

# FPC 天线规格承认书

## Product Specifications for Approval

客户名称 Customer name::

天线频段 Antenna frequency band: 824-960MHz 1710-2690MHz

版本 Version: A0

制作日期 Date of production: 2022-08-11

编号 number: FS-152

结构Structure:		射频radio frequency:	
审核Audit:		批准Ratification:	
<b>客户确认</b> Customer confirmation			
客户审核 Customer audit:		客户批准 Customer approval:	

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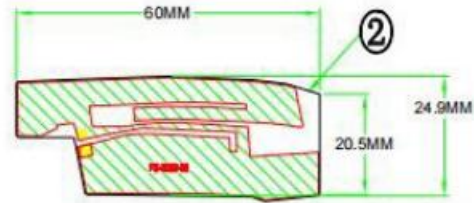
## 修改记录 Modi fy the record

版本Versi on	日期date	工程师engi neer	修改内容 Modi fi cati ons
01	2022-08-11		

PARTS DRAWING 零件图

ROHS Compliant

NO	产品料号	日期时间		版本号	父图时间
NO	FS-152	2022.08.02			



1. 线材外被无破皮、损伤。
  2. 成品须100%测试导通 OK。
  3. 成品须100%全检OK。
  4. 采用环保制程, 成品符合ROHS要求。
- 额定电压: AC 60V  
 接触阻抗: 20-0hm  
 耐压电压: AC200V  
 绝缘阻抗: 500m-0hm  
 特性阻抗: 50 Ohm

工作频段 (Frequency Range)	698-960MHz 1710-2690MHz
增益 (Gain)	2dbi
电压驻波比 (VSWR)	对比波形
极化方式 (Polarization)	垂直
特性阻抗 (Impedance)	50 OHM

NO	Code	Name	Description	Q'ty	Part NO
3	IPEX	1.13 一代端子		1	
2	FPC	60*24.9MM		1	
1	线材	1.13线 双锡 黑色 L=200MM		1	



公差  
GENERAL TOLERANCE

100~200 :	± 3.00
50~100 :	± 2.00
25~50 :	± 0.20
10~25 :	± 0.15
1~10 :	± 0.1

产品名称 (PRODUCT NAME)				
FPC-4G-IPEX1.13一代端子-1.13线-双锡-黑色-L=200MM				
产品料号	单位 (UNIT)	M M	比例 (SIZE)	1:3
FS-152	页数 (PAGE)	1 OF 1	幅面 (FORMAT)	A4
业务	仓库			
PMC	生产			
采购	品质			

# 产品特性规格表

## Product Characteristics Specification Sheet

### 一、产品基本特性Basic characteristics of the product:

产品类型： FPC-4G-IPEX1.13 一代端子-1.13 线-双锡-黑色-L=200MM	
DESCRIPTION	VALUE
Frequency range (工作频段)	824-960MHz 1710-2690MHz
Impedance (特性阻抗)	50 Ω
V.S.W.R (电压驻波比)	对比样品波形 (Compare sample waveforms)
Gain (增益)	2dBi
Radiation (方向性)	Omni-directional
Polarization (线化方式)	linear Vertical
Admitted power (功率)	1W
Connector (接头型号)	IPEX
Operating temp (工作温度)	-10°C~+70°C
Storage temp (储存温度)	-10°C~+60°C

## 1. Summary 概要:

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.

这份报告用以说明量测的天线的结果，该测量设置包括 S 参数的 电压驻波比及反射系数，为量测天线的的数据表示及分析

## 2. S-Parameter Measurement S 参数的量测:

### A. Reflection coefficient 反射系数:

(a) Instrument (仪器): Network Analyzer (网络分析仪).

### (b) Setup 建立:

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

仪器的校正通过 OSL 校准套件进行一个端口的校正.

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

连接待测天线至网络分析仪.

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

测量 S11 如图一所示.

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

一般来说, S11 小于  $-10\text{dB}$  VSWR 小于 2.0: 1, 以确保 90% 的功率转换成天线和只有不到 10% 的功率反射回系统.

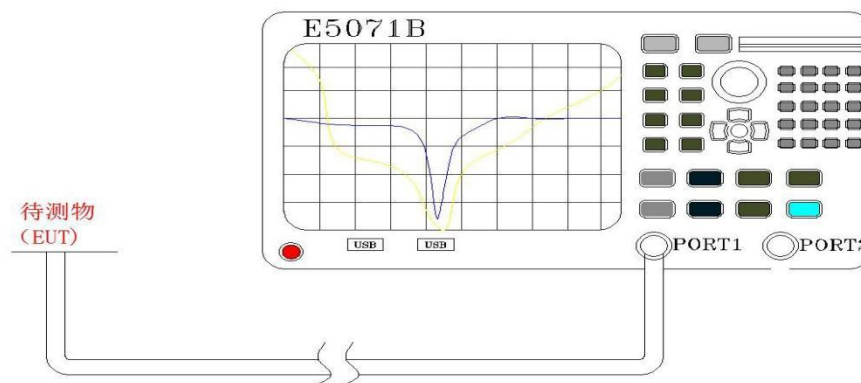


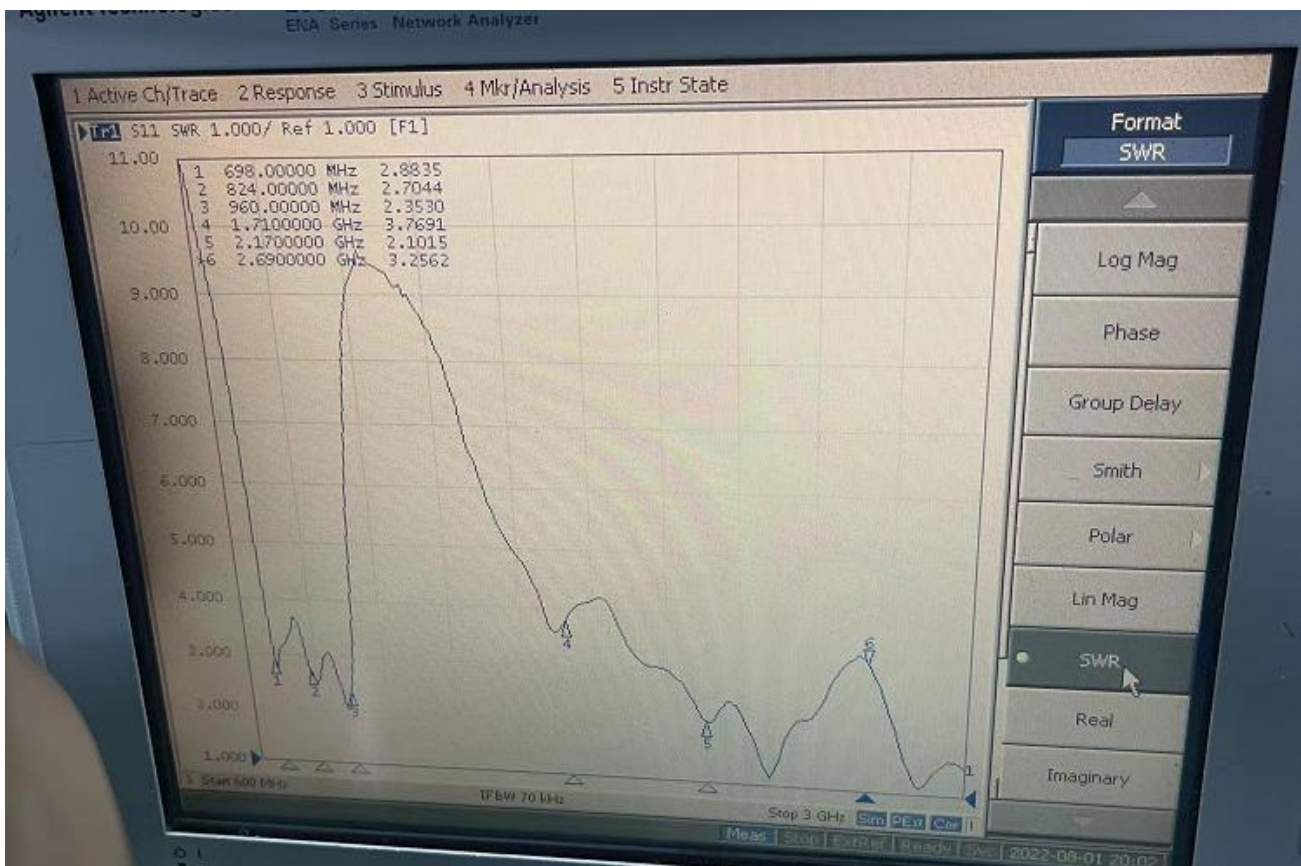
Fig.1 Antenna measured in Network Analyzer 图 1 天线测量网络分析仪

### 3. S-Parameter Measurement Result S 参数的量测结果:

S-Parameter test data S-参数量测数据:

Frequency MHz 工作频段	698	824	960	1710	2170	2690
V.S.W.R 驻波比	2.88	2.70	2.35	3.76	2.10	3.25

S-Parameter test image S-参数量测图片:



## 天线外形 (Antenna form factor)



# 环境测试要求

## Environmental testing requirements

序	测试项目 Test items	测试方法及条件 Test Methods and Conditions	测试设备 Test equipment	测试结果 Test results
1	温湿测试 Temperature and humidity test	<p>参考 EIA 364-31 方法三, 测试条件 A 本测试程序的目的是, 详细的标准试验方法中 所用的产品, 它们由高湿度和热的影响, 影响 材料的性能进行评价。 Referring to EIA364-31 Method III, Test Condition A The purpose of this test procedure is to evaluate the properties of the products used in the standard test methods in detail, which are affected by high humidity and heat, affecting the properties of the material.</p> <p>要求 : 温度: 70°C 湿度: 90~95% (R.H) 时间 : 72 小时 Requirements: Temperature: 70° C Humidity: 90~95% (R.H) Time: 72 hours</p>	K. SON INS THS-A4L-150	<input type="checkbox"/>
2	低温测试 Low temperature test	<p>参考测试规范: 所测样品应放置于一个恒温环境中, 其温度设定在-20°C. Reference Test Specification: The sample to be measured should be placed in a balanced temperature environment with a temperature set at -20° C.</p> <p>要求 时间 24 小时 The required time is 24 hours</p>	K. SON INS THS-A4L-150	<input type="checkbox"/>
3	高温测试 High temperature test	<p>参考测试规范: 所测样品应放置于一个恒温环境中, 其温度设定在 70°C. Reference Test Specification: The sample should be placed in a balanced temperature environment with a temperature set at 70° C.</p> <p>要求 时间 24 小时 The required time is 24 hours</p>	K. SON INS THS-A4L-150	<input type="checkbox"/>
4	冷热冲击 Thermal shock	<p>参考测试规范: 所测样品应放置于一个固定环境中, 其温度设定为-20~70°C. Refer to the test specification: The measured sample should be placed in a fixed environment, and its temperature should be set at -20~70° C.</p> <p>要求 :8 小时以上. (30 分钟/次, 12 周期) Requirements: more than 8 hours. (30 minutes/session, 12 cycles)</p>	K. SON INS THS-A4L-150	<input type="checkbox"/>
5	盐雾测试 Salt spray test	<p>参考测试规范: 所测样品应放置于一个固定环境中其要求下: NaCl 浓度: 40-60g/1Kg PH 值: 6.5-7.2 测试时间: 24H Reference Test Specification: The sample to be tested should be placed in a stationary environment under its requirements: NaCl concentration: 40-60g/1Kg PH: 6.5-7.2 Test time: 24H</p> <p>1. 镀金产品不准有锈斑脱皮 2. 其它镀镍 镀锌 镀锌产品在同一轴或面不得有超过二点以上锈点。 1. Gold-plated products are not allowed to peel off rust spots 2. Other nickel-plated, tin-plated, and galvanized products shall not have more than two rust spots on the same shaft or surface.</p>	盐雾测试机 Salt spray testing machine	<input type="checkbox"/>



# 机械测试要求

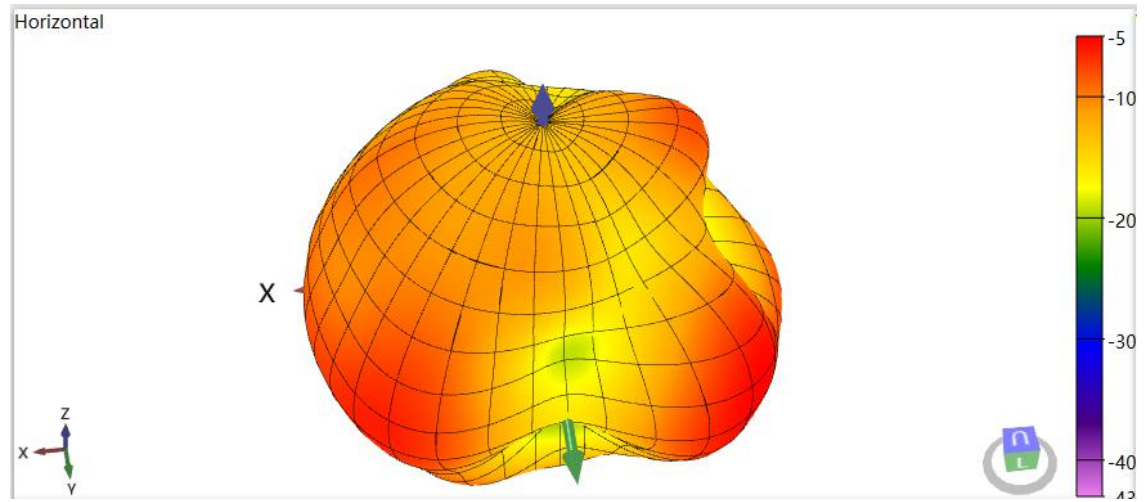
## Mechanical testing requirements

序	测试项目 Test items	测试方法及条件 Test Methods and Conditions	测试设备 Test equipment	测试结果 Test results
1	振动测试 Vibration test	<p>测试条件 A 本测试程序的目的是，详细的标准试验方法中 所用的产品，它们由运动或搬动，影响材料的性能进行评价。</p> <p>Test Condition A The purpose of this test procedure is to evaluate the properties of the products used in the standard test methods in detail, which are affected by movement or movement.</p> <p>要求：振动范围：10-55HZ 位移幅值：0.35mm 加速度幅值：50.0M/S 扫频循环次数：30 次</p> <p>Requirements: Vibration range: 10-55HZ Displacement amplitude: 0.35mm Acceleration amplitude: 50.0M/S Sweep frequency cycles: 30 times</p>	振动测试机 Vibration testing machine	<input type="checkbox"/>
2	跌落测试 Drop test	<p>参考测试规范： 所测样品应放置于一定的高度，其高度设定为1M，按照 6 个面的方向自由跌落 3 次</p> <p>Refer to the test specification: the measured sample should be placed at a certain height, its height should be set at 1M, and it should be freely dropped 3 times in the direction of 6 faces</p> <p>要求：跌落测试后产品机械特性正常</p> <p>Requirements: The mechanical characteristics of the product are normal after the drop test</p>	跌落测试治具 Drop tester	<input type="checkbox"/>
3	拉力测试 Tensile test	<p>参考测试规范： 通过治具固定被测物件，使用一定的力向反方向施力后，产品装配不可脱落。</p> <p>Refer to the test specification: fix the measured object through the fixture, and use a certain force to apply force in the opposite direction, and the product assembly cannot fall off.</p> <p>要求：1. 产品装配不可脱落. 2. 最小拉力：1.2KG</p> <p>Requirements: 1. The product assembly can not fall off. 2. Minimum tensile force: 1.2KG</p>	拉力测试机 Tensile testing machine	<input type="checkbox"/>

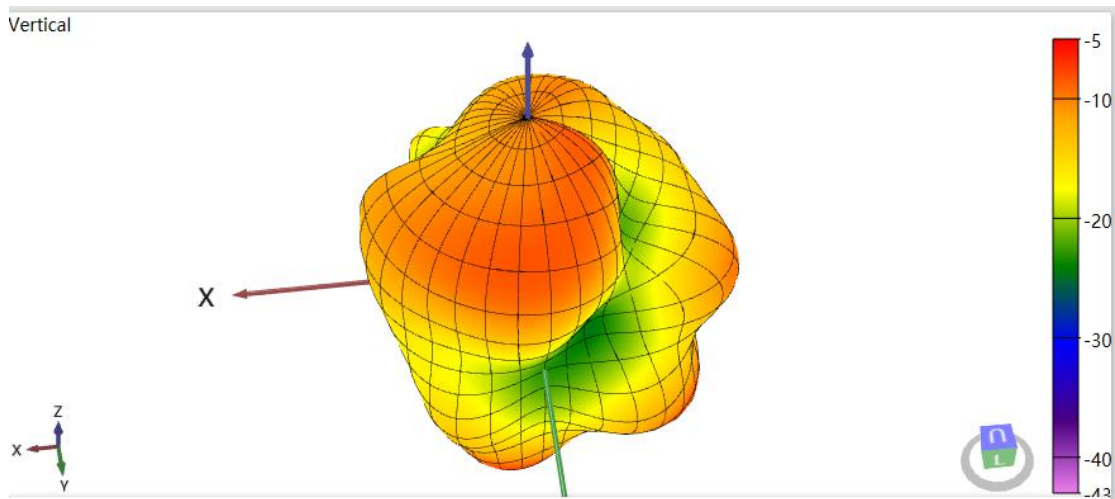
注：在研发及试产前执行以上机械及环境参数测试。

Note: The above mechanical and environmental parameters are tested before R&D and trial production.

## ANT 3D-Horizontal Pattern



## ANT 3D-Vertical Pattern



# ANT 3D-Total Pattern

