

# Specifications

## SPECIFICATION FOR APPROVAL

CUSTOMER:

CUS PARTNO:

PART NAME: Spring antenna

TPTPART NO: WWXLTH2139

Version : 1.0

Signature and seal of customer: Date: MM/DD/YY

Procurement Department	Engineering Department	Approved

Everything is connected: Date: May 13, 2025

Manufacturer : XJ Metering Co., Ltd  
XJ Smart Power Grid Industrial Park,  
Xuchang, China

# Table of Contents

Cover 1

Contents 2

I. Finished product pictures. 3

II. Product test parameters. 3

III. Antenna Test Environment: .4

IV. Antenna passive parameters: 5

1. Standing wave diagram.... 5
2. Gain and Efficiency 5
3. Radiation Pattern. 6-7

V. Product Features. .7

VI. Product Structure Diagram. .8

VII. Sample Test Report .9

1. Environmental test. 9
2. Salt spray test. ... .10

VIII. Packaging Instructions: 11

# Spring Antenna Specification

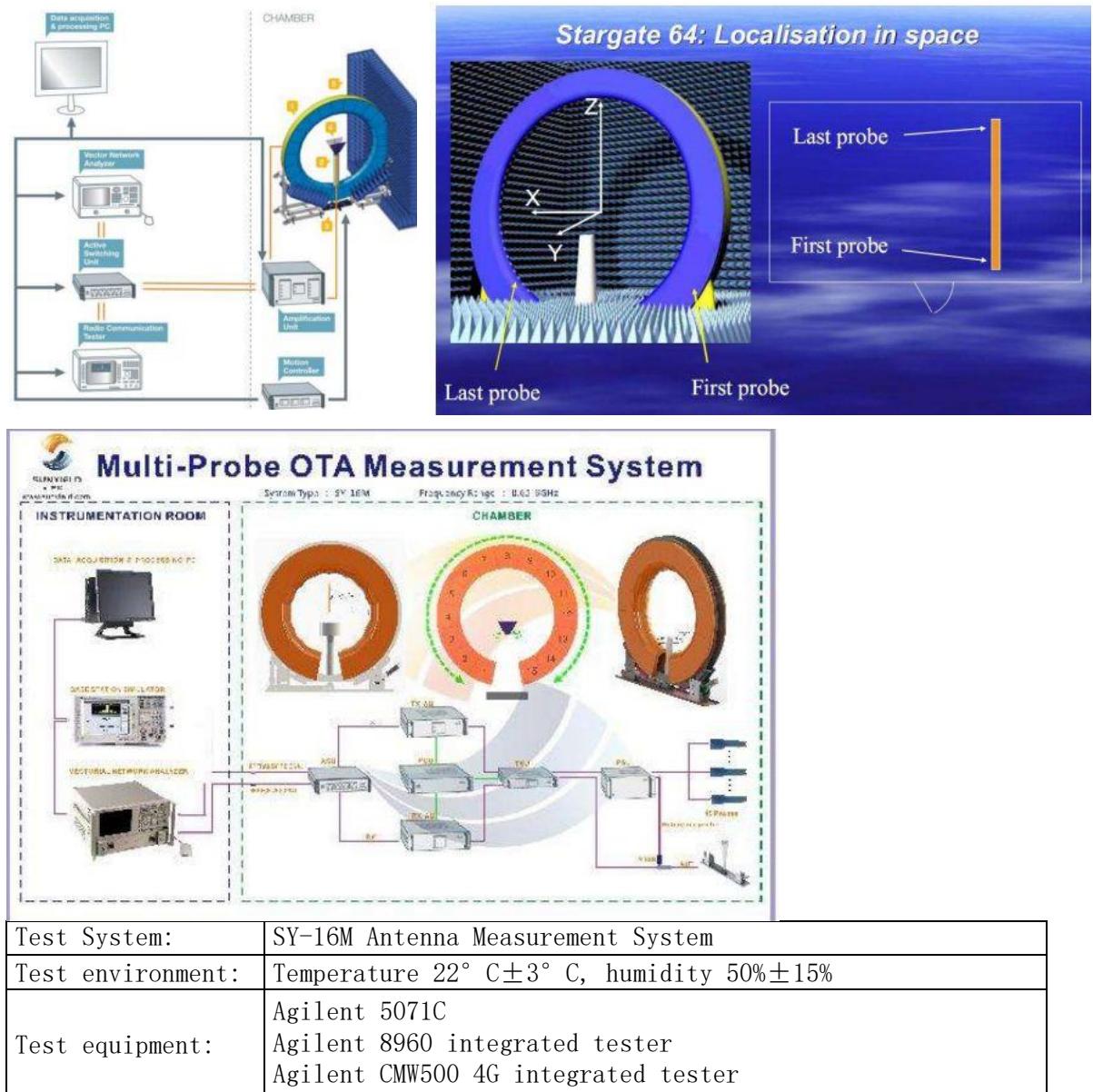
## I. Finished Product Drawing



## II. Product Test Parameters

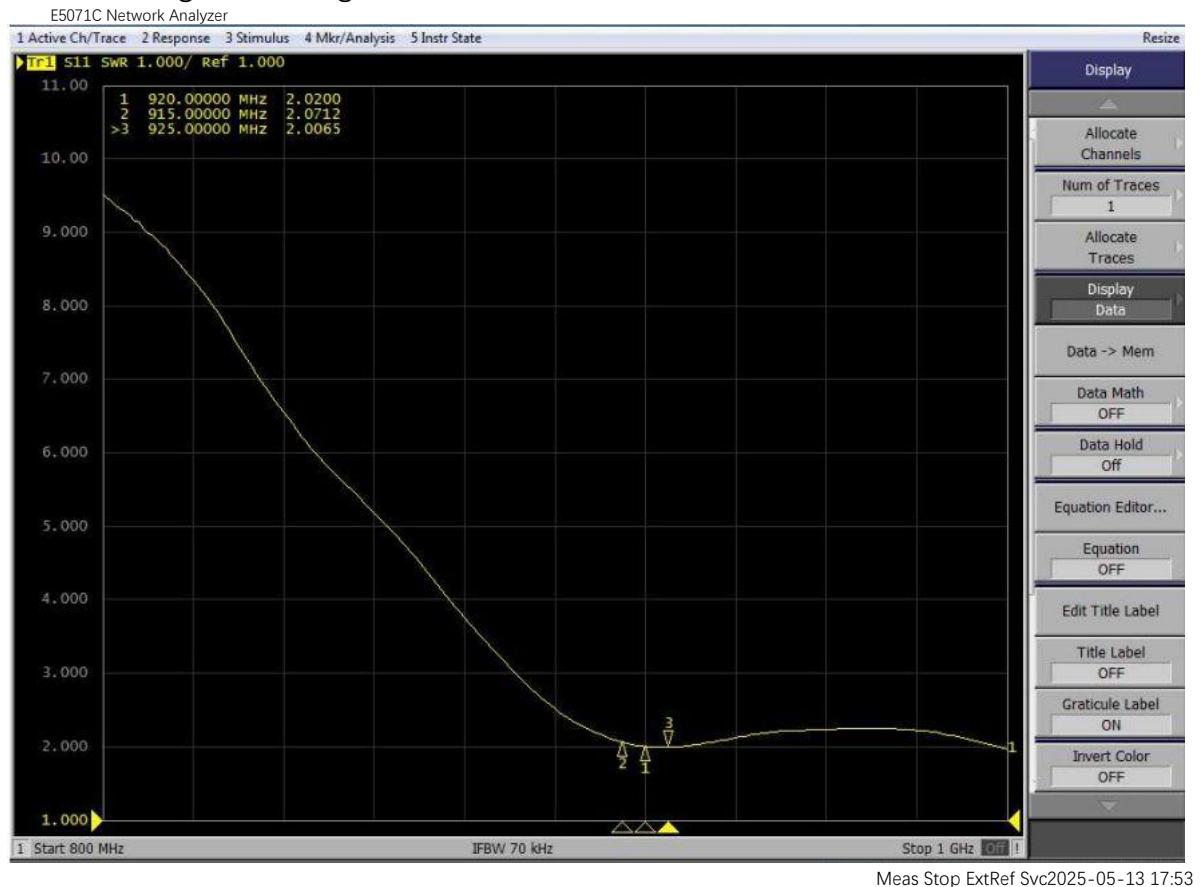
Product Name Spring Antenna (WWXLTH2139)		Model Type	
Electrical Parameters		MECHANICAL SPECTIFICATIONS	
Frequency Range $920 \pm 5\text{MHz}$		Dimensions	Diameter 3.0*27.6mm
Input Impedance	$50\ \Omega$	Connector Model	Welding
Standing-wave ratio VSWR	$<3.0$	Shell material Radome Material	Carbon steel nickel plating wire 0.5
Gain	$-4.95\text{dBi}$	Shell color Radome Color	Natural color
Polarization	Verticalization	Working Temperature	$-45^\circ\text{C} \text{--} +85^\circ\text{C}$
Radiation	Omnidirectional	Limit Temperature	$-45^\circ\text{C} \text{--} +85^\circ\text{C}$
Power capacity	50W		

### III. Antenna Test Environment



#### IV. Antenna passive parameters:

##### 1. Standing wave diagram:

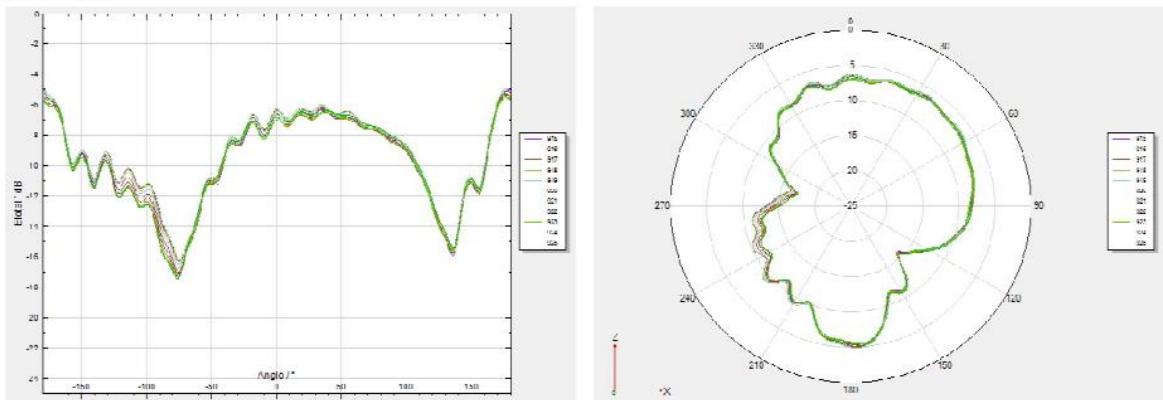


##### 2. Gain and standing wave

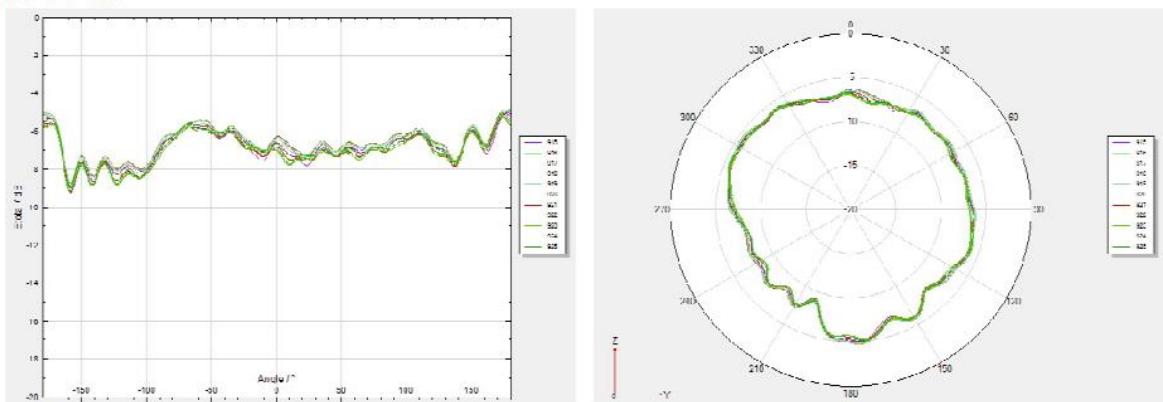
Frequency (MHz)	Gain (dBi)	Efficiency (%)
915	-4.97	17.58
916	-4.82	17.99
917	-4.73	18.24
918	-4.73	18.07
919	-4.82	17.46
920	-4.97	16.6
921	-5.14	16
922	-5.19	15.7
923	-5.12	15.78
924	-5.04	16.11
925	-4.96	16.44

### 3. Directivity diagram

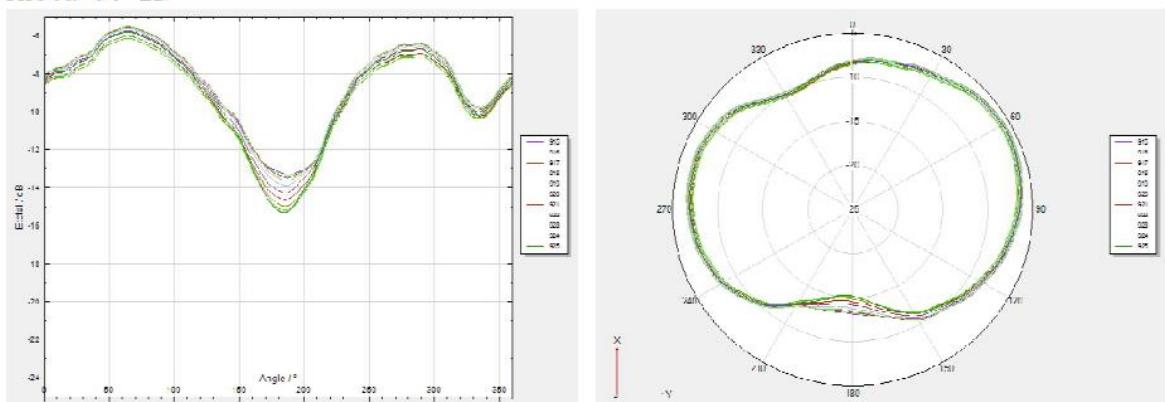
Phi 0 2D



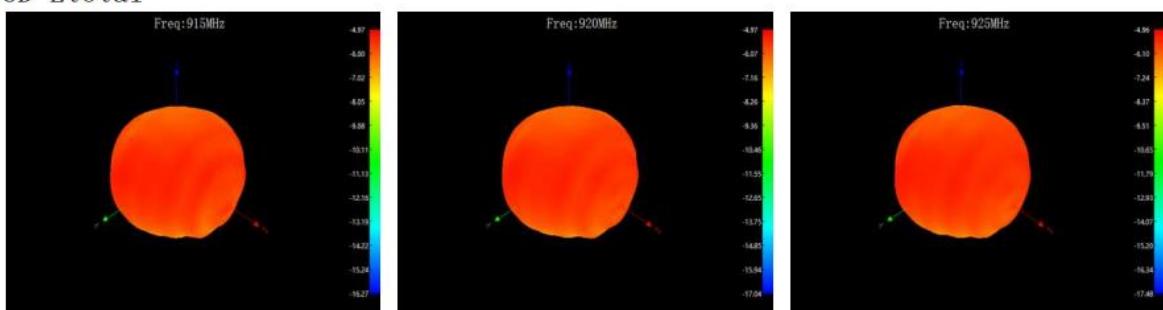
Phi 90 2D



Theta 90 2D



3D Etotal

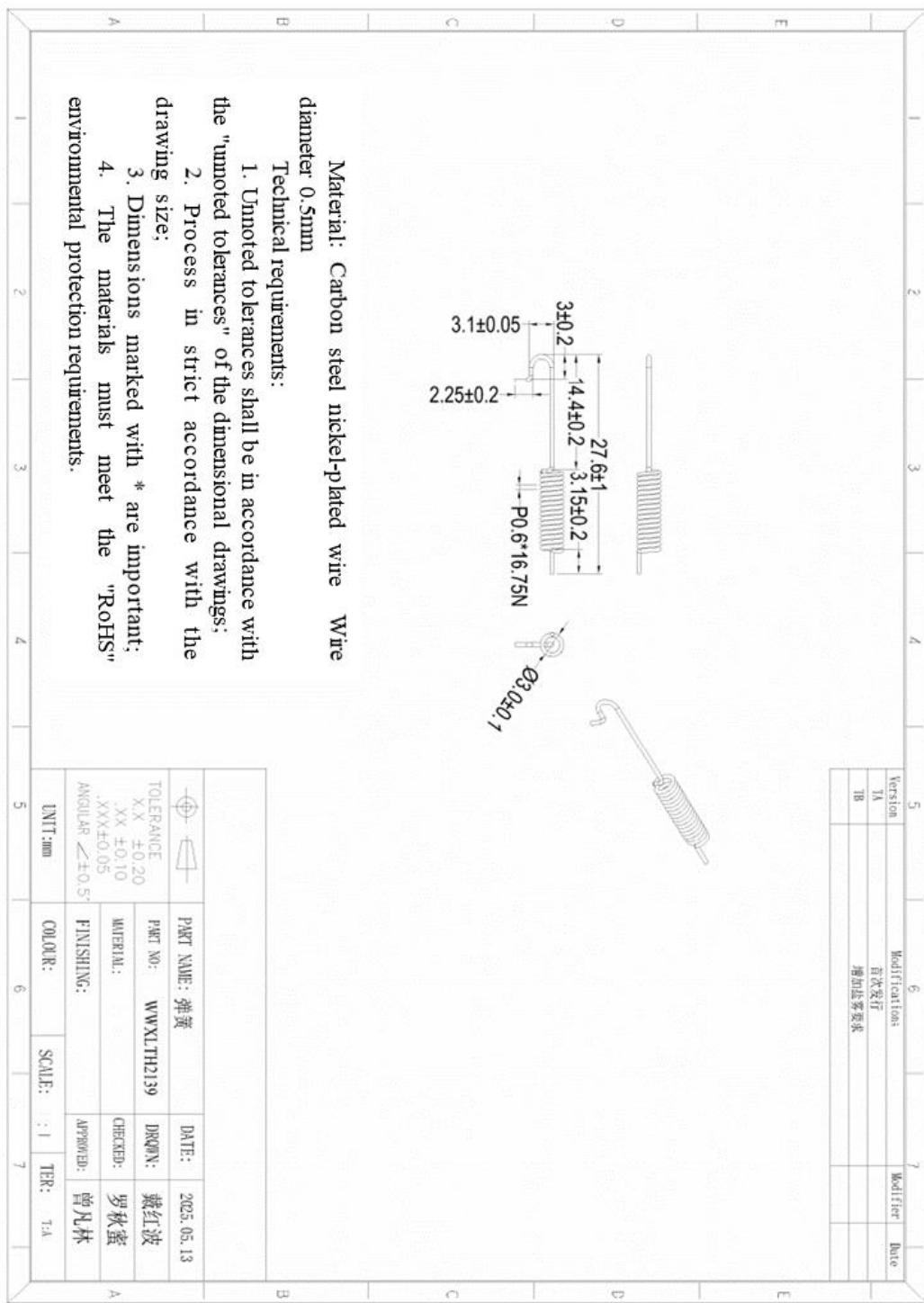


## 5. Product Features

1. First use high-quality carbon steel nickel-plated wire, which has low self-attenuation;
2. Stable performance and long service life;
3. Good standing waves in the frequency band.

## 6. Product Structure

Produced by Autodesk Education Edition



## VII. Environmental Reliability Test Report

## 1. Environmental test

High and Low Temperature Constant Humidity Test Report						
Test Project	High temperature, low temperature and constant humidity test					
Test sample Plate name	Spring antenna (WWXLTH2139)		Test date	2025.05.13		
Experiment/Testing Equipment	Constant temperature and humidity test chamber Network analyzer		Number of tests	5 PCS		
Inspection Standard	1. The metal surface coating shall be free of peeling, cracks, wrinkles and other defects; the non-metallic parts shall not have discoloration, cracking, deformation, debonding and other defects. 2. The electrical test meets the design requirements; the voltage standing wave ratio test is qualified.					
Test Name	Test Items	Requirements	Tested by Law	Actual measurement Test data	Results	
					Samples	Judgement
High temperature Test	Temperature (° C)	+85±3 1 2 1	According to GB2423. 1-89 No. 9 Chapter Specified Method Progress Row	+87 1.2 2.3 1	1	Qualified
	Temperature stabilization time of test sample (h)				2	Qualified
	Test duration (h)				3	Qualified
	Recovery time (h)				4	Qualified
					5	Qualified
Low temperature Test	Temperature (° C)	-45±3 1 2 1	According to GB2423. 1-89 No. 8 Chapter Specified Method Progress Row	-46 1.2 2.4 1.1	1	Qualified
	Temperature stabilization time of test sample (h)				2	Qualified
	Test duration (h)				3	Qualified
	Recovery time (h)				4	Qualified
					5	Qualified
Constant humidity	Temperature (° C)	+40±2 90-95	According to GB2423. 3-93 No. 5	+42 92	1	Qualified
	Relative humidity (%)				2	Qualified
					3	Qualified

Thermal test	Test duration (h) Recovery time (h)	21 1	Chapter Specified Method Progress Row	22 1.1	4	Qualified
					5	Qualified

## 2. Salt spray test

Salt spray test report						
Test Items	Salt spray test					
Name of test sample plate	Spring antenna (WWXLTH2139)		Test date	2025. 05. 13		
Equipment name	Salt spray corrosion test chamber		Number of tests	5 PCS		
Test method	Put the test sample into the prepared salt solution test chamber and salt spray corrosion chamber for continuous spray test					
Concentration of salt solution	52g/L	PH value of salt solution: 6. 5-7. 2		Test period: 24h		
Actual test data	55g/L	PH value of salt solution: 6. 8		Test period: 26h		
Test standard	<p>The test is carried out in accordance with GB/T10125 "Artificial atmosphere corrosion test, salt spray test"; the results are as follows</p> <p>GB/T6461-2002 "Metallic and other inorganic coatings on metal substrates are specimens and test pieces after corrosion testing Rating» Rating.</p>					
Test results						
No.	Corrosion resistance grade	Actual test data	Evaluation Result	Remarks		
1	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	Qualified			
2	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	Qualified			
3	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	Qualified			
4	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	Qualified			
5	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	Qualified			

VIII. Packing instructions: 1000 per PE bag; then put into a large carton.



Fig. 1 PE Bag

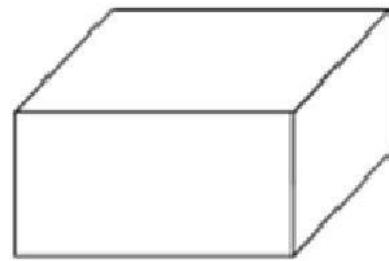


Fig. 2 Carton