

Yuan de Electronics(Shenzhen)Co. LTD
远德电子（深圳）有限公司
样品承认书

Part Information:
部品信息:

SAMPLE APPROVAL SHEET
Manufacturer: Yuan de Electronics(Shenzhen)Co. LTD
Manufacturer's address: 1 / F, building 4, xiangyu'er Industrial Park, No. 8, Longsheng Road, Longgang street,
Longgang District, Shenzhen

客户（Customer）	正阳 Zhengyang
部品名称（Material Description）	AN018A PLASTIC 天线 Antenna
客户料号（Customer's Part number）	
部品规格（Specifications）	FPC（15*11mm）+黑色同轴线（ ϕ 1.13*150mm）+ 焊接 weld Black coaxial line
远德料号（Supplier's Part number）	136-AN018-20A
送样日期（Date）	2023-8-24

远德签核：Sign off

拟制 Prepared By	审核 Checked By	批准 Approved By
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客户签核：

承认 Accepted By	审核 Checked By	批准 Approved By

承认结果：

- ☐完全接受（Full Approval）
☐条件接受（Conditional Approval）
☐不合格（Unqualified）
☐其它（Others）：

本样品承认书我司确保属实，如经贵司研发部门确认签核后，请以最快速度回传给我司。如有其它原因，请以书面形式通知我。

This sample approval sheet is guaranteed to be true. If it is confirmed by your R&D department, please send it back to us as soon as possible. If there are other reasons, please inform us in writing.

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1 规格 Specification

This report mainly provides the testing status of various electrical and structural performance parameters of antenna AN018A PLASTIC FPC. 本报告主要提供天线 AN018A PLASTIC FPC 天线 各项电气和结构性能参数的测试状况。



图 1 天线

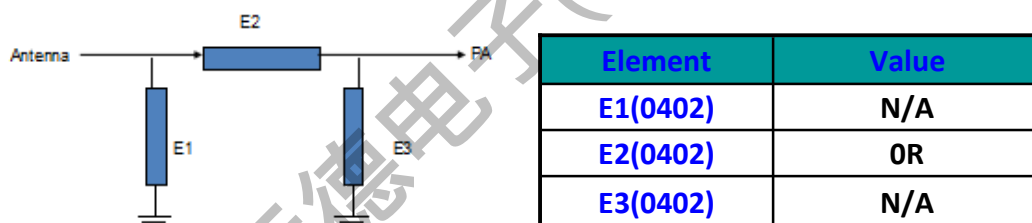
1.1 电气规格标准 Electrical specification standard

1.1.1 电性能指标 Electrical performance index

天线工作频段在 2400-2480MHz。下表是我司设计天线的电性能的指标。
The antenna operates in 2400-2480MHz. The following table is the electrical performance index of our antenna design.

天线 Antenna	AN018A PLASTIC 天线
频段 Frequency band	2400-2480MHz
驻波比 Standing-wave ratio	<2.5
效率 efficiency	>25%
阻抗 impedance	50 ohm
极化方式 Polarization mode	线极化 Linear polarization

1.1.2 匹配电路图 Match the circuit diagram



2 测试 Test

天线用客户提供的样机进行调试及测试。

The antenna was debugged and tested with the prototype provided by the customer.

2.1 无源 S11 的测试 Passive S11 test

2.1.1 测试连接 Test connection

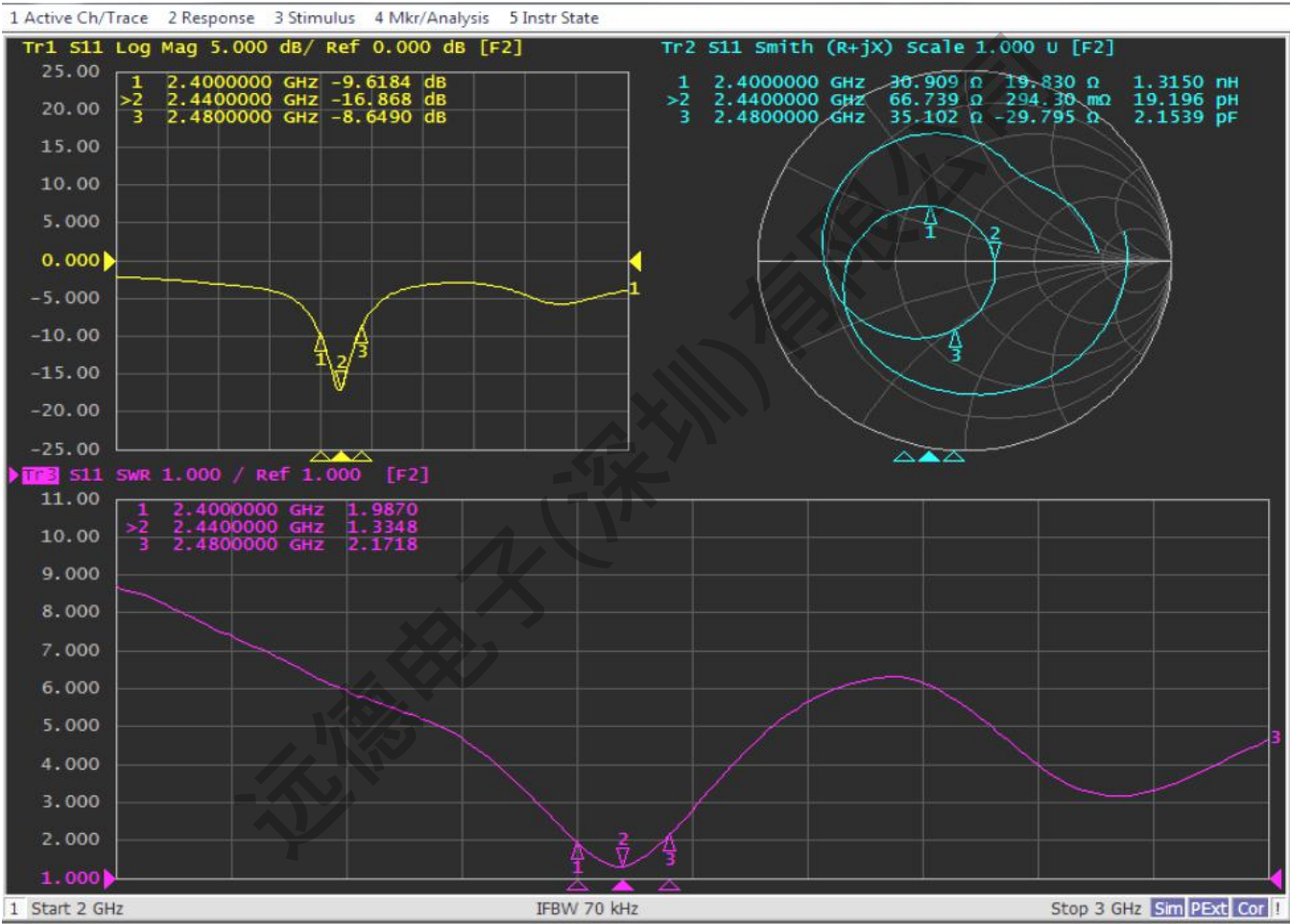
无源 S11 测试装置依次连接为：网络分析仪 → 测试线 → 测试治具。

The passive S11 test device is connected in sequence as follows: Network Analyzer → Test wire → Test fixture

2.1.2 无源 S11 Passive S11

下表所示为天线工作频段边缘频点的驻波比数值。测试所得的 Return Loss, VSWR 相关波形图如下图所示。The following table shows the value of standing wave ratio at the edge frequency of the antenna operating band. Return Loss and VSWR related waveforms were measured. The picture is shown below.

AN018A PLASTIC 天线 S11			
频率 (MHz)	2400	2440	2480
VSWR	1.98	1.33	2.17
Return Loss	-9.62	-16.87	-8.65



2.2 增益及效率的测试 Gain and efficiency testing

2.2.1 测试的场地Test site

远德微波暗室：测试频率范围为 400MHz—6GHz
Yuande microwave darkroom: The test frequency range is 400MHz-6GHz

2.2.2 测试的仪表 Instrument for testing

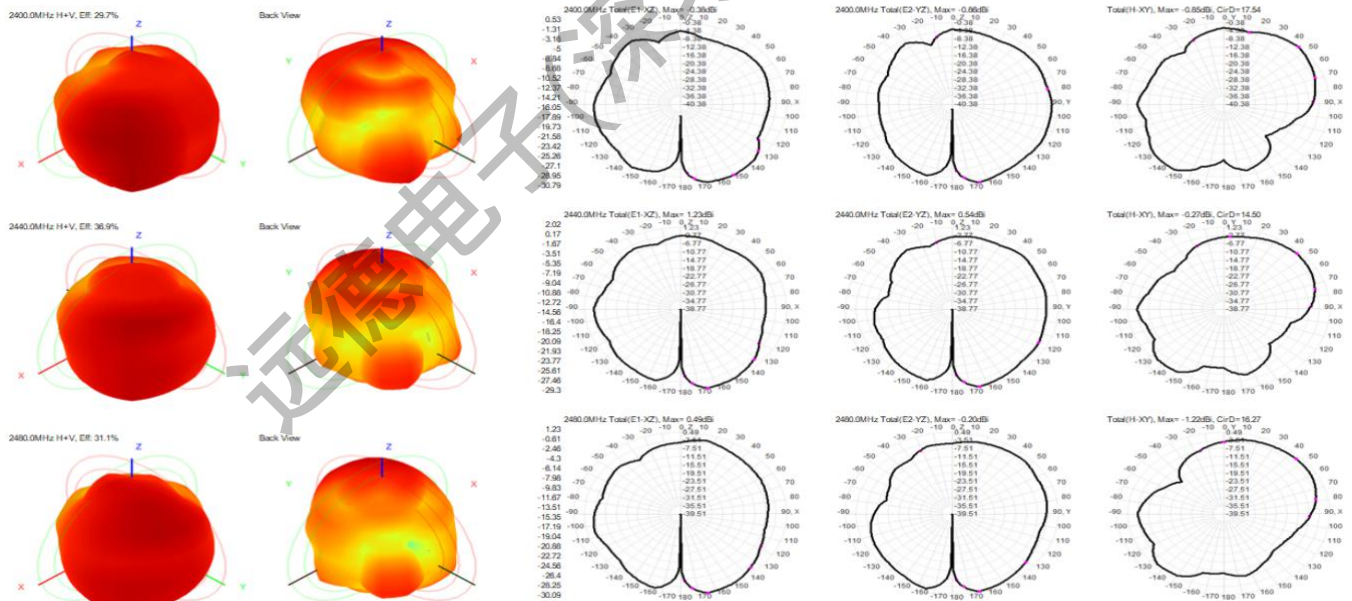
网络分析仪、标准喇叭天线、多探头近场天线测试系统、测试电脑等。
Network analyzer, standard horn antenna, multi-probe near-field antenna test system, test computer, etc

2.2.3 测试结果 Test result

In the microwave darkroom, the values related to efficiency and gain tested are shown in the table below
在微波暗室中，测试的与效率及增益相关的数值如下表所示

Frequency (MHz)	Gain(dBi)	Efficiency (%)
2400	0.53	29.67
2410	1.13	32.67
2420	1.70	35.04
2430	2.09	36.51
2440	2.02	36.91
2450	1.82	36.54
2460	1.60	35.28
2470	1.38	33.30
2480	1.23	31.13
2490	0.85	29.14
2500	0.41	27.28

2.2.4 无源辐射方向图 Passive radiation pattern



3、结论 Conclusion

此天线是在客户提供样机基础上设计，上述电性能参数基于测试样机环境处理条件下测试，电参数和结构性能已达到技术要求，请确认！

The antenna is designed on the basis of the prototype provided by the customer. The above electrical performance parameters are tested based on the environmental treatment conditions of the test prototype. The electrical parameters and structural performance have met the technical requirements, please confirm!

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4、产品结构图 Product structure drawing

