

Acknowledgement

APPROVAL SHEET

Customer Name : CUSTOMER NAME :	
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Material Number:
PARTNO:

Product Name : TYPE NAME :

5G WIFI patch antenna

CUSTOM P/N :

Specification :
SPECIFICATON :

FAKRA-KW1.5-C Blue Elbow /1m Low Loss Cable/English
Label

1. Newly Approved ☒
2. Material Approved ☐
3. Specification Change Re-approval (SPEC Approved) ☐

Manufacturer/Supplier					
Acknowledgement Column			Customer Acknowledgement Column		
Acknowledgement Chapter: APPROVAL BY			Acknowledgement Chapter: APPROVAL BY		
Date of Recognition: (Approval Date) : 2025 month day			Date of Recognition: (Approval Date) : 2025 month day		
Supplier			Customer		
quality Q. Dept	project E. Dept	business S. Dept	Handled TESTED	Audit CHECKED	Approved APPROVED
Hou Zaifeng	Wang Shihai	Zhang Yanping			

Company Name : Shenzhen Ruida Yongli Technology Co., Ltd.

Company Address: 3rd Floor, Building B, No. 5, Nantong Avenue, Tongle Community, Baolong Street, Longgang District, Shenzhen
(No. 15, Jinlong 2nd Road)

electricity Tel : 0755-89329300 Fax: 0755-28522900 Website: <http://www.szrestart.com>

Date: 2025	Date: 2025
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Electrical performance technical parameters

Model	5G WIFI patch antenna
Frequency Range-MHz	2400MHz ~ 2500MHz , 5150MHz~5850MHz
Gain dBi	See 4-1
Antenna Type	FPC dipole antenna
VSWR voltage standing wave ratio (± 0.2)	$\leq 2.5:1$
Input impedance - Ω	50
Polarization	Vertical
Maximum Power-W	20
Connector Type	FAKRA-KW1.5-C blue elbow
Cable Length-m	1
Weight Weight-g	25g
Installation	Paste
Environmental	1. Working temperature -40 $^{\circ}\text{C}$ ~+85 $^{\circ}\text{C}$ 2. Humidity 95%~100%R

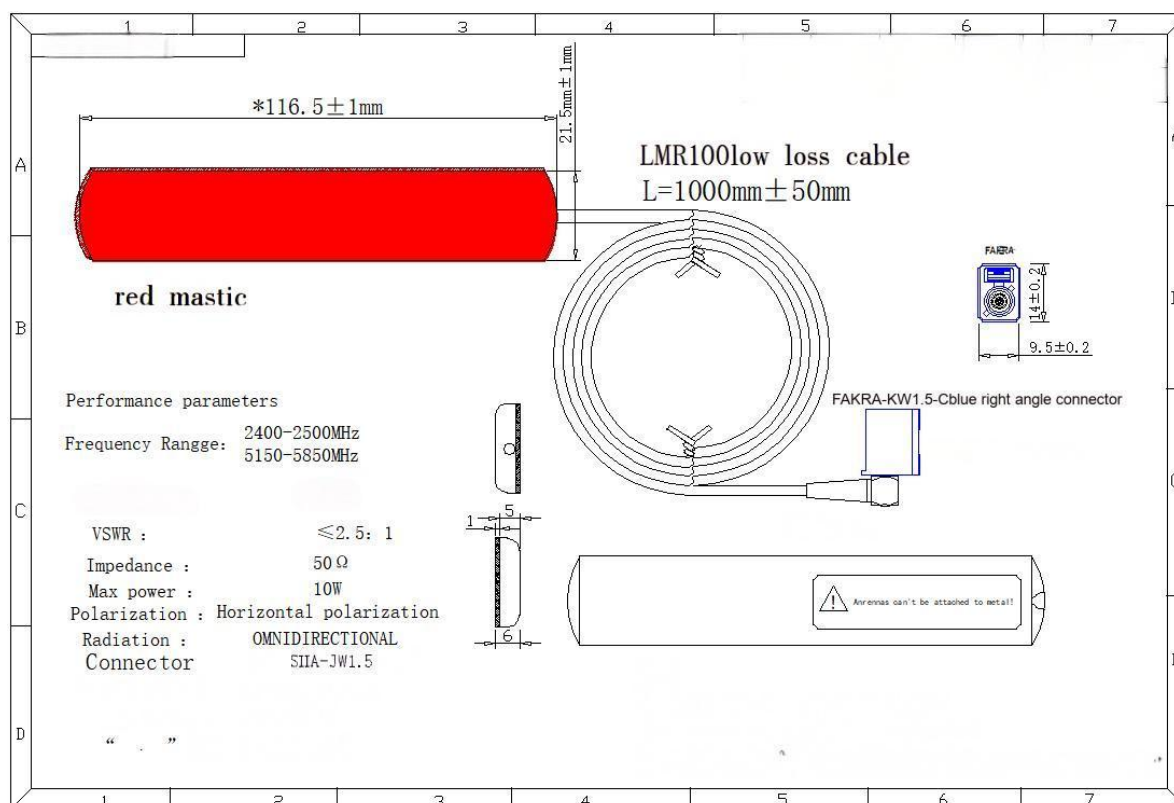
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1. Antenna size and appearance

1-1 Structure Picture



2. Test equipment and darkroom

2-1 Test Equipment

The 5071c vector network analyzer is used to test passive data and standing wave indicators, and the CMW500 is used to measure active OTA data.



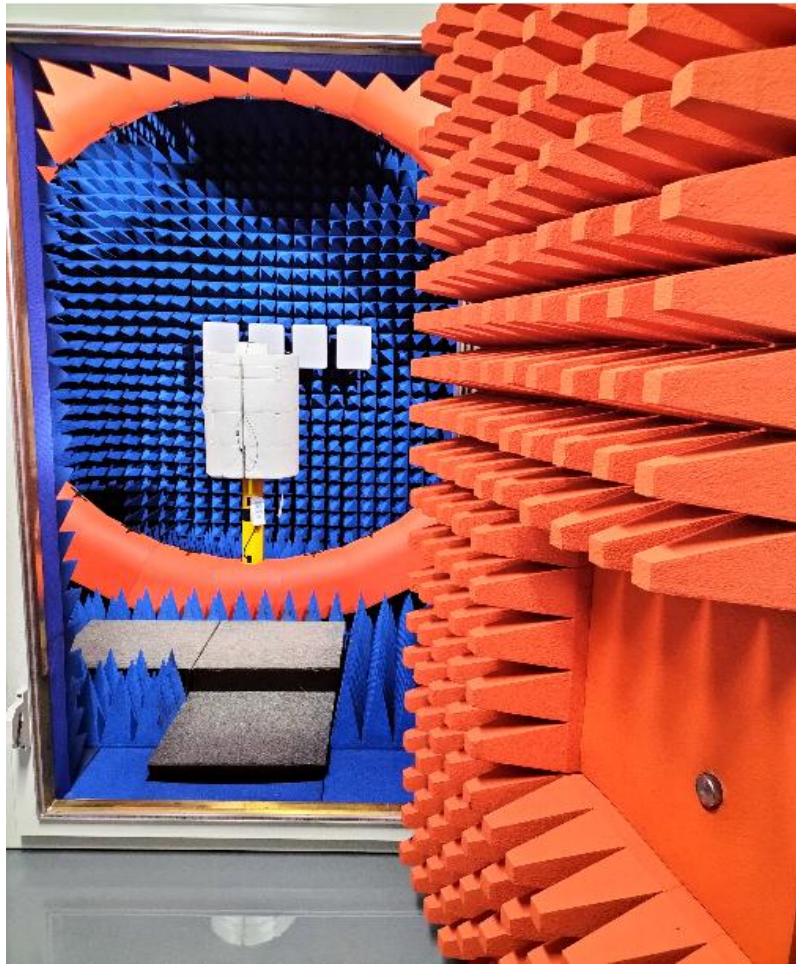
2-2 Test darkroom

The multi-probe, single-switch measurement method enables rapid antenna measurement, increasing test speed by an order of magnitude compared to traditional mechanical rotation methods. A vertically mounted multi-probe switching architecture allows the antenna under test to be placed horizontally directly on the test platform. This offers advantages such as high load-bearing capacity, immunity to changes in gravity during rotation, and ease of placement. To address test distance limitations, near-field measurement methods can directly determine the amplitude and phase distribution under near-field conditions. Rigorous data conversion allows for precise far-field radiation direction.

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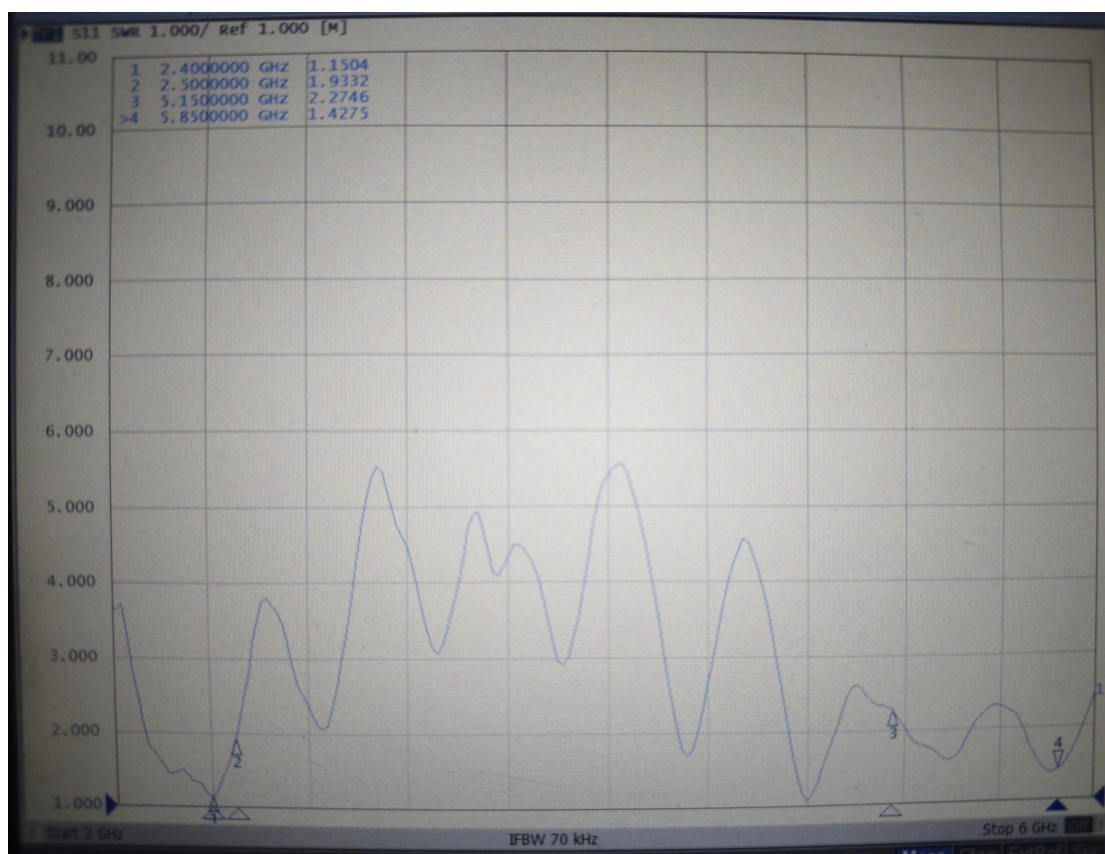
3. Antenna electrical performance requirements

3-1 Frequency Requirements

The operating frequency of the WIFI antenna is 2400-2500MHz, 5150-5850MHz; resonance occurs within this frequency range.

3-2 Passive S11 Parameter Measurement

The passive S11 parameter measurement method is to connect one end of a 50 Ω coaxial cable to the antenna and then connect the other end to a network analyzer to measure the S11 parameter. During the test, the fixture must be at least 20 cm away from the metal.



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4. Darkroom test data

4-1 Passive Test Data

The anechoic chamber supports passive mode measurements of passive antennas and active antennas, and can test gain, efficiency, beam width, front-to-back ratio, null depth, beam offset angle and other data.

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Efficiency (dBi)	-2.99	-3.17	-3.28	-3.29	-3.19	-3.16	-3.14	-3.05	-3.06	-3.12	-3.11
Gain (dBi)	2.49	2.43	2.33	2.32	2.36	2.30	2.28	2.38	2.43	2.50	2.53
Efficiency (%)	50.28	48.18	46.96	46.87	47.97	48.27	48.57	49.55	49.41	48.73	48.83
Directivity (dB)	5.47	5.60	5.61	5.61	5.55	5.46	5.42	5.43	5.49	5.62	5.64
Peak Gain Position (Theta)	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00
Peak Gain Position (Phi)	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	45.00	45.00	45.00
Efficiency ThetaPol (%)	42.55	40.80	39.88	40.03	41.25	41.84	42.41	43.52	43.55	43.03	43.07
Efficiency PhiPol (%)	7.73	7.37	7.08	6.84	6.72	6.43	6.16	6.03	5.86	5.70	5.76
Upper Hem. Efficiency (%)	20.74	19.51	18.68	18.27	18.61	18.93	19.48	20.09	20.12	19.62	19.42
Lower Hem. Efficiency (%)	29.54	28.67	28.28	28.60	29.36	29.34	29.08	29.46	29.29	29.11	29.42

Frequency ID	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Frequency (MHz)	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Efficiency (dBi)	-3.93	-3.73	-3.22	-3.33	-3.82	-3.46	-2.96	-3.80	-3.66	-3.41	-3.98	-3.74	-3.56	-4.04	-3.79
Gain (dBi)	1.75	2.47	3.39	2.81	2.58	3.06	3.19	2.67	2.80	3.31	1.92	1.94	2.95	1.96	2.08
Efficiency (%)	40.43	42.33	47.70	46.41	41.52	45.09	50.61	41.72	43.08	45.62	40.02	42.22	44.09	39.47	41.76
Directivity (dB)	5.68	6.20	6.61	6.14	6.40	6.52	6.15	6.47	6.45	6.72	5.90	5.69	6.51	6.00	5.87
Peak Gain Position (Theta)	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	30.00	30.00
Peak Gain Position (Phi)	45.00	120.00	120.00	120.00	120.00	60.00	60.00	120.00	120.00	60.00	60.00	120.00	120.00	195.00	195.00
Efficiency ThetaPol (%)	38.00	39.88	45.28	44.05	38.89	42.12	47.42	38.60	40.14	42.63	37.33	39.85	41.80	37.38	39.73
Efficiency PhiPol (%)	2.44	2.44	2.42	2.36	2.64	2.97	3.19	3.12	2.93	2.99	2.68	2.37	2.29	2.09	2.03
Upper Hem. Efficiency (%)	21.05	22.47	25.50	25.84	24.27	25.73	27.77	24.98	27.07	26.92	23.79	26.27	27.30	24.68	26.20
Lower Hem. Efficiency (%)	19.38	19.86	22.20	20.57	17.25	19.36	22.85	16.74	16.00	18.70	16.23	15.95	16.78	14.79	15.56

(The above data is subject to the test of Ruida Yongli Laboratory)

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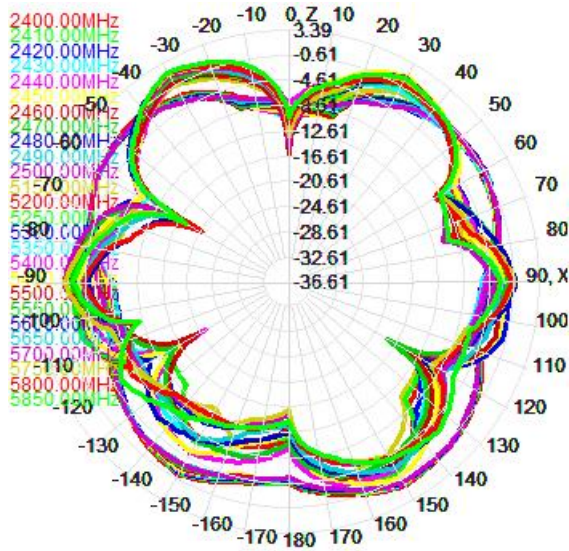
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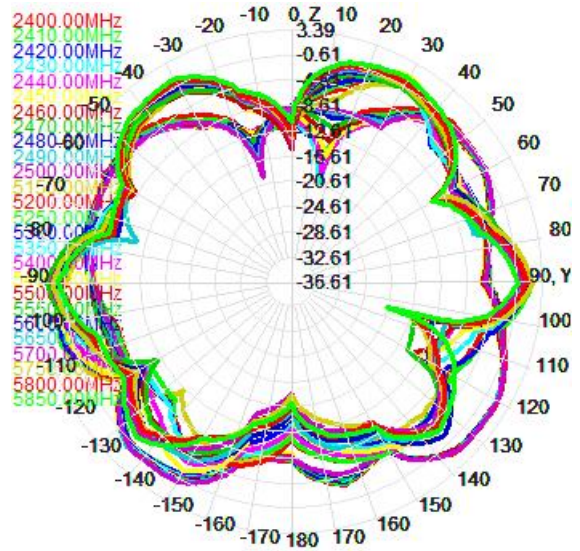
RIDA ANTENNAER

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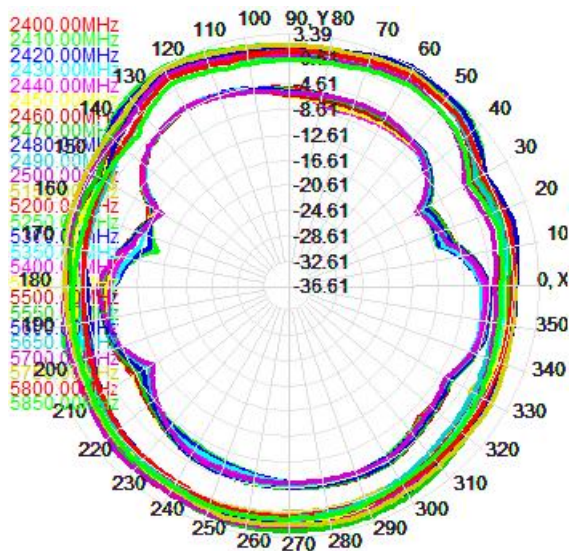
E1



E2



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