

Dongguan Gaochang Electronic Technology Co., Ltd

Product specification

CUSTOMER: Room C234, Research Institute of Tsinghua University in Shenzhen No. 019, Gaoxin South 7th Road Yuehai Subdistrict, Nanshan District Shenzhen, Guangdong Province China

OUR MODEL NO: GC-2400CSN2032W-L=350MM

SPECIFICATIONS: 2.4G External White P9 Ultrasonic Antenna

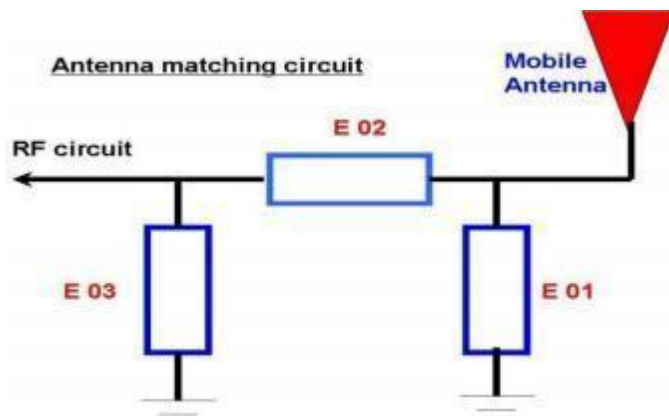
Date: 2026-2-3

DongguanGaochang Electronic Technology Co., Ltd			lient acknowledges
Engineering	Quality	Approved	Autograph:
Mr. Xie	Mr. Gao	Mr. Chen	

1. Technical Specification

A. Electrical Characteristics	
Working Frequency Range	2400~2500MHz
S.W.R.	2400~2500MHz:<2.0
Antenna Gain(avg.)	2400~2500MHz: 4.52
Impedance	50ohm
B. Material	
brass	
C . Environmental	
Operation Temperature	-45℃~+85℃
Storage Temperature	-45℃~+85℃

2. Matching Circuits



Element	Value	Vender
E1(0402)	OPEN	/
E2(0402)	SHORT	50 Ω
E3(0402)	OPEN	/

3. Curing antenna S11 Testing Result.

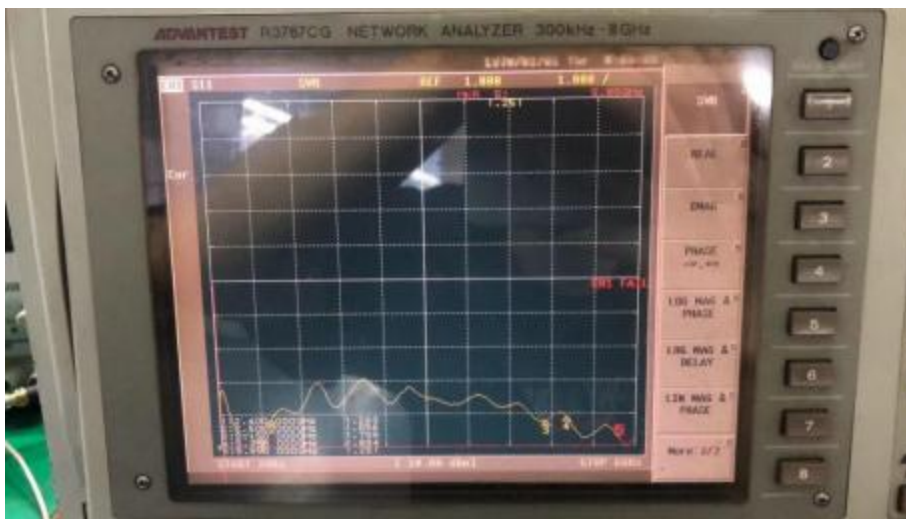
The S11 parameter was performed using a Agilent 8753 D Network Analyzer and BEST'S test fixture that was using customer-providing device.

VSWR (Voltage standing wave ratio)

The Voltage Standing Wave Ratio (VSWR) is an indication of how good the impedance match is. VSWR is often abbreviated as SWR. If the transmission line and the antenna are not matched, the antenna will not accept all the power from the transmission line. The part it does not accept is reflected back and forth between the transmitter and the antenna. This sets up a fixed wave pattern along the line which we can measure and which is called the voltage standing wave ration(VSWR).The VSWR (ratio of maximum voltage to the minimum voltage along the line)expresses the degree of match between the transmission line and the

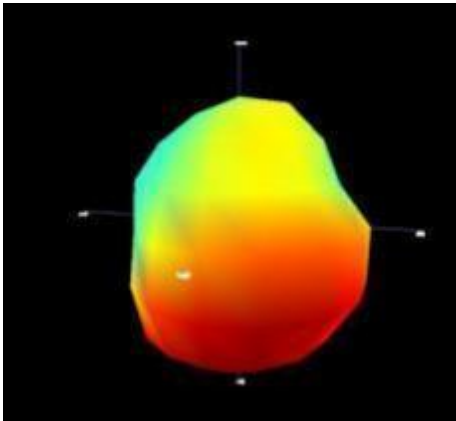
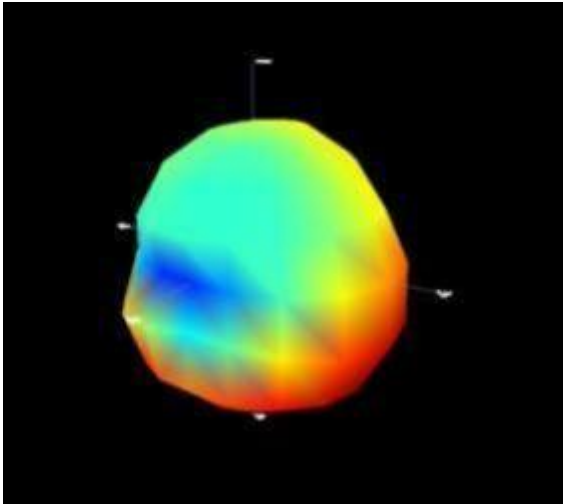
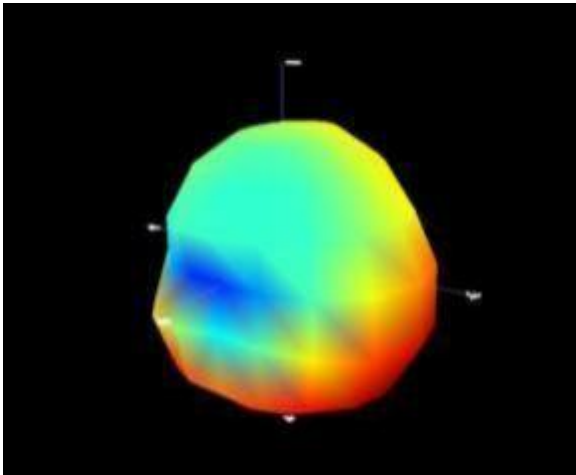
antenna. When the VSWR is 1 to 1(1:1) the match is perfect and all the energy is transferred to the antenna prior to be radiated. When the VSWR is 1.5:1, 96% of the power reaches the antenna. By definition VSWR can never be less than 1.VSWR and reflected power are different ways of measuring and expressing the same thing. A high VSWR is indication that the signal is reflected prior to being radiated by the antenna.

VSWR



Marker	2400MHz	2450MHz	2500MHz
S.W.R	<2.0		

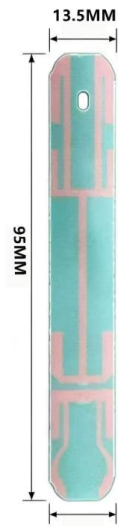
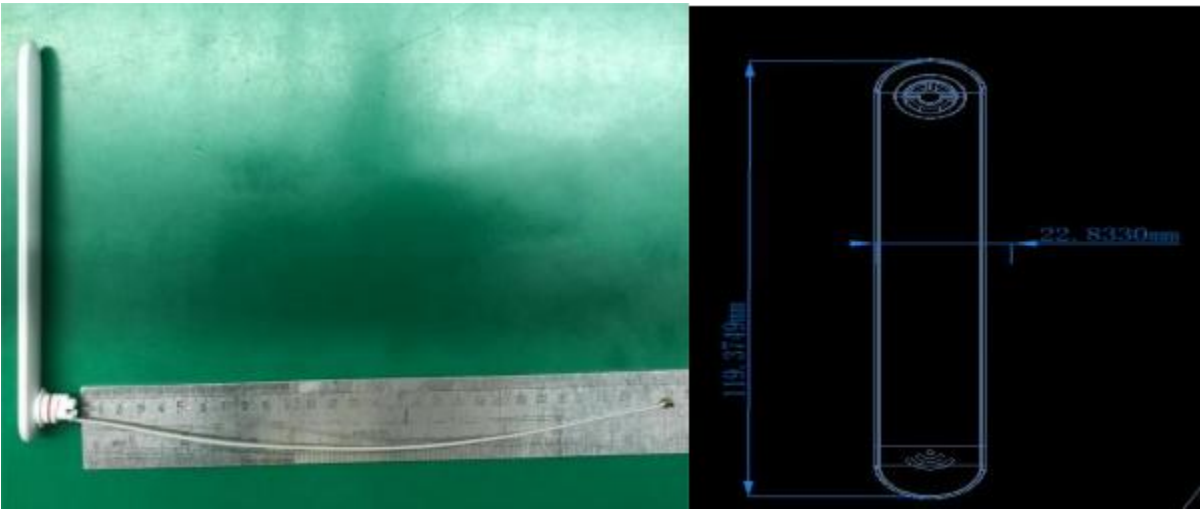
4.Test 3D report

frequency: 2400 MHZ gain: 4.52 dbi	
	
frequency: 2450 MHZ gain: 3.86 dbi	
	
frequency: 2500 MHZ gain: 4.19 dbi	
	

5. Testdata

Passive Test For WIFI2.4												
Freq (MHz)	Eff1 (%)	Eff1 (dB)	Gain (dBi)	Gain (dEd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	75.72	-1.21	4.52	2.37	23.749	51.969	4.52	-9.09	5.73	30	45.51	45.06
2410	74.3	-1.29	4.25	2.1	23.491	50.809	4.25	-8.89	5.54	30	45.14	44.7
2420	76.44	-1.17	4.25	2.1	23.882	52.559	4.25	-9.17	5.42	30	45.67	45.27
2430	76.99	-1.14	4.19	2.04	23.399	53.595	4.19	-10.24	5.32	30	45.28	44.87
2440	78.89	-1.03	4.22	2.07	23.212	55.681	4.22	-11.35	5.25	30	45.75	45.35
2450	73.4	-1.34	3.86	1.71	21.137	52.266	3.86	-12.64	5.2	30	45.36	44.92
2460	73.62	-1.33	3.88	1.73	20.963	52.657	3.88	-12.31	5.21	30	45.39	44.93
2470	72.72	-1.38	3.83	1.68	20.76	51.965	3.83	-11.69	5.22	30	45.43	44.94
2480	73.36	-1.35	3.98	1.83	20.908	52.453	3.98	-11.86	5.33	30	45.48	45
2490	76.38	-1.17	4.23	2.08	21.67	54.713	4.23	-11.57	5.4	30	45.64	45.23
2500	75.01	-1.25	4.19	2.04	21.122	53.89	4.19	-11.65	5.43	30	45.93	45.51

6. Product appearance diagram



Product physical output: 1.13 gray line, output length 350MM (N2032)

Salt spray test

Test purpose: To test the antenna's resistance to salt spray corrosion

Test method: Solution content: 5% sodium chloride solution (prepared with distilled water, 95ml distilled water+5g sodium chloride) Place the antenna in the salt spray test chamber and hang it with a rope to prevent uneven solution spraying or surface failure. The antenna needs to be immediately placed in the testing box. The experimental period is 48 hours. During the experiment, it is not allowed to remove it midway.

After the experiment, remove the antenna, clean it with cotton cloth and ion air gun, and let it dry at room temperature for 49 hours. Then, inspect the appearance, mechanical properties, and electrical properties of the antenna.

Test report	admit	confirm Mr. Dai	Test personne Mr. Yang
Test content and antenna model: Integral Antenna			
Test objective: To test the appearance, mechanical properties, and electrical performance changes of the antenna in a salt spray environment.			
Test quantity: 5pcs			
Before the experiment			
NO.		appear ance	Mechanical and electrical properties
1#		OK	OK
2#		OK	OK
3#		OK	OK
4#		OK	OK
5#		OK	OK
After the experiment			
NO.			
1#		OK	OK
2#		OK	OK
3#		OK	OK
4#		OK	OK
5#		OK	OK
Result judgment: The salt spray test has ended, the appearance is OK, the antenna is in good contact with the motherboard (multimeter test is conductive), and the mechanical properties have not changed. Signal testing shows that the standing wave varies within a range of ± 0.3 , which meets the allowable testing requirements.. In summary, meets the requirements of salt spray testing.			