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Specification

Product Specifications Sheet

product model : N8401A

Product name : LORA&BT FPC antenna

Product part number: F00100000986

explain

This document corresponds to the **LORA&BT FPC antenna**.

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Revision History

Edition	Date	Change	Author
1.0	2025-10	Initial version	Liu Zhigao
1.1	2026-01	At the customer's request, the LORA passive test data has been expanded to include additional test frequency points.	Liu Zhigao

1 Antenna Finished Product Image



2 Product Parameter

Product name Name	LORA& BT FPC antenna	Model Model Type	N8401A
Frequency range	LORA: 868MHz	Size	79.34*38.97*0.12(MM)
Frequency Range	BT: 2400-2500MHz	Dimensions	
Standing-wave ratio	LORA: ≤ 1.5	Input impedance	50 Ω
VSWR	BT: ≤ 3.5	Impedance	
Polarization mode Polarization	Linear polarization	Cable Model/Length	LORA:1.13 gray /80 (MM) BT: 1.13 black /80 (MM)
Radiation direction Radi- ation	Omnidirectional	Working temperature Wor- king Temperature	-30℃- +75℃

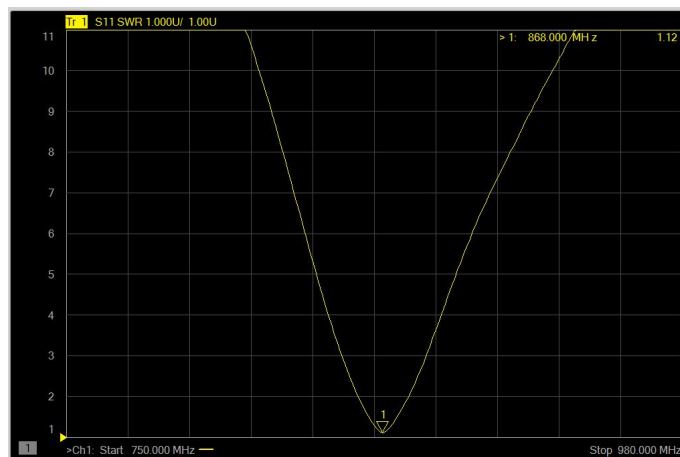
3 LORA Antenna Performance Parameters

3.1 Standing Wave Ratio and Return Loss Meter

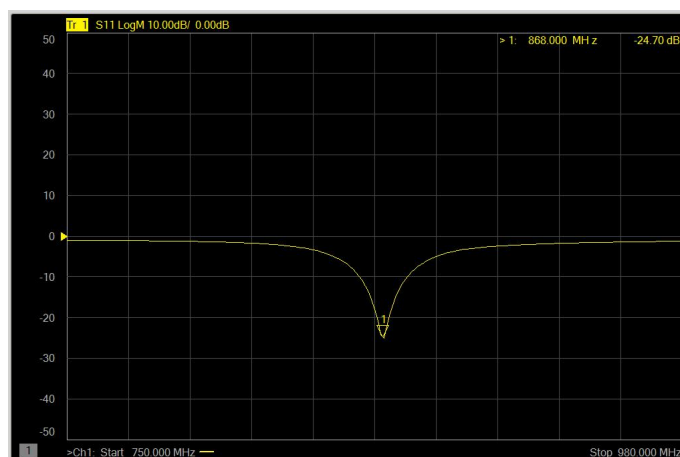
Frequency (MHZ)	868
VSWR	1.12
Return Loss	-24.70

3.2 Standing Wave Ratio and Return Loss Diagram

VSWR



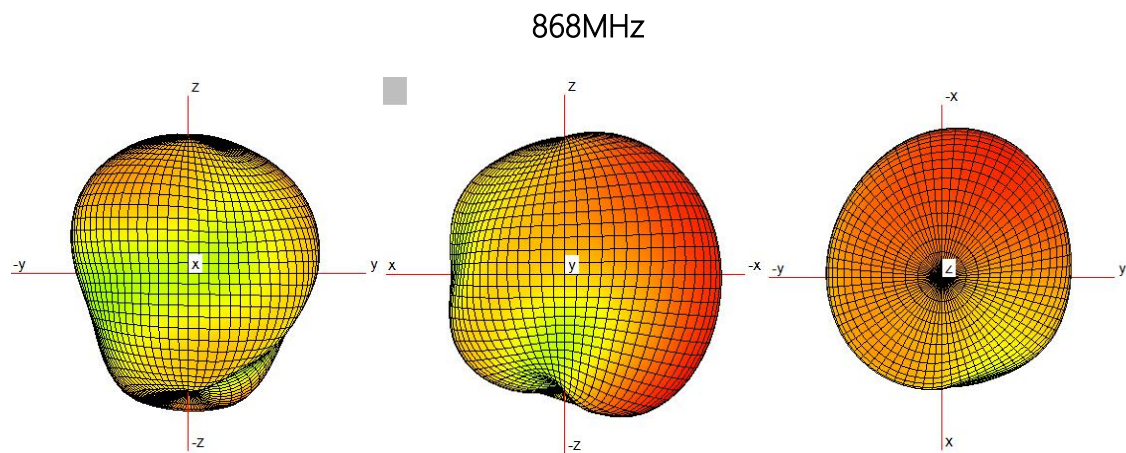
Return Loss



3.3 Passive Gain/efficiency

Freq	Efficiency_dB	Gain	Efficiency_Pcent
868	-8.75	-4.68	13.33
890	-5.84	-2.25	26.08
900	-6.59	-2.8	21.92
915	-8.65	-4.62	13.66
920	-9.54	-5.38	11.12
930	-10.89	-6.56	8.15

3.4 Antenna Pattern



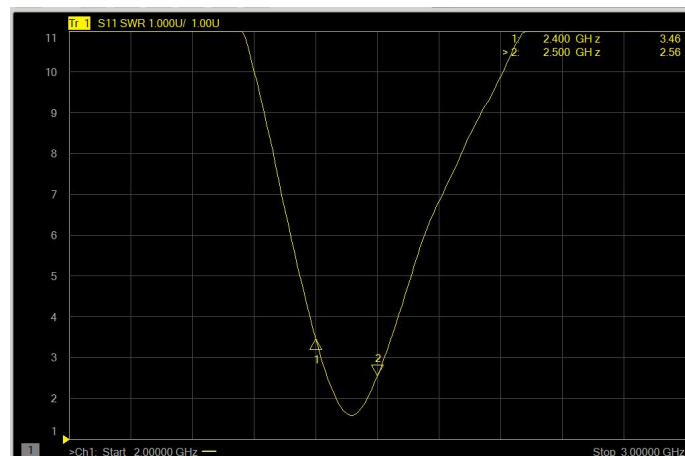
4 BT Antenna Performance Parameters

4.1 Standing Wave Ratio and Return Loss Meter

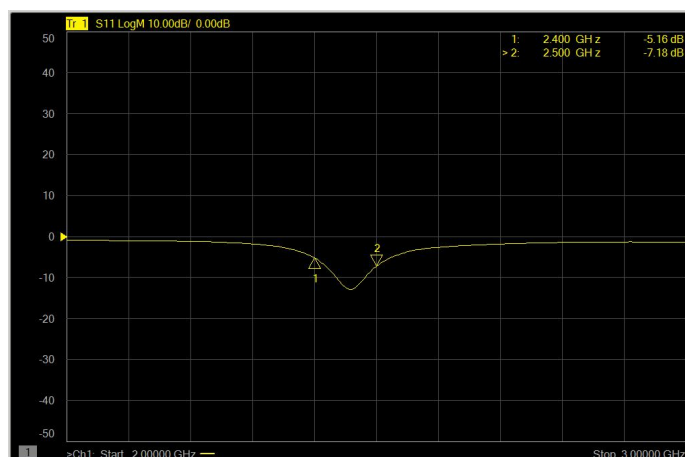
Frequency (MHZ)	2400	2500
VSWR	3.46	2.56
Return Loss	-5.16	-7.18

4.2 Standing Wave Ratio and Return Loss Diagram

VSWR



Return Loss

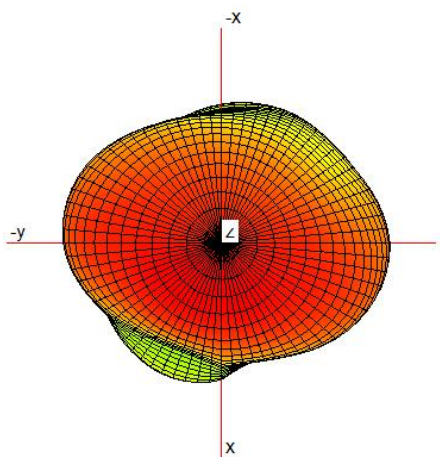
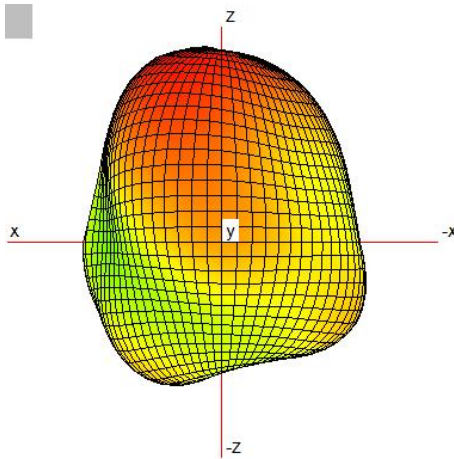
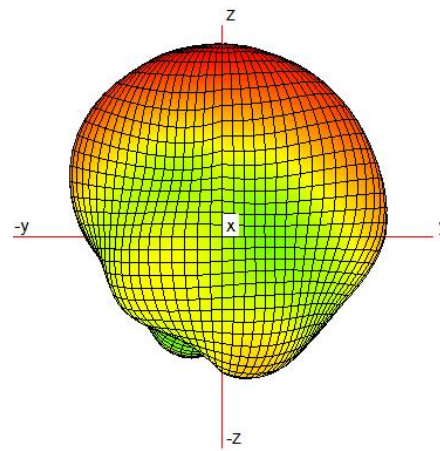


4.3 Passive Gain/efficiency

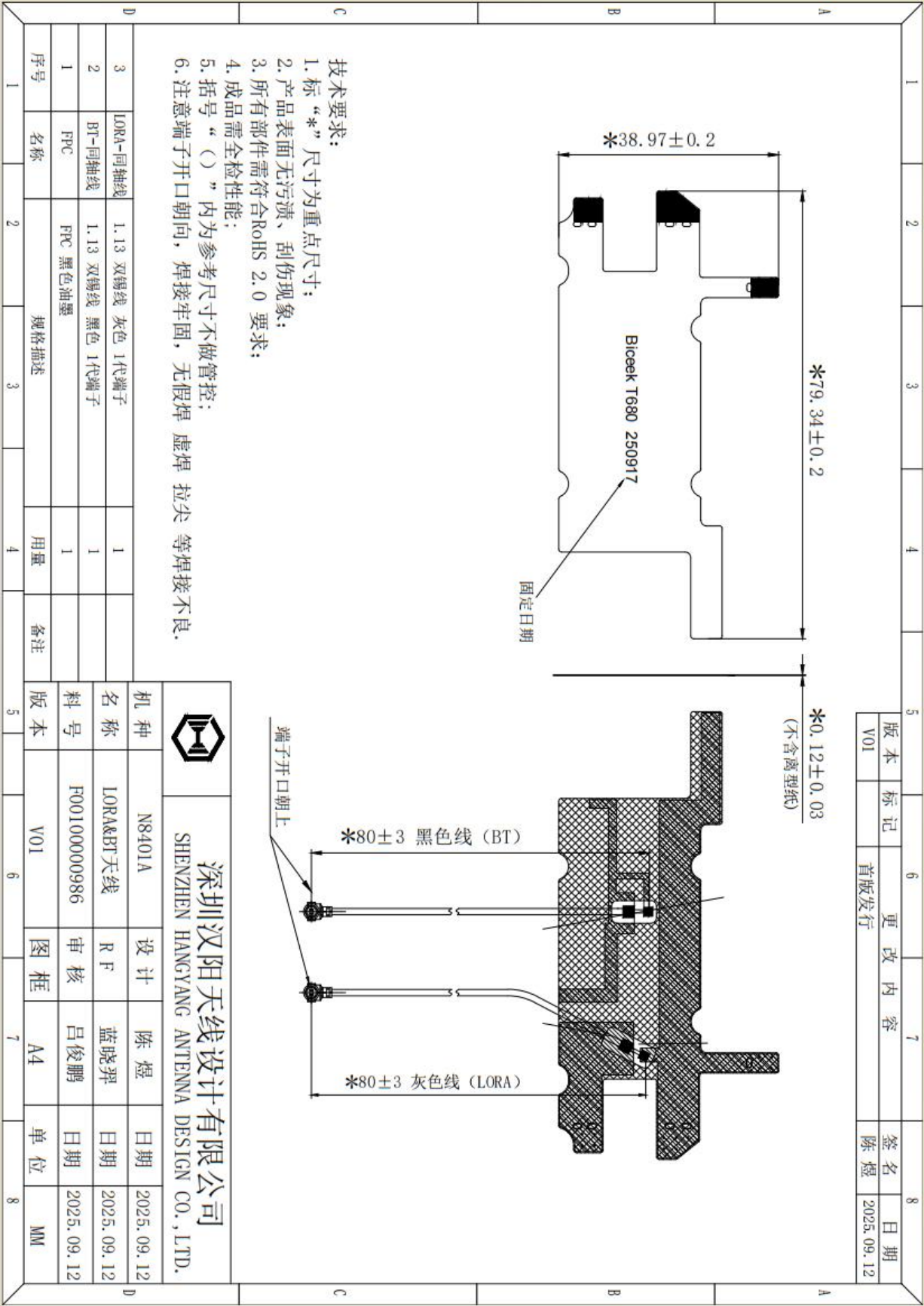
Freq	Efficiency_dB	Gain	Efficiency_Pcent
2400	-6.26	0.2	23.68
2410	-5.47	1.05	28.4
2420	-4.83	1.68	32.89
2430	-4.53	2.11	35.22
2440	-4.44	2.31	35.99
2450	-4.65	2.17	34.31
2460	-5.12	1.89	30.78
2470	-5.77	1.3	26.48
2480	-6.55	0.67	22.16
2490	-7.42	-0.07	18.11
2500	-8.28	-0.85	14.86

4.4 Antenna Pattern

2450MHz



5 Antenna Structure Drawing



6 Environmental Reliability Test

Test item	Test method	Testing standard
Low temperature storage	1、 The antenna to be tested is put into the temperature test chamber. 2、 The samples were stored at $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 48h. 3、 After the experiment, the product was restored at room temperature for 2 hours, then removed for inspection. The samples underwent visual examination, mechanical property testing, and electrical performance evaluation.	• The entire sample must not exhibit adverse phenomena such as deformation, hardening, embrittlement, or bubbling, and its electrical properties must meet the specified requirements.
High temperature storage	1、 The antenna to be tested is put into the temperature test chamber. 2、 Store at $75^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 48 hours. 3、 After the experiment, the product was restored at room temperature for 2 hours, then removed for inspection. The samples underwent visual examination, mechanical property testing, and electrical performance evaluation.	• The entire sample must not exhibit adverse phenomena such as deformation, hardening, embrittlement, or bubbling, and its electrical properties must meet the specified requirements.
Temperature cycle	1、 The antenna to be tested is placed into the temperature test chamber. 2、 -30°C for 1 hour, $+75^{\circ}\text{C}$ for 1 hour, this constitutes one cycle; the temperature change time ≤ 40 minutes. A total of 10 cycles were tested. 3、 After the experiment, the product was restored at room temperature for 2 hours, then removed for inspection. The samples underwent visual examination, mechanical property testing, and electrical performance evaluation.	• The whole sample should not have any undesirable phenomena such as deformation, hardening, brittleness, and bubbling, and the electrical properties should meet the requirements.
Salt Spray Test	1、 The antenna to be tested is put into the temperature test chamber. 2、 The spray parameters were set as follows: in a closed environment with temperature of $35^{\circ}\text{C} \pm 2^{\circ}\text{C}$, humidity $> 85\%$, and pH value in the range of 6.5-7.2, the salt water spray was applied continuously for 48 hours with $5\% \pm 1\%$ NaCl solution. 3、 After the experiment, remove the product, rinse thoroughly with tap water, and allow it to dry at room temperature. Inspect and test the surface.	• Inspect the sample for any cracks, corrosion, bubbling, obvious deformation, bluing, wrinkling, or complete detachment.