

Antenna Specification Approval Document

CUSTOMER NAME:	/				
Customer Material Code:	/				
TYPE NAME:	FS-1671-2 (FS-NZ-TH-117)				
SPECIFICATON:	Spring Antenna-433MHz-Phosphor Bronze-21.5 Turns - L=39.5MM				
一、 Newly Approved ☒ 二、 Material Approved ☐ 三、 SPEC Approved ☐					
Manufacturer/Supplier R&D Acknowledgment			Customer Confirmation		
Shenzhen Feisheng Electronics Co., Ltd. (APPROVAL BY) :			(APPROVAL BY) :		
(APPROVAL DATE) : 2026-06-27			(APPROVAL DATE) :		
SUPPLIER			CUSTOMER		
RF:	Structures:	Business	TESTED	CHECKED	APPROVED
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Modify the record

Versions	Dates	RF	Modify the content
A0	2026-06-27	Hu Yongqi	

PARTS DRAWING		ROHS Compliant		REV	PRODUCT NO.	DATE	NAME	DESCRIPTION
				A0	FS-NZ-TH-117	2026.06.27		Initial Issuance

39.5±0.5

11.4

3

Ø0.8

2.1

Ø5.47

21.5 turns

Technical Requirements:

1. Material: Phosphor bronze
2. If no tolerance is specified, use ± 0.2
3. Surface should be smooth, free of stains and scratches.
4. Material must comply with RoHS requirements.

Frequency Range	433MHz	ANGLE PROJECTION GENERAL TOLERANCE 100~200 : ± 3.00 50~100 : ± 2.00 25~50 : ± 0.20 10~25 : ± 0.15 1~10 : ± 0.1	PRODUCT NAME				
Gain	2DBi		Spring Antenna - 433MHz - Phosphor Bronze - 21.5 Turns - L=39.5MM				
VSWR	Comparing Waveforms		PRODUCT NO.	UNIT	M M	SIZE	1:3
Polarization	vertical		FS-NZ-TH-117	PAGE	1 OF 1	FORMIT	A4
Impedance	50 Ω						
operation temperature: -45℃~85℃ storage temperature: -45℃~85℃		深圳市飞胜电子有限公司 SHENZHEN FEISHENG ELECTRONIC CO.,LTD					

Product Features Specification Table

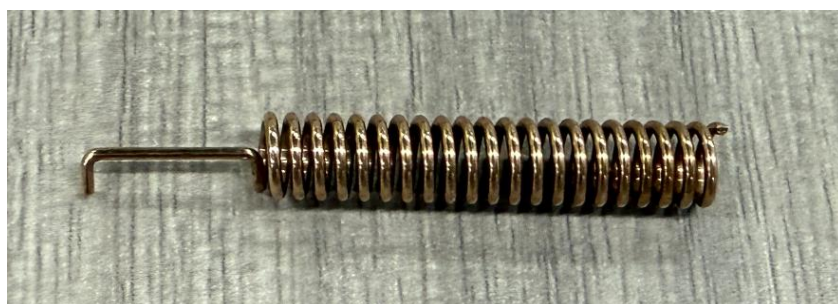
一、Basic characteristics of the product:

DESCRIPTION	VALUE
Frequency Range	433MHz
Impedance	50 Ω
VSWR	Compare the waveforms of samples
Gain	2DBi
Radiation	Omni-directional
Polarization	linear Vertical
Operating temperature	-45℃~+85℃
Storage temperature	-45℃~+85℃

二、产品尺寸

Dimensions (mm)	39.5* φ 5.47* φ 0.8	Mounting method	Welding
Material	phosphor bronze	turns	21.5 turns

三、产品实物图:



Test data and graphs

1. Summary:

This report to account for the measurement setup and result of the Antenna. The measurement setup includes s-parameter, The measured data for Antenna are presented and analysis.

2. S-Parameter Measurement S:

A. Reflection coefficient :

(a) Instrument: Network Analyzer

(b) Setup:

(1) Calibrate the Network Analyzer by one port calibration using O.S.L. calibration kits.

(2) Connect the antenna under test to the Network Analyzer.

(3) Measure the S11(reflection coefficient) shown in Fig. 1.

(4) Generally, the S11 is less than -10dB to ensure the 90% VSWR 2.0:1 power into antenna and only less than 10% power back to system.

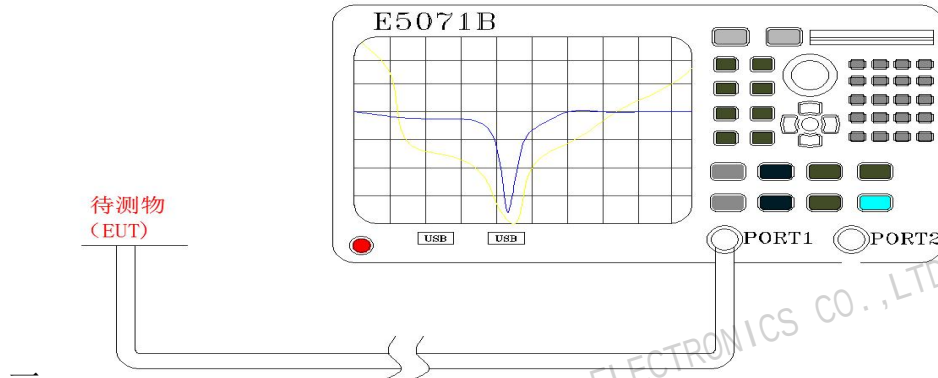


Fig.1 Antenna measured in Network Analyzer

3. S-Parameter Measurement Result S:

S-Parameter test data:

Frequency MHz	433
V.S.W.R	1.64

S-Parameter test image :



Environmental test requirements

Preface	Test items	Test methods and conditions	Test equipment	Test results
1	Temperature and humidity test	Reference EIA 364-31 Method Three, Test Condition A The purpose of this test process is to conduct detailed standard tests. The products used are affected by high humidity and heat. Influence the performance of the material for evaluation. Requirements: Temperature: 85℃ Humidity: 90~95% (R.H) Time : 72 hours	K. SON INS THS-A4L-150	Qualified
2	Low temperature test	Refer to Feisheng Electronic Test Specification The measured sample should be traveled in a temperature-balanced environment, and its temperature setting Set at -45° C Requirements : Time : 24 hours	K. SON INS THS-A4L-150	Qualified
3	High temperature test	Refer to Feisheng Electronic Test Specification: The measured sample should be placed in a constant temperature environment, and the gas temperature should be set at 70℃. Requirements : Time : 24 hours	K. SON INS THS-A4L-150	Qualified

Environmental test requirements

Preface	Test items	Test methods and conditions	Test equipment	Test results
4	Hot and cold tests	Refer to Feisheng Electronic Test Specification: The measured sample should be placed in a fixed environment, and the temperature should be set at -45~85°C. Requirements : More than 8 hours. (30 minutes/time, 12 cycles)	K. SON INS THS-A4L-150	Qualified
5	Salt spray test	Refer to Feisheng Electronic Test Specification: The tested sample should be placed in a fixed environment: NaCL Concentration: 40-60g/1Kg PH value: 6.5-7.2 Test time: 24 hours 1. Gold-plated products are not allowed to peel with rust spots. 2. Other nickel-plated, tinned and galvanized products shall not have more than two rust points on the same shaft or surface.	Salt spray tester	Qualified

Mechanical test requirements

Preface	Test items	Test methods and conditions	Test equipment	Test results
1	Vibration test	Test condition A The purpose of this test process is to evaluate the products used in the detailed standard test methods, which are moved or moved to affect the performance of the material. Requirements : Vibration range: 10-55HZ Displacement amplitude value: 0.35mm Acceleration amplitude: 50.0M/S Number of frequency sweeping cycles: 30Times	Vibration tester	Qualified
2	DROP TESTS	Refer to Feisheng Electronic Test Specification: The measured sample should be placed at a certain height, and its height should be set to 1 meter, and it should fall freely 3 times in the direction of 6 surfaces. Requirements : The mechanical characteristics of the product are normal after the drop test.	Drop test fixtures	Qualified

Mechanical test requirements

3	Tula test	Refer to Feisheng Electronic Test Specification: Fix the object under test through the fixture, and after applying a certain force in the opposite direction, the product assembly shall not fall off.	Tile tester	Qualified
		Requirements: 1. The product assembly cannot fall off. 2. Minimum tensile force: 1.2KG		

Note: Feisheng Electronics performs the above mechanical and environmental parameter tests before R&D and trial delivery.