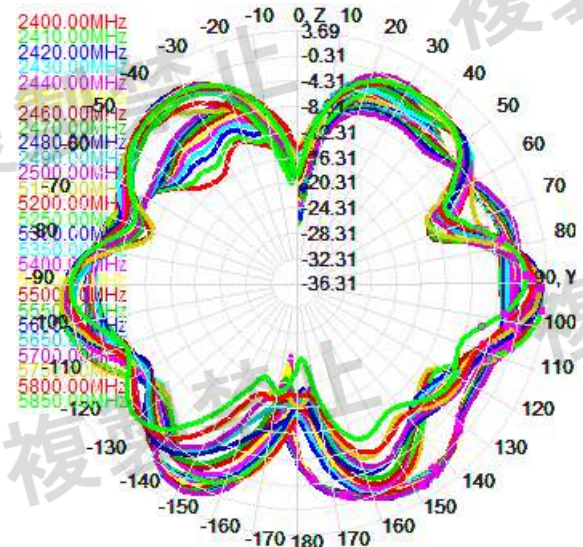
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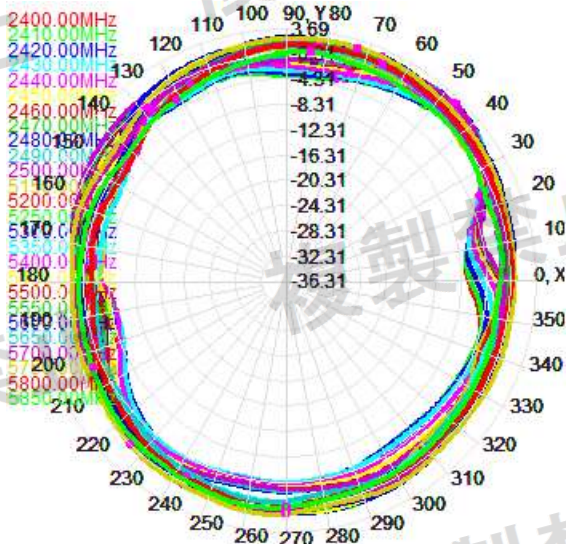
3-3 Radiation Direction Diagram E1



E2



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