

承認書

APPROVAL SHEET

客 户
CUSTOMER:

品 名 规 格
DESCRIPTION: 2.4G rubber stick antenna SMA male and female needle - L103mm

料 号
PART NO.:

客 户 料 号
CUS PART NO.:

日 期
D A T E: 2024.11.25

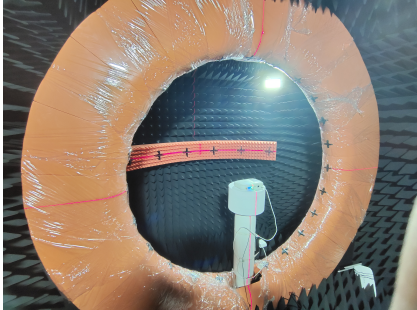
工 程 ENGINEERING DEPARTMENT	品 保 Q C DEPARTMENT	业 务 SALES DEPARTMENT

客户承认签章 Customer signature

工 程 ENGINEERING DEPARTMENT	品 保 Q C DEPARTMENT	采 购 PURCHASING DEPARTMENT

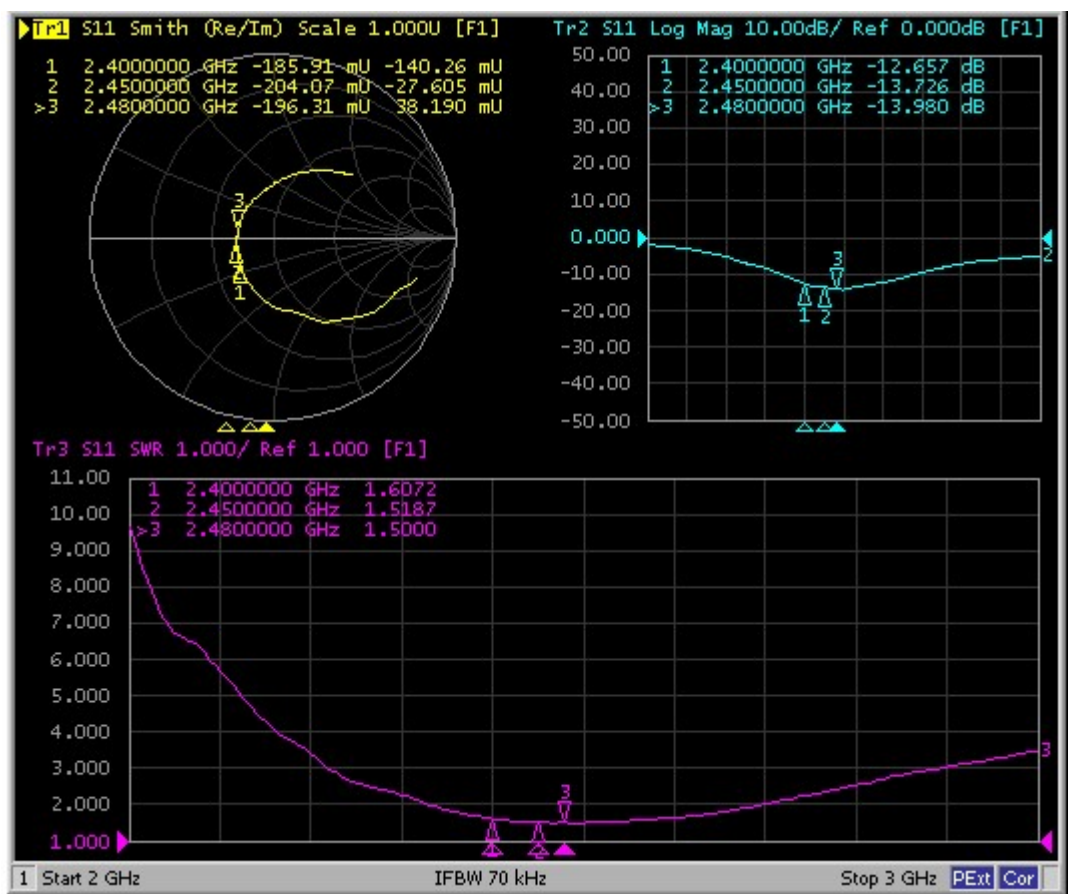
1. 测试项目与设备Test items and equipment

	测试项目 Test project	设备 equipment
1. S11 参数 (S-parameter)	1. 回波损耗 (Return Loss) 2. 电压驻波比 (VSWR)	Network analyzer:Agilent E5071B HP 8753D
2. 有源测试 (Active)	1. 发射功率 (TRP) 2. 接收灵敏度 (TIS)	1. Darkroom ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2.compcomprehensive test instrument: Agilent 896 0 E5515B ×2 StarPoint SP6011 Cmw500
3.无源测试 (Passive)	1.天线增益 (Gain) 2.天线效率 (Efficiency)	1. Darkroom: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. Network analyzer: Agilent E5071B HP 8753D



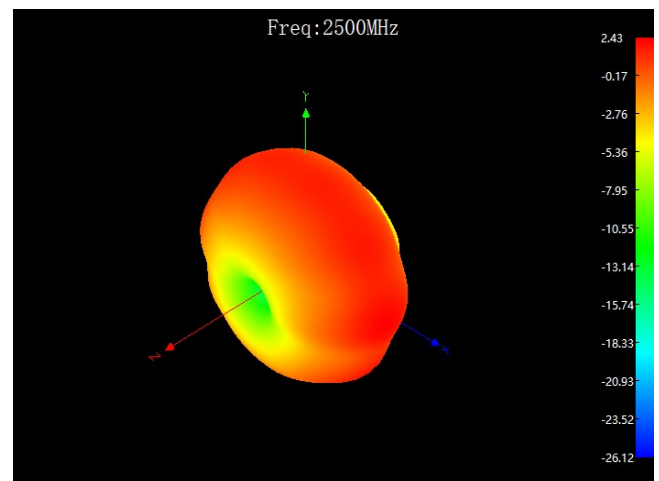
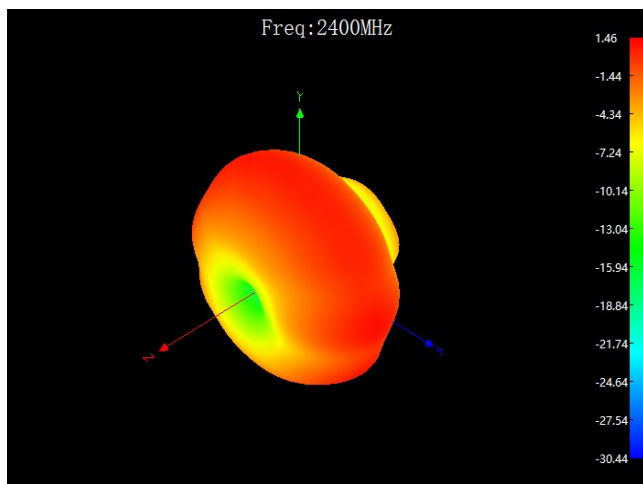
2. 天线性能Antenna performance

SWR

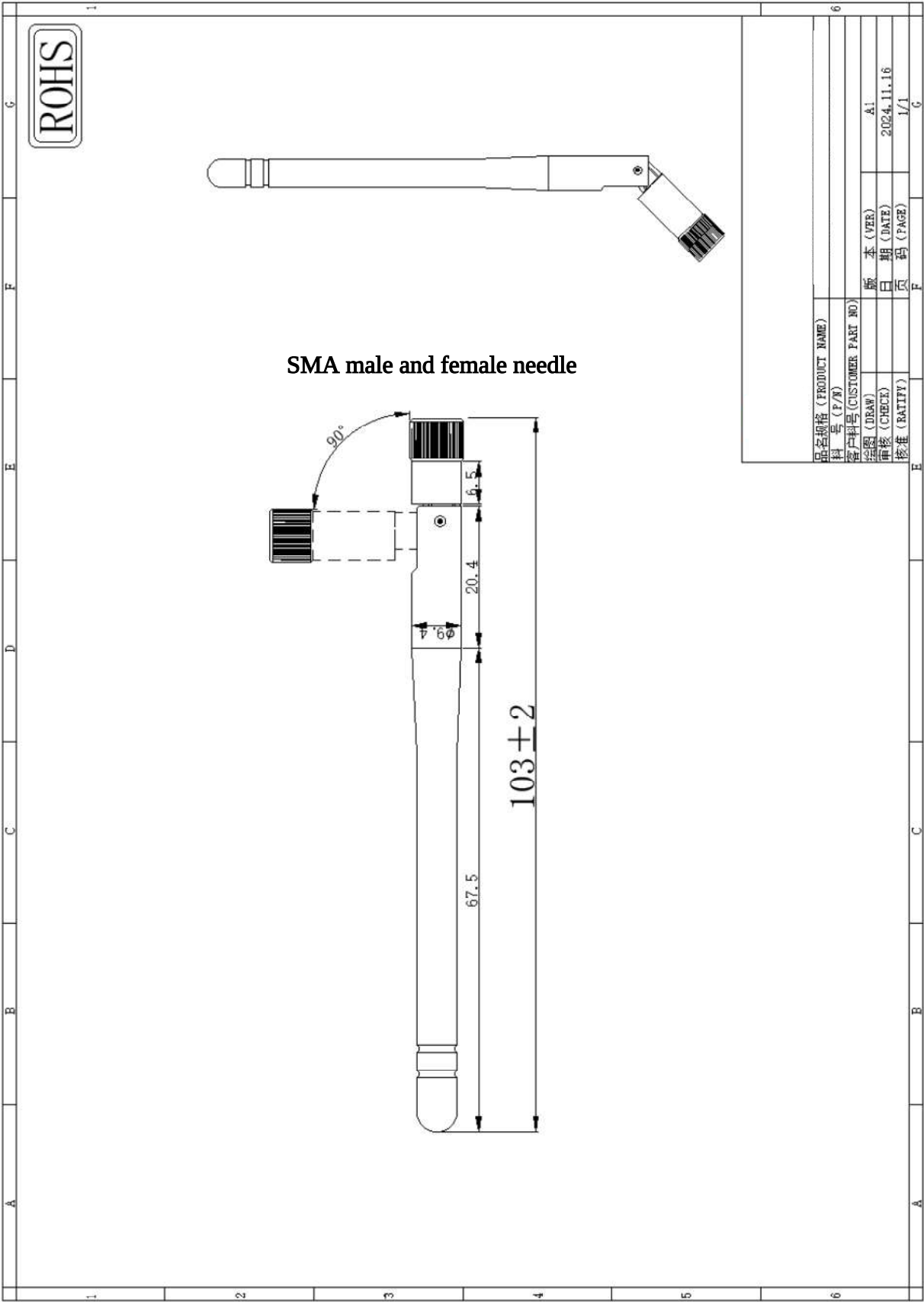


3. 天线效率与增益Antenna efficiency and gain

Frequency/Mhz	Efficiency / %	MaxGain/dBi
2400	63.1	1.46
2410	64.27	1.4
2420	66.53	1.45
2430	68.39	1.61
2440	67.3	1.65
2450	68.87	1.74
2460	70.63	1.7
2470	70.15	1.7
2480	71.45	1.99
2490	75.51	2.37
2500	77.8	2.43



4. 天线结构图: Antenna structure diagram



5. 电器技术参数Electrical technical parameter

电 性 能 指 标		Electrical Specifications	
频率范围	2400~2500MHz	Frequency Range	2400~2500MHz
电压驻波比	≤1.5	VSWR	≤1.5
输入阻抗	50 Ω	Input Impedance	50 Ω
增益	2 DBI	Gain	2 DBI
机 械 指 标		Mechanical Specifications	
天线颜色	黑色	Antenna color	Black
接口形式	SMA	Input connector	SMA
天线长度	103mm	Antenna length	103mm
工作温度	-40℃~+85℃	Working Temperature	-40℃~+85℃
工作湿度	20~80%	Working Humidity	20~80%

6. 环境性能测试（Environment performance test）：

项目	测试条件	测试结果
储存环境	在没有指定的情况下测试温度、湿度、气压如下： 1. 温度为-30℃~+80℃ 2. 相对湿度为45%-85% 3. 气压为86kpa-106kpa	电气机械性能正常
高低温试验	在70℃与-40℃之间进行5次循环，然后在正常条件下1-2H，检查外观质量。	尺寸应满足规定并应满足于机械、电气性能
耐恒定湿热试验	相对湿度95±3%，试验温度：40℃.持续2H作用后，试品取出后5min之内测定电气性能，试品在正常条件下1-2H，检查外观质量	尺寸应满足规定并应满足于机械、电气性能
振动试验	振频范围10-55HZ，位移幅值：0.35MM，加速度幅值：50.0M/S，扫频循环次数：30次	电气机械性能正常
跌落试验	1M高空按照互相垂直的轴方向自由跌落3次	电气机械性能正常

Project	Test condition	Test results
Storage environment	Test temperature, humidity, pressure without stated condition as follwings:1.Temperature: -30 ℃ ~ +80 ℃ ;2.Relative humidity: 45%-85%;3,Pressure: 86kpa-106kpa	Electrical and mechanical performance normal
High and low temperature test	Having 5 times cycle between -40℃ to 70℃,Then in common condition 1-2 hours test exterior quality.	Measurement satisfied with electrical and mechanical performance normal.
Resistance constant hot and humid test	Relative humidity:95±3%,Test temperature: 40℃,last 2 hours ,put it after 5 min test the electrical function .Test products during common condition 1-2 hours ,Then test exterior quality.	Measurement satisfied with electrical and mechanical performance normal.
Vibration test	Vibrate Frequency:10-55HZ; Distance :0.35mm;Acceleration :50.0m/s;Sweep frequency cycle:30 times	Electrical and mechanical performance normal
Fall test	From 1m height fall down 3 times freely (vertical direction)	Electrical and mechanical performance normal