



深圳市天逸源电子科技有限公司
Shenzhen Tianyiyuan Elec&Technology CO.,Ltd

Acknowledgment Letter SPECIFICATION FOR APPROVAL

Name: WIFI/BT 2.4/5 Wi-Fi Antenna (Product Model) .Item
No: TTY-TX2811 .
Customer Name: Shenzhen Qianyin Technology Co., Ltd. .Com
pany stamp: ____.

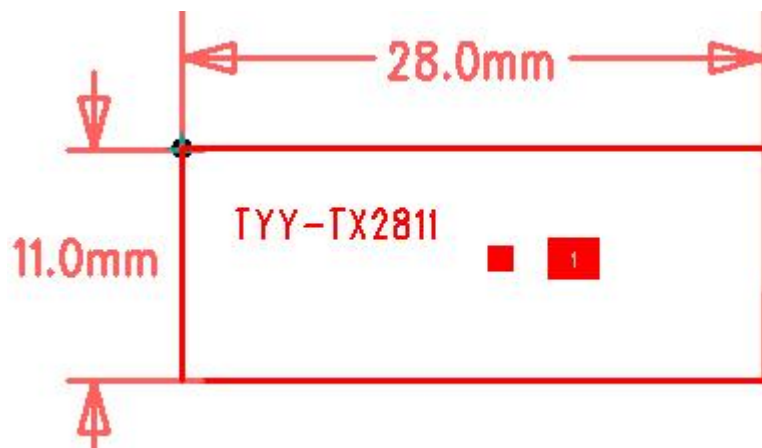
drawing			Customer approve
MADE	CHECKED	APPROVED	
QIU	Jiang Zhiyuan	Tang Xiaohong	
DATE: 2023.09.26			DATE

WIFI Specification

1、Specifications

The report primarily presents test results of various electrical performance parameters for the product models of Shenzhen Qianyin Technology Co., Ltd. The TYY-TX2811 antenna is a built-in WIFI antenna, composed of an FPC and RF cable (as shown in Figure 1).

The finished product features			
Electrical Performance Parameters		Electrical Specifications	
Frequency range	2400~2500MHZ 5180~5320MHZ 5700~5800MHZ	Frequency Range	2400~2500MHZ 5180~5320MHZ 5700~5800MHZ
Voltage standing-wave ratio	≤ 2.0	VSWR	≤ 2.0
Gain	4.23DBI (MAK)	GAIN	4.23DBI (MAK)
Input impedance	50 Ω	Input Impedance	50 Ω
Mechanical Indicators		Mechanical Specifications	
Antenna Color	Black	Antenna Color	BLACK
Interface Format	IPEX-1	Input connector	IPEX-1
Line length	150mm	Cable length	150mm
Working temperature	-40°C~+85°C	Working Temperature	-40°C~+85°C
Working Humidity	20~80%	Working Humidity	20~80%

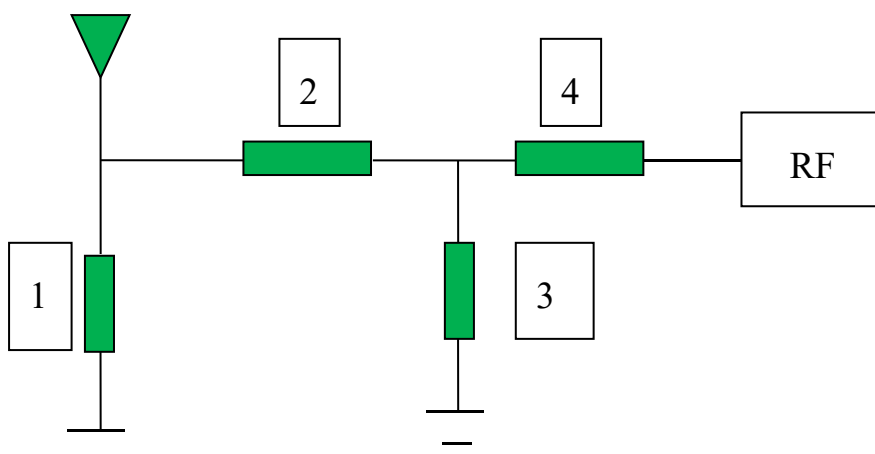


2、explain

- 1、 Please confirm whether your company approves the matching and environmental treatment methods specified in the report; these will directly affect antenna performance. If you have any objections, please contact us promptly.
- 2、 If your company replaces materials or components, updates software, or modifies operational environments, please promptly provide the latest machine configuration for us to verify performance.
- 3、 If your company's equipment requires third-party performance verification, please provide the test sample to our company for evaluation. Only after approval may it proceed with testing (as consistency issues in motherboard design, environmental handling, or antenna assembly can affect antenna performance).

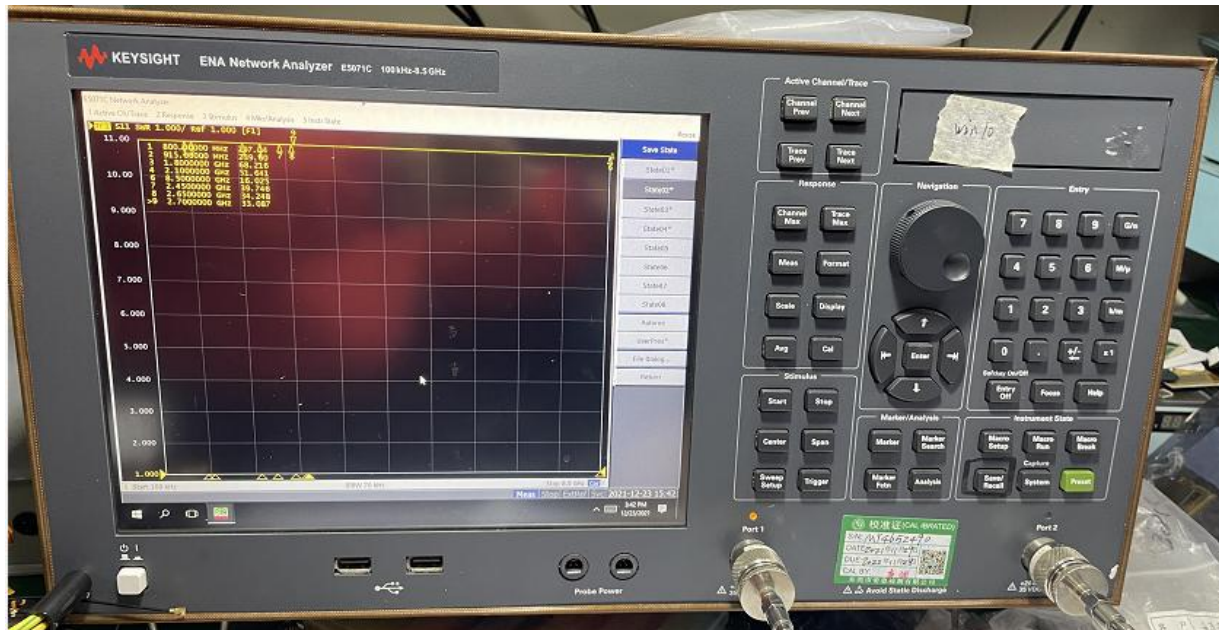
2. Electrical Properties

2.1 WiFi antenna matching circuit: This component is provided by the customer.



Element Number	1	2	3	4
WIFI the best	NC	0 ohm	NC	
Original (Backup)	50 Ohmic Matching			

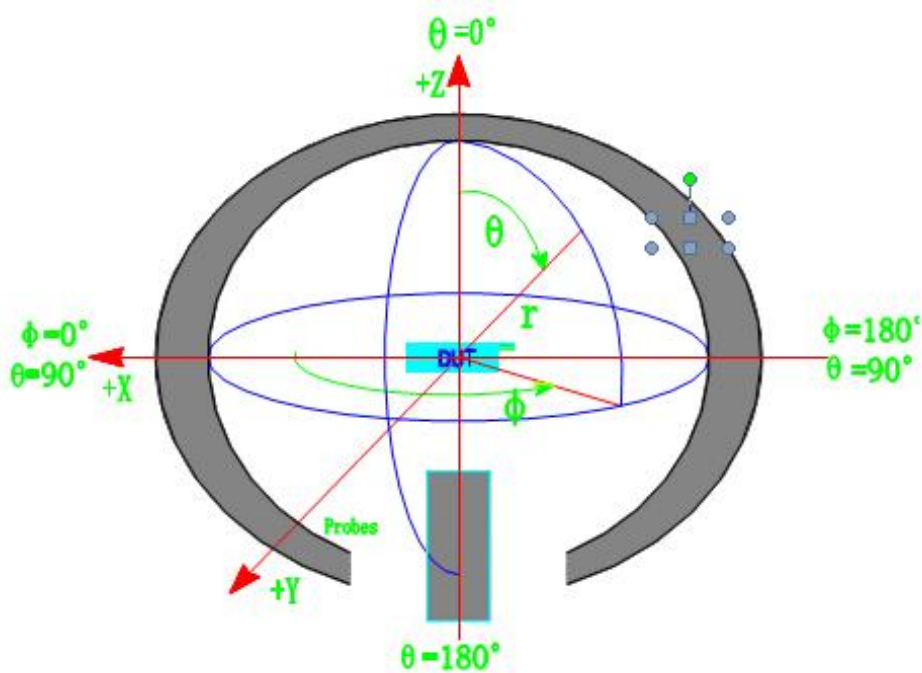
Figure 4 Agilent E5071C Gel Electrophoresis Analyzer



OTA Microwave Anechoic Chamber: Test frequency range of 800 MHz to 6 GHz; quiet zone radius of 50 cm; reflectivity below -90 dB.

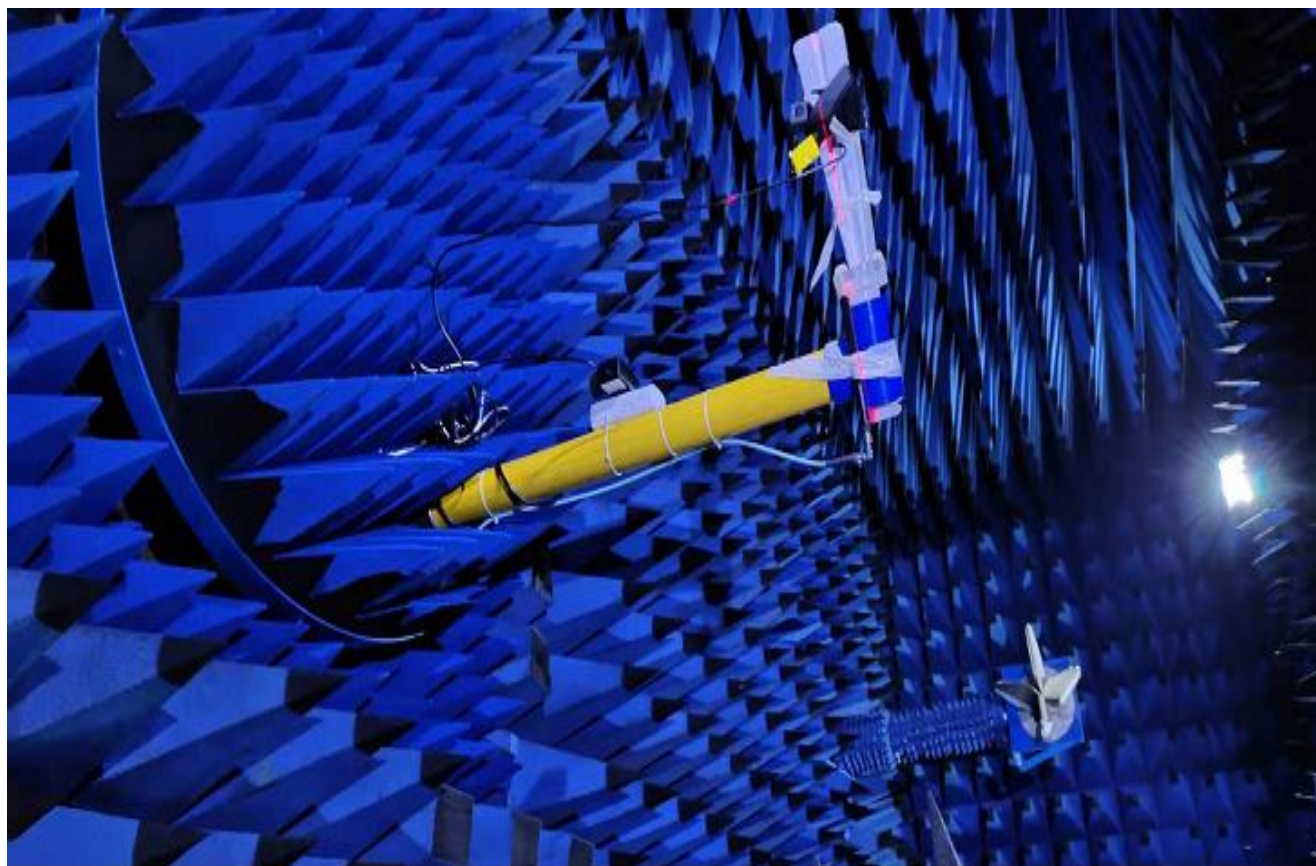
2.4.2 Testing Instrument

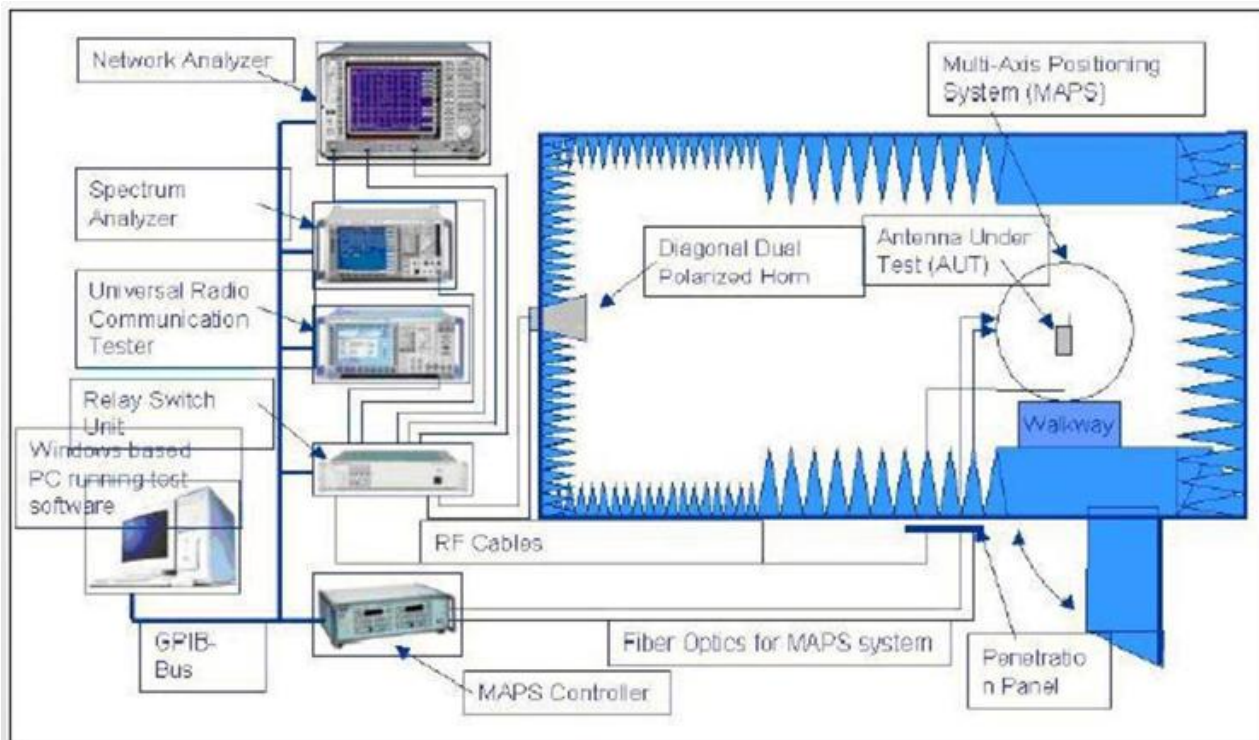
Agilent E 5071B network analyzer, logarithmic periodic antenna, computer, transmit turntable, receive antenna, printer, and external choke coil (to minimize signal loss from connecting cables).





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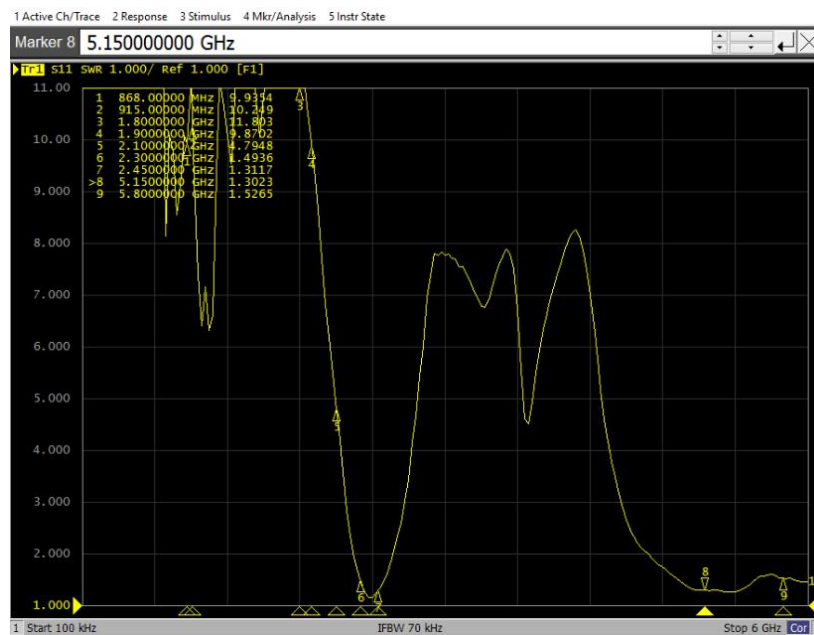




2.3 Test of Standing Wave Ratio (VSWR)

2.3.1. Test Settings

The VSWR test setup is connected in sequence as follows: an Agilent E5071C network analyzer®, a 50-ohm coaxial cable®, and a 120-mm-long copper tube® serving as the test fixture. For the test fixture assembly: connect an SMA-J connector to the 50-ohm test point on the flat PCB via a rigid cable, attach it to the copper tube equipped with a choke coil, and then link it sequentially to other components.



VSWR Standing Wave Ratio

Standard	2.45-51.5GHz		5.7~5.8GHz		
Frequency (MHz)	2450	5150	5700	5800	
VSWR	1.3	1.3	1.4	1.5	

WIFI Passive Testing Report

Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	12	13	14	15	16	17
Frequency (MHz)	2400.0	2420.0	2440.0	2460.0	2480.0	2500.0	5160.0	5200.0	5240.0	5260.0	5280.0	5300.0	5320.0	5710.0	5730.0	5750.0	5770.0	5790.0
Efficiency (dBi)	-2.16	-2.00	-1.91	-1.63	-1.73	-1.69	-1.55	-1.27	-1.54	-1.72	-1.83	-1.51	-1.51	-1.38	-1.06	-1.62	-1.84	-1.06
Gain (dBi)	1.92	2.20	2.38	3.11	2.97	3.13	3.23	3.29	2.56	2.22	2.38	3.08	3.08	3.55	4.25	3.82	3.80	4.23
Efficiency (%)	60.79	63.03	64.48	68.74	67.12	67.72	70.06	74.67	70.12	67.23	65.55	70.59	70.59	72.70	78.38	68.93	65.41	78.37
Directivity (dB)	4.08	4.20	4.29	4.74	4.70	4.82	4.78	4.56	4.10	3.95	4.21	4.59	4.59	4.93	5.31	5.43	5.64	5.29
Peak Gain Position (Theta)	79.00	79.00	40.00	44.00	44.00	139.00	137.00	83.00	140.00	140.00	140.00	42.00	42.00	42.00	42.00	39.00	33.00	33.00
Peak Gain Position (Phi)	330.00	330.00	30.00	30.00	30.00	30.00	30.00	330.00	360.00	360.00	360.00	240.00	240.00	240.00	240.00	240.00	210.00	180.00
Efficiency ThetaPol (%)	46.42	47.51	48.72	51.70	50.50	51.25	52.44	55.54	52.09	49.87	48.68	39.98	39.98	40.88	43.24	42.73	44.99	50.03
Efficiency PhiPol (%)	14.37	15.52	15.76	17.04	16.62	16.48	17.62	19.13	18.03	17.36	16.87	30.60	30.60	31.82	35.14	26.21	20.41	28.35
Upper Hem. Efficiency (%)	31.95	32.81	33.10	34.94	34.05	34.58	36.33	39.45	37.43	35.90	34.75	38.74	38.74	39.89	42.65	38.19	36.56	42.89
Lower Hem. Efficiency (%)	28.83	30.22	31.38	33.80	33.07	33.14	33.73	35.22	32.69	31.33	30.80	31.84	31.84	32.82	35.73	30.74	28.84	35.48

