

# Antenna Specification

Customer name: 萤石

Customer project: SD3

Customer P/N: \_\_\_\_\_

B&T P/N: AG-041533-2276

Spec.: 2.4 / 5.8G internal antenna (FPC 36.5mm×23.4mm)

-Gray1.37 wire-terminal, L=210mm

# 1、Product drawing

REV.	Revise	Date
A0	21-04-29	
	21-06-08	Change FPC
NO-0608		

Elevation view

2.4 / 5.8G internal antenna (FPC 36.5×23.4) -Gray1.37 wire-terminal, L=210mm

technical requirements

- 1: the antenna welding part is firm, and the cable size is accurate; (Cable maintenance force  $\geq$  1Kgf).
- 2: the screen printing color is bright white, the font is clear and not easy to fall off;
- 3: "\*" important dimensions.
- 4: Packaging and quality standards refer to BAT packaging specifications quality standards respectively.
- 5: Products must meet the requirements of ROHS.

Number	Part name	Material/technology	Designer	Keyoujie	Weight	Quantity	Scale	Unit	Name
①	Generation I RE terminal	Phosphor bronze (gold-plated)	Verify	Dengbin					Customer P/N
②	Coaxial line	Double tin /FPC/Gray	Approval						Document No.
③	FPC	One to one substrate, OSP treatment	1 >X	$\pm 0.05$			1:1	mm	Project No.
			1~9.99	$\pm 0.10$					Part No.
			10~19.99	$\pm 0.15$					
			20~39.99	$\pm 0.20$					
			40~	$\pm 0.30$					

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ZHONGSHAN B&T TECHNOLOGY HOLDINGS Co., Ltd

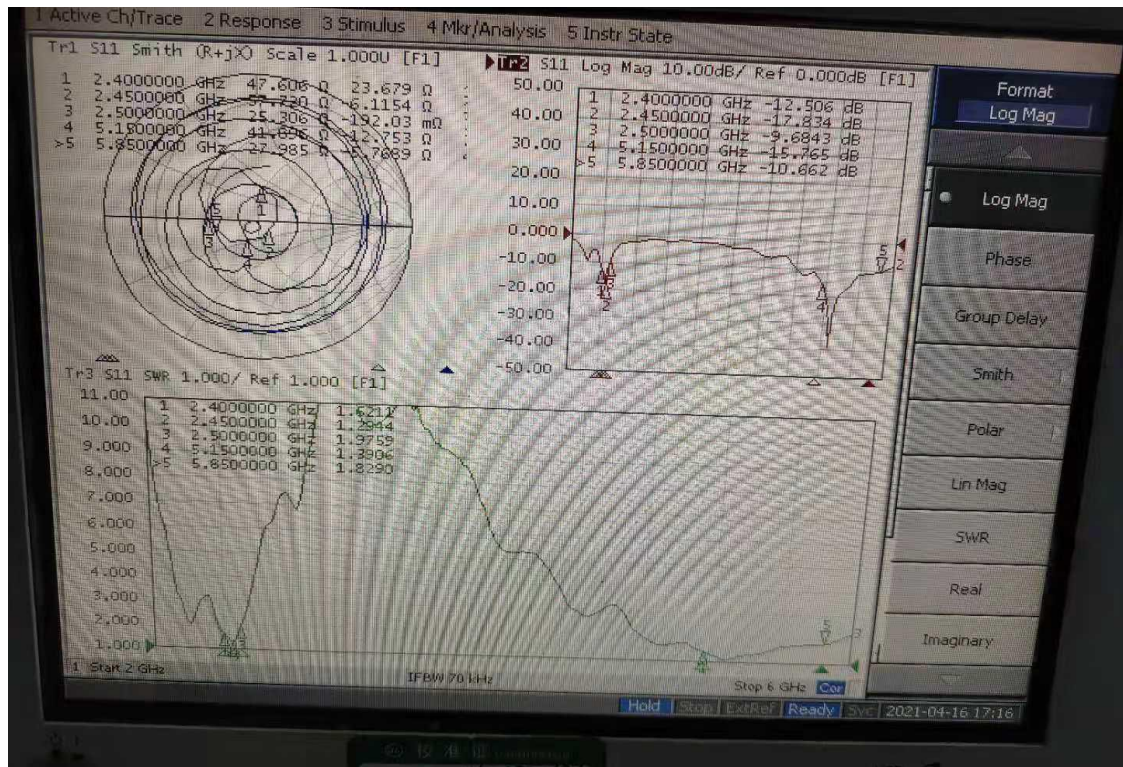
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## 2、 Properties &parameter

Electrical Parameter	
Freq Range	2400~2500MHz/5150~5850MHz
Characteristic Impedance	50 $\Omega$
VSWR	sample of reference project
The Max Antenna Gain	4.25dBi@2.4G, 2.52dBi@5G
Polarization mode	Polar linearization
Radiation mode	Omni directional
Connector style	terminal
Mechanics Properties	
Length	210 $\pm$ 3mm
Maintain the force	$\geq$ 1Kgf
Coaxial cable	Gray1.37 wire
Salt spray test	24H
Environment parameter	
Operating Temp	-30 $^{\circ}$ C~65 $^{\circ}$ C

### 3、Electrical test report

#### S11 Parameter



Electrical Performance Test Parameter Table

Freq/GHz	2.4	2.45	2.5	5.15	5.85
VSWR	1.62	1.29	1.97	1.39	1.82

#### Gain & efficiency

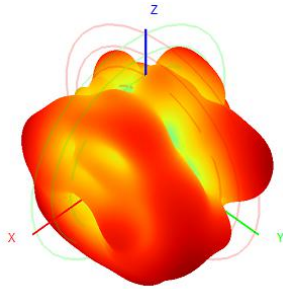
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Gain (dBi)	4.00	4.01	4.25	4.02	4.10	3.93	4.19	3.78	3.81	3.32	3.47
Efficiency (%)	50.71	50.03	54.48	53.77	57.49	53.03	58.40	52.44	54.71	50.25	55.60

Frequency (MHz)	5000	5100	5200	5300	5400	5500	5600	5700	5800	5900	6000
Gain (dBi)	1.68	1.15	1.94	1.85	1.22	2.27	1.60	2.52	1.55	1.48	1.95
Efficiency (%)	52.14	45.66	50.50	47.69	50.54	58.98	51.64	53.23	48.49	45.40	47.28

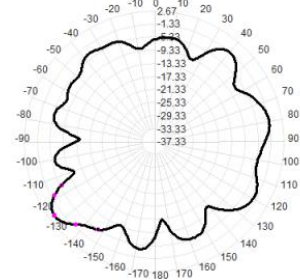
# Direction diagram

WIFI1

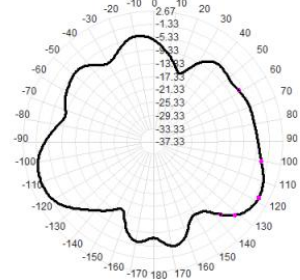
2450MHZ



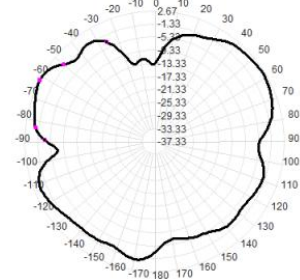
2450.0MHz Total(E1-XZ), Max=0.77dBi



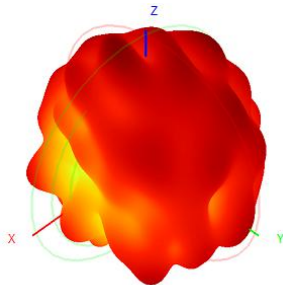
2450.0MHz Total(E2-YZ), Max=-0.70dBi



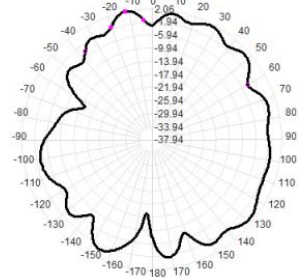
Total(H-XY), Max=2.67dBi, CirD=16.27



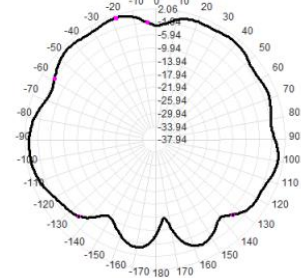
5500MHZ



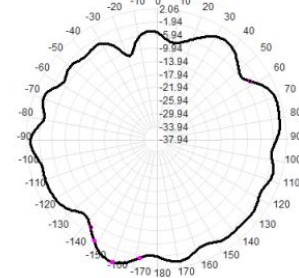
5500.0MHz Total(E1-XZ), Max=2.06dBi



5500.0MHz Total(E2-YZ), Max=1.21dBi



Total(H-XY), Max=1.84dBi, CirD=12.93



## 4、 Reliability test report

### 4. 1. Sustaining power

Test Item:	Retention	Sheet No.:			
Product name / specification	2.4 / 5.8G internal antenna (FPC 36.5×23.4) -Gray1.37 wire-terminal, L=210mm	Test number : 5PCS			
Submission date: 2021-04-28		Finish date: 2021-04-29			
<b>Test requipment</b> 1. Tensile tester					
<b>Test conditions:</b> 1. Temperature: 18-25℃ 2. Humidity≤65%RH					
<b>Test Result: PASS</b>					
Item condition	Maintain the force between the terminal and cables $\geq 1.0\text{kgf}$				
test No.	1	2	3	4	5
test result	1.01	1.03	1.1	1.05	1.12
P.S.:					
Results judgement:	<input checked="" type="checkbox"/> OK	<input type="checkbox"/> NG	<input type="checkbox"/> Don't make decision		
Tester: Zhouminhua		Verify: Jianghongying			

#### 4. 2. Constant temperature and humidity test

Test Item	Constant temperature and humidity test		Sheet No.																
Product name / specification	2.4 / 5.8G internal antenna (FPC 36.5×23.4)-Gray1.37 wire-terminal, L=210mm		Test number : 5PCS																
Submission date: 2021-04-28			Finish date: 2021-04-29																
Test equipment : 1. Constant temperature and humidity test chamber 2. 8753ES Network Analyzer																			
Test condition : 1. The test under constant temperature -30℃ for 12 h 2. 12 h +65℃ 65~70%RH test, a total of 24 hours.																			
<h2>Test Result</h2>																			
Decision criteria: 1, metal surface coating should be no peeling, cracks wrinkling, separation, etc.; Non-metallic parts should not happen discoloration, craze, deformation, as well as the degumming; 2, electrical test standard requirements: voltage standing wave ratio test qualified																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Test Item</th> <th style="width: 25%;">Before the test</th> <th style="width: 25%;">After the test</th> <th style="width: 20%;">Result description</th> <th style="width: 15%;">Judging result</th> </tr> </thead> <tbody> <tr> <td>Appearance</td> <td>No color deviation , deformed &amp; disconnect</td> <td>No color deviation , deformed &amp; disconnect</td> <td>Have no any defects</td> <td>Pass</td> </tr> <tr> <td>Electrical</td> <td>VSWR Pass the test</td> <td>VSWR Pass the test</td> <td>Have no any defects</td> <td>Pass</td> </tr> </tbody> </table>					Test Item	Before the test	After the test	Result description	Judging result	Appearance	No color deviation , deformed & disconnect	No color deviation , deformed & disconnect	Have no any defects	Pass	Electrical	VSWR Pass the test	VSWR Pass the test	Have no any defects	Pass
Test Item	Before the test	After the test	Result description	Judging result															
Appearance	No color deviation , deformed & disconnect	No color deviation , deformed & disconnect	Have no any defects	Pass															
Electrical	VSWR Pass the test	VSWR Pass the test	Have no any defects	Pass															
Results judgement: <input checked="" type="checkbox"/> OK <input type="checkbox"/> NG <input type="checkbox"/> Don't make decision																			
Tester: Zhouminhua                      Verify: Jianghongying																			

#### 4. 3. High & low temperature thermal shock test

Test Item	thermal shock test		Sheet No.																
Product name / specification	2.4 / 5.8G internal antenna (FPC 36.5×23.4) -Gray1.37 wire-terminal, L=210mm		Test number : 5PCS																
Submission date: 2021-04-28			Finish date: 2021-04-29																
<b>Test requirement:</b> 1.Constant temperature and humidity test chamber 2. 8753ES Network Analyzer																			
<b>Test conditions:</b> -40℃ (2H) -- 80℃ (2H) , 6cycles, total:24 hours																			
<h2>Test Result</h2>																			
<b>Judging standard:</b> 1、 The connector's surface have no plating peel off, wrinkle and broken ;The plastic parts have no discoloration , warp and break off; 2、 Electrical Properties: VSWR Pass the test																			
<table border="1"> <thead> <tr> <th>Test Item</th> <th>Before the test</th> <th>After the test</th> <th>Result description</th> <th>Judging result</th> </tr> </thead> <tbody> <tr> <td>Appearance</td> <td>No discoloration , cracking , warp and break off</td> <td>No discoloration , cracking , warp and break off</td> <td>Have no any defects</td> <td>Pass</td> </tr> <tr> <td>Electrical</td> <td>VSWR Pass the test</td> <td>VSWR Pass the test</td> <td>Have no any defects</td> <td>Pass</td> </tr> </tbody> </table>					Test Item	Before the test	After the test	Result description	Judging result	Appearance	No discoloration , cracking , warp and break off	No discoloration , cracking , warp and break off	Have no any defects	Pass	Electrical	VSWR Pass the test	VSWR Pass the test	Have no any defects	Pass
Test Item	Before the test	After the test	Result description	Judging result															
Appearance	No discoloration , cracking , warp and break off	No discoloration , cracking , warp and break off	Have no any defects	Pass															
Electrical	VSWR Pass the test	VSWR Pass the test	Have no any defects	Pass															
Results judgement: <input checked="" type="checkbox"/> OK <input type="checkbox"/> NG <input type="checkbox"/> Don't make decision																			
Tester: Zhouminhua      Verify: Jianghongying																			



#### 4. 4. Salt spray test

Test Item	Salt spray test	Sheet No.
Product name / specification	2.4 / 5.8G internal antenna (FPC 36.5×23.4) -Gray1.37 wire-terminal, L=210mm	Test number : 5PCS
Submission date: 2021-04-28		Finish date: 2021-04-29
Test requipment: HL-60-SS Salt spray tester		
Test / inspection conditions : 1. the temperature of the salt fog box is 35 + / - 2 DEG C and the temperature of the test room is 22~30 2 the speed of salt spray deposition was 1-2ML/h sodium chloride concentration was + 10g/L per 80cm area after 24H spraying, pH value was 6.5/7.2		
<b>Test Result: PASS</b>		
Sample No.	Result description	Judging result
1	Have no any defects	Pass
2	Have no any defects	Pass
3	Have no any defects	Pass
4	Have no any defects	Pass
5	Have no any defects	Pass
Results judgement: <input checked="" type="checkbox"/> OK <input type="checkbox"/> NG <input type="checkbox"/> Don't make decision		
Tester: Zhouminhua      Verify: Jianghongying		

## 5、 Table of Materials and Hazardous Substances

Items are	specifications	The material	RoHS The inspection results (PPM)						ICP Test number	Detection time
			Cd	Pb	Hg	Cr+6	PBB	PBDE		
1	1.37 line	FEP	ND	ND	ND	ND	ND	ND	A2200255908101001E	20.08.03
		Tin plated copper wire	ND	ND	ND	ND	ND	ND	CANEC2012516101	20.07.30
2	FPC	PI	ND	ND	ND	ND	ND	ND	CE20208468	20.09.04
		3M Tape	ND	ND	ND	ND	ND	ND	SHAEC1929095501	20.06.06
3	terminal	PBT	ND	2.39	ND	ND	ND	ND	CE/2020/82646	20.08.21
		Phosphor bronze	ND	8	ND	ND	ND	ND	CANEC2102353601	21.02.25