# Shenzhen zhouda communication electronics co., Itd

# **Product specification**

CUSTOMER:	Zhongxsd										
CUSTOMER P/N :	ZD-368										
OUR MODEL NO:	ZD 2400-5800CSW-L190										
SPECIFICATIONS: (	SQ02WIFI)-2.4G/5.8GDual-frequency white ultrasonic										
	antenna 1.13 gray outlet 190MM with										
	terminal										
QTY:	5										
DATE:	2024-11-12										

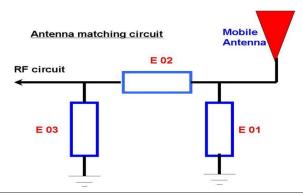
Shenzhen zhou	da communica co., Itd	ition electronics	Customer recognition
Engineering	Quality	Approved	Signature (seal)
xie	Huang	gao	

Page 1 Version: 1.0 Issue Date2024-12-12

# 1. Technical Specification Technical specifications

A. Electrical Characteristics	
<b>Working Frequency Range</b>	2400~5800MHz
S.W.R.	2400-2500MHz<=2.0 5150-5850MHz<=2.5
Antenna Gain(avg.)	2400-2500MHz: 2.53dBi; 5150-5250MHz: 1.64dBi; 5300-5650MHz: 1.80dBi; 5700-5850MHz: 1.66dBi
Impedance	50ohm
B. Material	
brass	
C. Environmental	
Operation Temperature	-45°C~+85°C
Storage Temperature	-45°C~+85°C

### 2. Matching Circuits matching circuit



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

Page 2 Version: 1.0 Issue Date2024-12-12

Note: Matching has not changed...

### 3. Curing antenna S11 Testing Result. Passive testing

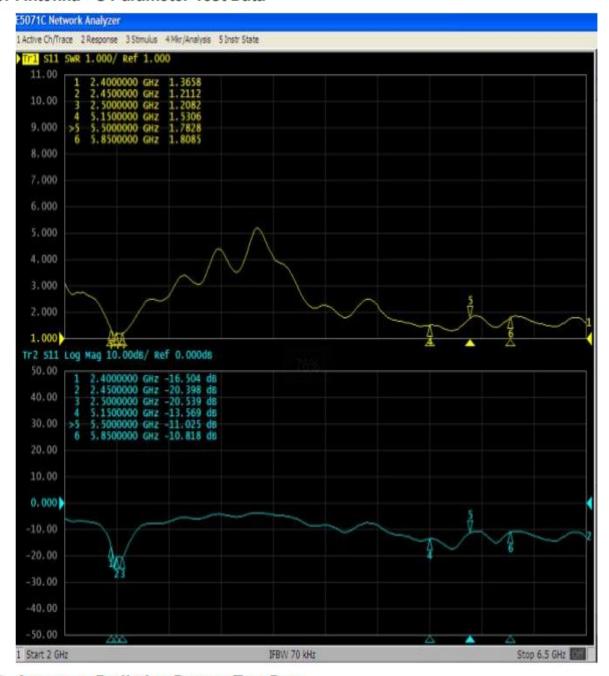
The S11 parameter was performed using a Agilent 8753D Network Analyzer and BEST'S test fixture that was using customer-providing device. VSWR (Voltage standing wave ratio)

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.

standing wave vswr

Page 3 Version: 1.0 Issue Date2024-12-12

### 3. Antenna - S Parameter Test Data



#### 4. Antenna - Radiation Pattern Test Data

Freque	ncy ID		1	. 3	2	3	4	5	6	7		8	9	10	11
Freque	ncy (M	Hz)	2400.0	24	10.0	2420.0	2430.0	2440.0	2450	.0 246	0.0 24	70.0	2480.0	2490.0	2500.0
Gain (d	Bi)		2.20	2	.24	2.32	2.44	2.49	2.53	2.4	3 2	.42	2.39	2.28	2.23
Efficien	cy (%)		67.49	67	7.51	67.85	68.86	69.31	70.2	4 71.	22 6	9.00	68.40	67.31	66.76
12	13	14	15		16	17	18	19	20	21	22	23	24	25	26
5150.0	5200.0	525	0.0 530	0.0	5350.0	5400.0	5450.0	5500.0	5550.0	5600.0	5650.0	5700	.0 5750.	0 5800.0	5850.0
1.57	1.59	1.6	4 1.6	9	1.71	1.75	1.67	1.76	1.80	1.75	1.74	1.66	1.54	1.56	1.31
55.34	55.61	56.	05 57.	15	57.54	58.66	59.62	60.00	60.38	59.54	59.00	58.5	5 57.40	56.26	55.68

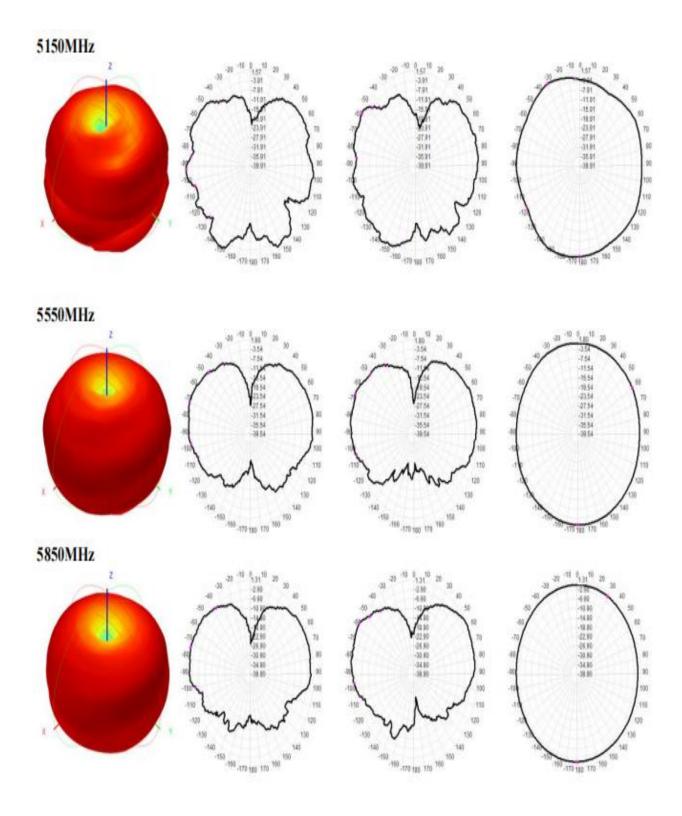
Page 4 Version: 1.0 Issue Date2024-12-12

# 5. Passive test

### data

000 11h 11Wha									000 11 - 5	- AWhan a			
802.11b 11Mbps Test Chnanel		ch1	1	ch6		ch1	1		802.11g 5		ch1	ch6	ch11
TRP(dBm)		20. 4				20, 1		TRP (dBm)			20. 72	20. 45	20.05
TIS(dBm)	1	-87.		-87.9		-88.			TIS(dBm)		-74, 65	-74. 98	-75.01
					Sals I								
802,11n MCS7									11a 54Mbps				
Test Chnanel	cl	h1	0	:h6	cł	h11			Test Chnanel		ch120	ch132	ch149
TRP (dBm)	20.	. 74	20	39	-	. 08		-	RP (dBm)	18. 82	18.08	18.75	18.56
TIS(dBm)	-70	. 75	-7	0.52	-71	1.18		T.	IS(dBm)	-75.06	-76.0	9 -76.16	-75. 86
				X	Z				YZ			X	1
2400MHz						200				41.000		10.000.00	perco. T
2				-40 -20 °	10 0 2.20 -0.20 -0.20	0 20 0 30	43		-20 -10 E <sub>2.20</sub> -20 -220 -420 -420	9 20 30 40		40 -20 -10 0 <sub>2.20</sub> 1 -2.20 -4.20	20 30 40
			4	_	-10	20	50	7	-10.2 -10.2	1	4	-10.20 -14.20 -18.20	100
			20		-26.1 -30.1 -34.1	20	7"	1	-92.31 -28.31 -30.21 -34.21	)	80 -88	-20,20 -26,20 -30,20 -34,20	
/			10		-38.2	20	100	4	-38.21	)	90 -98	-56.00	100
			120	1			120	-120		1	110 11		110
*		( X	-13	140	1	5	130	130	160	150	-13	1	150 140
2450MHz				160	170 180	173 750			160 -160 -170 180 1	70 188		-160 -170 383 17	<sub>3</sub> 160
2450MHZ				-20 -10	0 0 7	11 <sub>20 30</sub>			-30 -10 0 <sub>2 63</sub> 13 -30 -47	20		-20 ·10 0 <sub>2.53</sub> 19	20
			-60	40 20	-10.6	-	63 50	-50	4.47	~ "so	-9/	447	""
			1		-14.6 -16.6 -22.6 -26.6	7	700	1	-18.47 -18.47 -22.47 -25.47	7.	. 1	-14.47 -18.47 -22.47 -26.47	/ 10
16			100		-30.4 -34.4 -38.4	7	2 00	40	-30.47 -34.47 -38.67		90 -95 90 -90	-30.47 -34.47 -38.47	80
		,	10)				110	100		/	10 -10		110
×		× v	9				120	120		120	1		120
			-	150 150 5	70 say 1	70 100 152	140	-	160 160 170 180 171	140 165 180		140 -150 -170 590 178	140 160
2500MHz													
2				-30 -20	10 0 2.21 1.6	18 20 30 6 30			-30 -30 0 223 -30 -180	18 20 36		30 -20 -10 0 22	10 20 30
			-00	_	-	-	50	-50		1	10 40	1	× 1
			1		-17: 21: 25: 29:	55	72	1	-17.5 -21.5 -26.5 -29.5	)	70 -79 80 -80	-17 21 25 28	66
V			-00 (		-33. -37.	55	( "	-00	-935 -375	2	90 90	-03 -03 -37	05 05
V			100				110	-110		1	110 -10		/ ::
×	1	× 1	-127	1		~	126 130	-120 -13		5	20 -12	1	130

Page 5 Version: 1.0 Issue Date2024-12-12

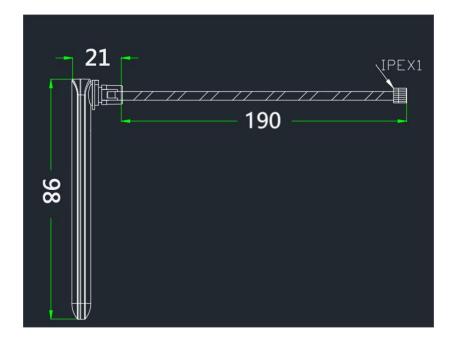


Page 6 Version: 1.0 Issue Date2024-12-12

#### 6.Product

#### appearance

#### diagram



Product physical 2.4G-5.8G dual-frequency white ultrasonic antenna 1.13 gray line outlet length 190MM.

Salt spray test Test purpose: To test the salt spray corrosion resistance of the antenna. Test method: Solution content: 5% sodium chloride solution (prepared with distilled water, 95 ml distilled water +5 g sodium chloride) Put the antenna into the salt spray test box and hang it with a rope to avoid uneven spraying of the solution or missing the surface. The antenna should be put into the test box immediately. The experimental period is 48 hours. During the experiment, it shall not be taken out in the middle.

After the experiment, take out the antenna, clean it with cotton cloth and ion air gun, leave it for 49 hours and dry it at room temperature, and then check its appearance, mechanical properties and electrical properties.

Page 7 Version: 1.0 Issue Date2024-12-12

laboratory report	admi	confi	Tester
Test content and antenna model: (SQ02WIFI)-2.4G/5.8G dual-frequency white ultrasonic antenna. 1.13 gray outlet 190MM with terminal	t	rm dai	yang

Test purpose: to test the changes of antenna appearance, mechanical properties and electrical properties in salt fog environment.

### Test quantity: 5pcs

#### Before the test

project NO.	exterior	Mechanical properties and electrical properties
1#	PASS	PASS
2#	PASS	PASS
3#	PASS	PASS
4#	PASS	PASS
5#	PASS	PASS

#### After the test

project NO.		
1#	PASS	PASS
2#	PASS	PASS
3#	PASS	PASS
4#	PASS	PASS
5#	PASS	PASS

Results: After the salt spray test, the appearance is ok, the antenna is in good contact with the motherboard (multimeter test is conducted), and the mechanical properties have not changed. According to the signal test, the standing wave changes in the range of 0.3, which meets the allowable test requirements. To sum up, the 2.4/5G external antenna meets the requirements of salt spray test.

Page 8 Version: 1.0 Issue Date2024-12-12