

# SPECIFICATION

## 315MHZ(弹簧)天线 Antenna Specification

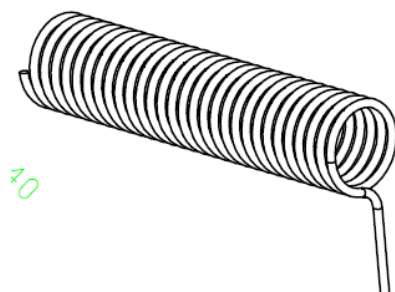
Product name	315MHz Antenna		
Product model	6.140-1801411-00	Ver	A2
Manufacturer	Zhejiang Bernal Electric Co., Ltd		
Address:	No. 188, Punan 5th Road, Economic Development Zone, Yueqing City, Zhejiang Province		
R F Test	Kets Wei		
Design	XiaoXia		
Approved	Lei	DATA	2023-05-26

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# Content

1. Antenna Picture .....	3
2. Antenna Parameters.....	3
3. Test Results .....	4
4. Antenna S11.....	5
5 Antenna Gain.....	5
6. Antenna Design Apply.....	6
7. Test Condition .....	7

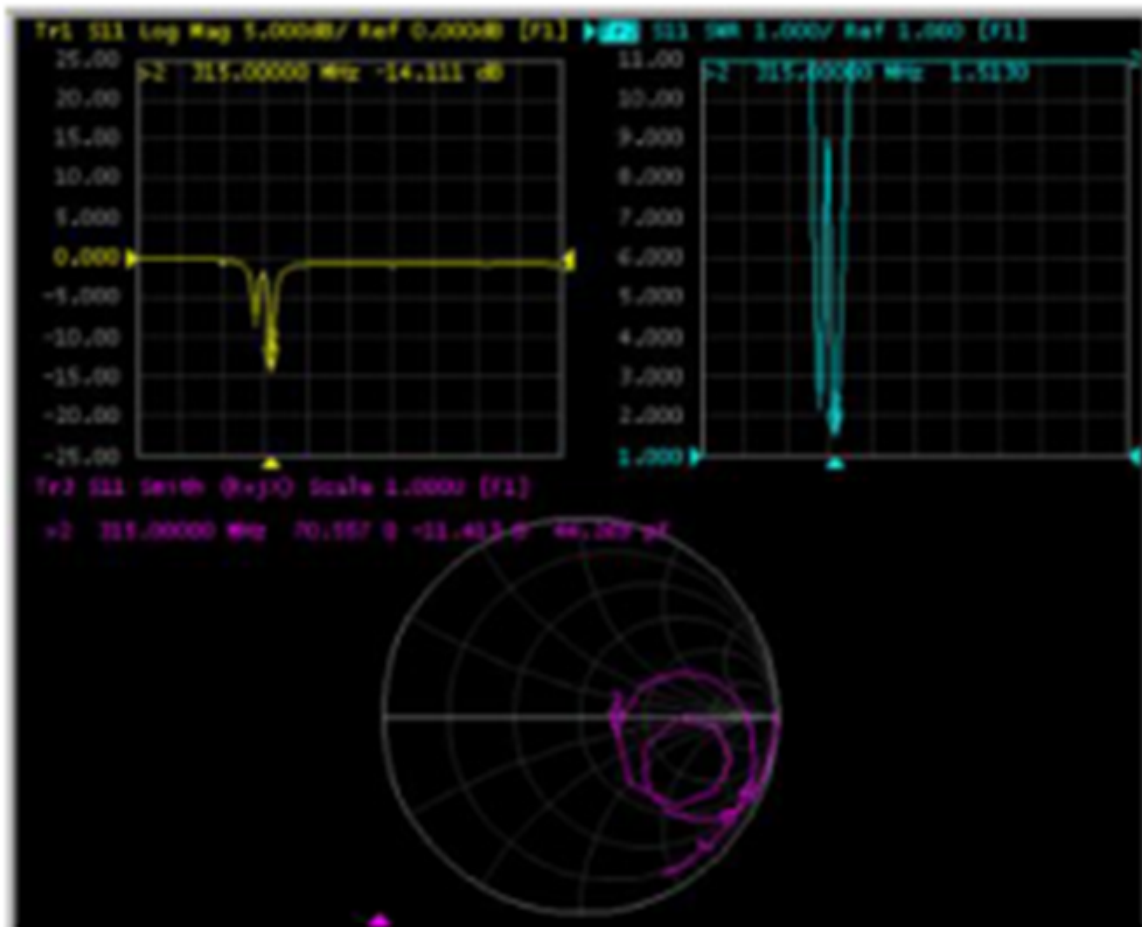
## 1. Antenna Picture



## 2. Antenna Parameters

Parameters			
产品名称(Name)	315 Antenna	产品型号(Model Type)	6.129-1801460-00
<b>电 性 能 指 标 (Electrical Specifications)</b>			
频率范围 (Frequency Range)	315MHz	极化方式 (Polarization)	垂直(Vertical)
输入阻抗(Impedance)	50 Ω	辐射方向	All directional
驻波比 (VSWR)	≤2.1	功率容量(Power)	1W
增益(Gain)	-3.5dBi	带宽 (Bandwidth)	1Mhz
<b>机 械 指 标 (Mechanical Specifications)</b>			
尺寸 (Dimensions)	20.7mm	天线颜色(Chassis Color)	Brass
连接器型号 (Connector)	焊接(Solder)		
天线材料 (Chassis Material)	黄铜(Brass)		
工作温度 (Working Temperature)	-40°C--+85°C	存放温度 (Limit Temperature)	-40°C--+85°C

### 3. Antenna S11

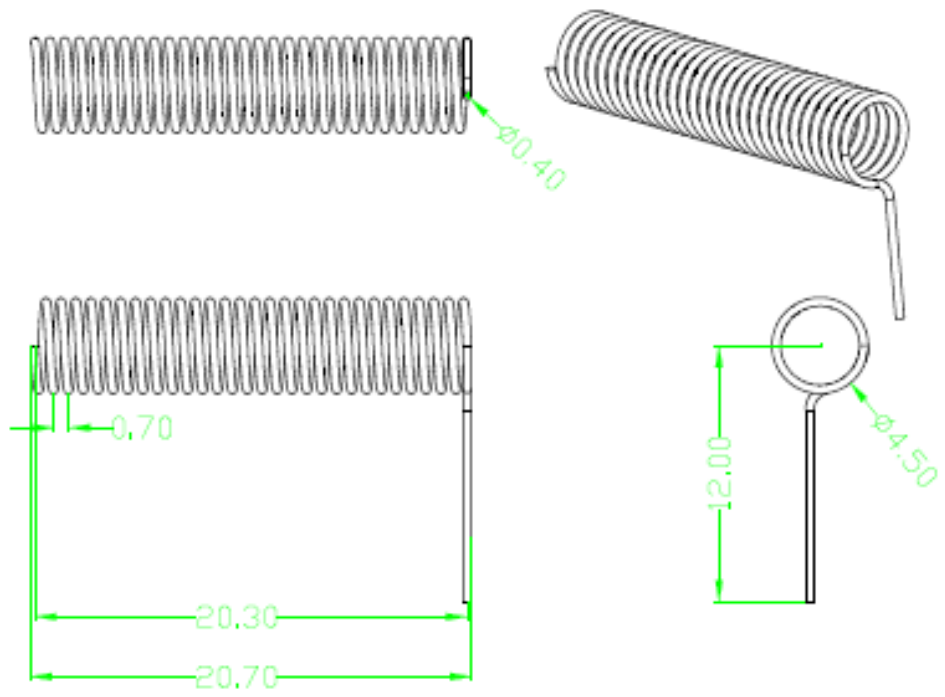


### 4. Antenna Gain

315MHZ		
Freq (MHz)	Effi (%)	Gain (dBi)
300	13.56	-3.23
311	13.37	-3.26
312	14.45	-3.41
313	15.78	-3.39
314	16.24	-3.31
314	15.37	-3.40
316	14.45	-3.56
317	14.96	-3.51
318	13.15	-3.49
319	13.27	-3.39
320	13.54	-3.21

### 5. Antenna Dimensions

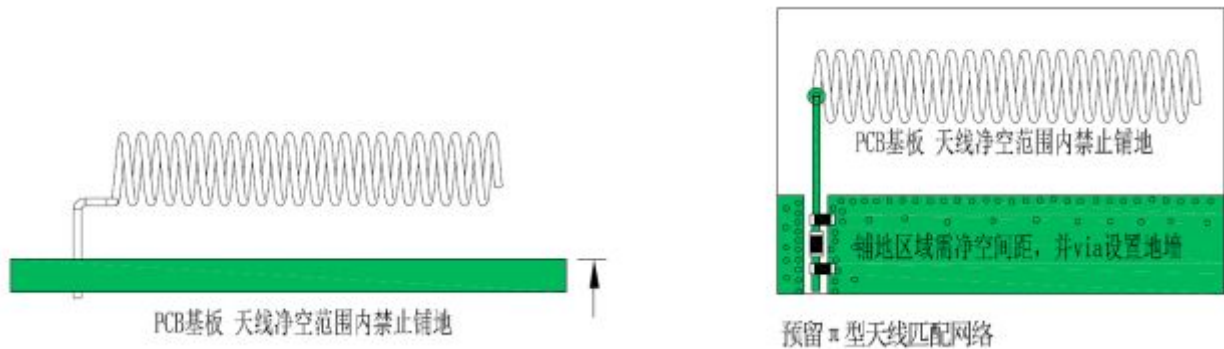
产品型号	类别
18000141	/



注：  
 1. 圈数:30圈；  
 2. 外径4.5，线径0.4mm；  
 3. 线距0.7（指的是两个相邻的弹簧圈的中心距）；  
 伸直长度：

					镀涂			
					18000141-05弹簧天线			
数量	更改单号	签名	日期	等级标记		重量	比例	
设计							1:1	
审核								
工艺								

## 6. Antenna Design Apply



Note: In the antenna design process, it is necessary to combine the product shape structure, the position of the RF module signal input and output interface, and the location of the interference source inside the product to determine the placement position, angle, spacing from the floor, height from the PCB substrate, etc. Reserve a  $\pi$ -type network to match the antenna, and be sure to provide a complete set of product shells and internal PCBA function boards when debugging the antenna, and calculate the external interference sources and parasitic capacitance into the matching, so that the antenna can achieve the best performance indicators and work efficiency. The image on the left is a side view and the image on the right is a top view. The PCB trace reference of the matching network is 0.5mm line width, and the floor reference on both sides of the network is 0.35mm spacing to maintain good impedance characteristics.

## 7. Test Condition

Test Item	Test conditions	Specification
Storage environment	The temperature, humidity, and barometric pressure are tested without specifying as follows: 1. The temperature is $-30^{\circ}\text{C}\sim+80^{\circ}\text{C}$ 2. Relative humidity is 45%-85% 3. The air pressure is 86kpa-106kpa	Normal electrical and mechanical properties
High and low temperature test	5 cycles between $70^{\circ}\text{C}$ and $40^{\circ}\text{C}$ , then under normal conditions 1-2H, check the appearance quality.	The dimensions shall meet the regulations and shall meet the requirements in mechanical and electrical properties
Constant humid heat	Relative humidity $95\pm 3\%$ , test temperature: $40^{\circ}\text{C}$ . After continuous 2H action, the electrical properties are measured within 5min after the sample is taken out, and the sample is 1-2H under normal conditions to check the appearance quality	The dimensions shall meet the regulations and shall meet the requirements in mechanical and electrical properties
Vibration test	Vibration frequency range: 10-55HZ, displacement amplitude: 0.35MM, acceleration amplitude: 50.0M/s, frequency sweep cycles: 30 times	<b>Normal electrical and mechanical performance</b>
Drop test	Free fall 3 times from a height of 1M in mutually perpendicular axial directions	Normal electrical and mechanical performance