

Dongguan ko Cheong Electronic Technology Limited

## **Product specification**

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**CUSTOMER:** \_\_\_\_\_

**CUSTOMER P/N:** \_\_\_\_\_

**GC-2400XWD4-W-L=350MM**

**OUR MODEL NO:** \_\_\_\_\_

2.4 g-external 4DB twill antenna

**SPECIFICATIONS:** \_\_\_\_\_

April 11,2024

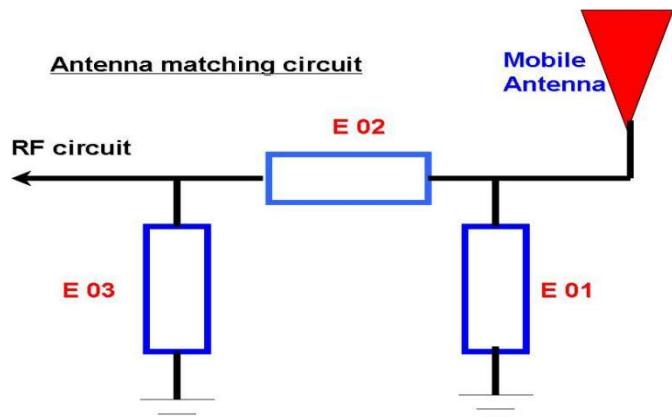
**Q' TY:** \_\_\_\_\_

Dongguan ko Cheong Electronic Technology Limited			Client acknowledges
Engineering	Quality	Approved	Sign (Seal)
Xie engineer	Yellow engineer	Senior engineer	

### **1. Technical Specification**

<b>A. Electrical Characteristics</b>	
<b>Working Frequency Range</b>	<b>2400~2500MHz</b>
<b>S.W.R.</b>	<b>2400~2500MHz:&lt;3.0</b>
<b>Antenna Gain( avg.)</b>	<b>2400~2500MHz: 2.5dBi±0.5dBi</b>
<b>Impedance</b>	<b>50ohm</b>
<b>B. Material</b>	
brass	
<b>C. Environmental</b>	
<b>Operation Temperature</b>	<b>-45°C~+85°C</b>
<b>Storage Temperature</b>	<b>-45°C~+85°C</b>

## 2. Matching Circuits



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

Note: The match has not changed.

### 3. Curing antenna S11 Testing Result.

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 ratio(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.

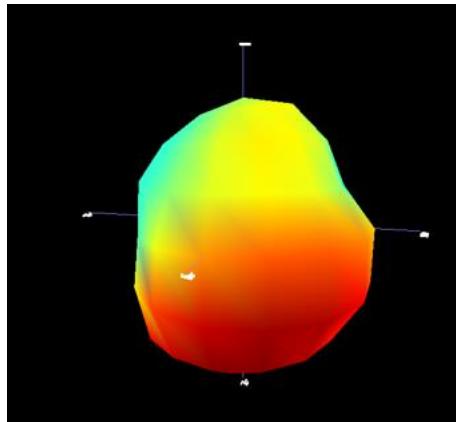
#### VSWR:



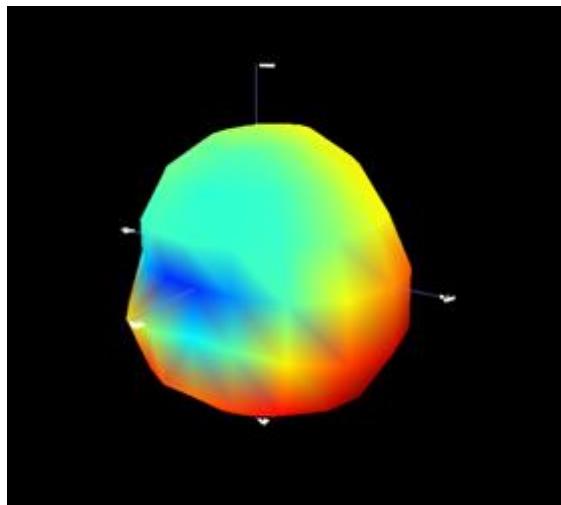
Marker	2400MHz	2450MHz	2500MHz
S.W.R	<3.0		

**4. Test the 3D report**

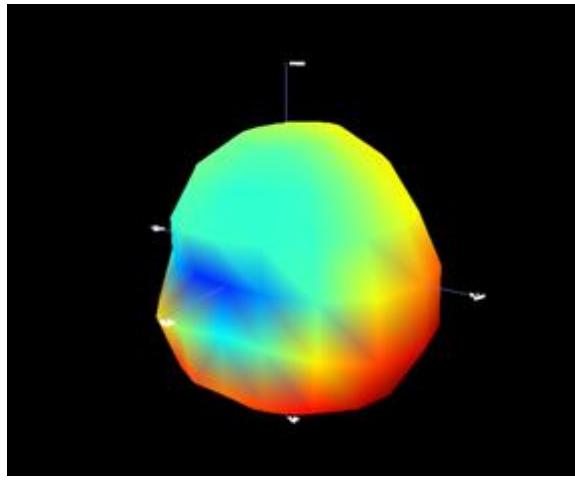
Frequency: 2400MHZ Gain: 2.43 DBI



Frequency: 2450 mhz gain: 2.37 DBI



Frequency: 2500MHZ Gain: 2.65 DBI



## 5. Passive test data

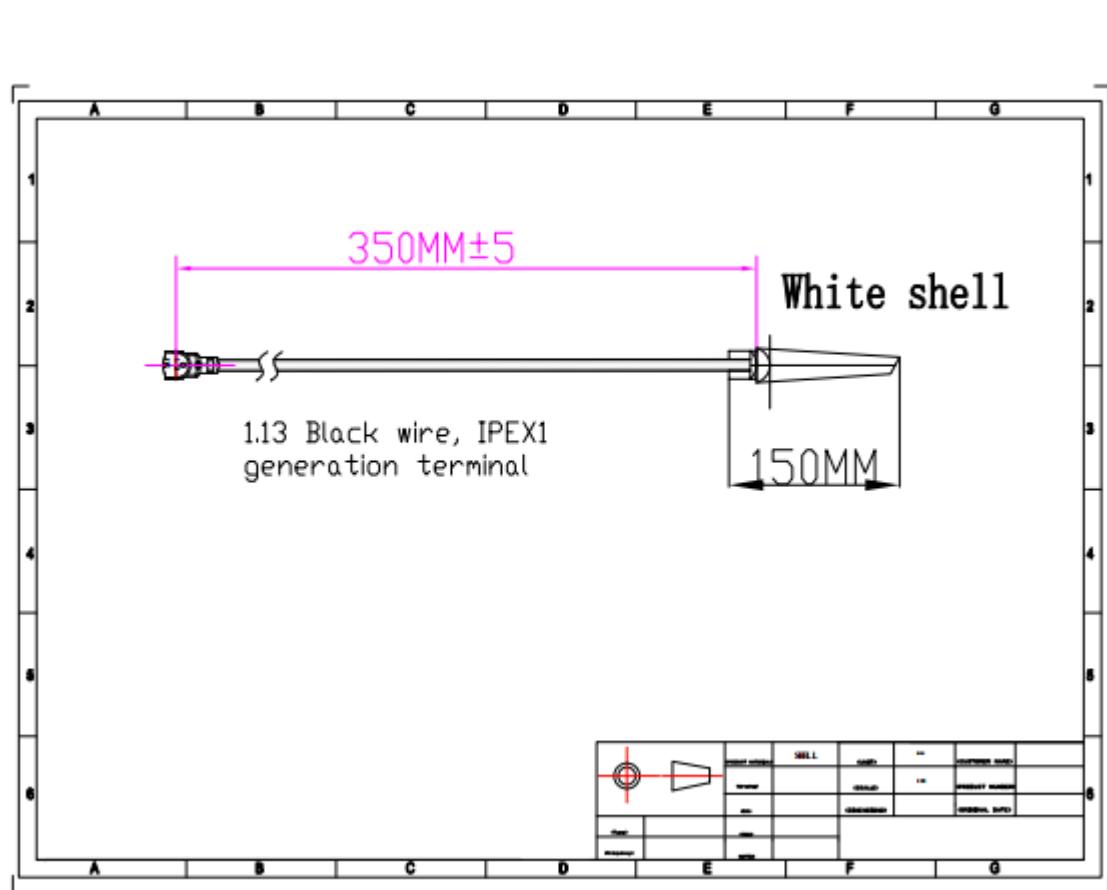
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBD)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivity (dBi)
2400	65.87	-1.81	2.43	0.28	33.233	32.638	2.43	-14.65	4.24
2450	71.88	-1.43	2.37	0.22	35.497	36.383	2.37	-13.15	3.8
2500	78.57	-1.05	2.65	0.5	36.366	42.203	2.65	-13.11	3.69

## 6. Product appearance drawing



Product Physical 2.4 g-external antenna twill blade-1.13 black line L = 350mm

## 7: Schematic drawing



### Salt spray test objective:

to test the resistance of the antenna to salt spray corrosion test method: solution content: 5% sodium chloride solution (prepared with distilled water, 95 ml of distilled water + 5 grams of sodium chloride) the antenna into the salt spray test box, hang by a rope so that the solution is not sprayed unevenly or on a surface. The antenna should be put into the test box immediately. The experiment lasted 48 hours. During the experiment, it must not be taken out halfway. After the experiment, take out the antenna, clean it with cotton cloth and ion air gun, leave it for 49

hours to dry at room temperature, check the antenna appearance, mechanical performance and electrical performance.

<b>Test report</b>	<b>Admit it</b>	<b>Confirm the contract</b>	<b>Test subjects:Yang Gong</b>
<b>Test content and antenna type: 2.4 g external antenna</b>			
The purpose of the experiment is to test the change of the antenna's appearance, mechanical performance and electrical performance under the salt fog environment.			
<b>Number of tests: 5 pcs</b>			
<b>Before the test</b>			
<b>Project No.</b>		<b>Appearance</b>	<b>Mechanical and electrical properties</b>
1#		Meet the requirements	Meet the requirements
2#		Meet the requirements	Meet the requirements
3#		Meet the requirements	Meet the requirements
4#		Meet the requirements	Meet the requirements
5#		Meet the requirements	Meet the requirements
<b>After the test</b>			

Project No.			
1#		Meet the requirements	Meet the requirements
2#		Meet the requirements	Meet the requirements
3#		Meet the requirements	Meet the requirements
4#		Meet the requirements	Meet the requirements
5#		Meet the requirements	Meet the requirements
The results show that the salt spray test is over, the appearance is OK, the antenna is in good contact with the motherboard, and the mechanical properties have not changed. Signal test, standing wave in ± 0.3 range, in line with the test allowed range. In summary, the 2.4 g external antenna meets the salt spray test requirements.			